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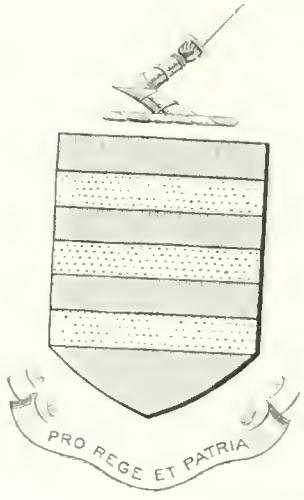

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Original Articles.

LABORATORY AIDS IN THE DIAGNOSIS OF ACUTE MASTOID DISEASE DUE TO ACUTE PURULENT OTITIS MEDIA.*

BY GORHAM BACON, M.D.,

NEW YORK.

IN the older works on Otology, pain which was described as being very severe, especially at night, was generally given as one of the most important symptoms of mastoid disease, and it was probably due to the fact that operative interference was not attempted until nature had made an opening through the outer wall of the mastoid bone, producing a subperiosteal abscess which was readily diagnosed as there was marked fluctuation on palpation, the auricle was pushed forward, and the patient in this stage always had an extremely septic appearance. Owing to the fact that at the present time patients are operated upon at a much earlier stage of the disease, pain is not such an important symptom. On the other hand pain is often absent or is only complained of at the commencement of the attack. The patient has a cold, perhaps a sore-throat or tonsillitis, followed by an acute suppurative inflammation of the middle ear. The pain in the ear may be very severe, and there may be a simultaneous tenderness when pressure is made over the mastoid process. After spontaneous rupture of the drumhead or incision of the bulging membrane by the surgeon, the patient may not complain of any further pain except when firm pressure is made over the mastoid bone. In some cases, especially of scarlet fever and diphtheria there may not be any complaint made of pain, and the involvement of the ear may be marked only by a sudden rise in temperature, followed by a bloody discharge from the auditory canal, which comes on very suddenly. In cases of tuberculosis, deafness and a discharge from the ear may be the only symptoms of an acute otitis media. In cases of influenza, especially in children, pain is often absent, and a high temperature with tenderness over the mastoid process, may be the only symptoms of an acute otitis media with simultaneous involvement of the mastoid cells.

It has been so impressed upon the medical profession by the early writers that a patient could not have any serious trouble with the ear, unless there was considerable pain, that it is often difficult for the otologist to convince the family physician that some of the most serious cases are those in which the pain is slight or at times absent. In such cases the infection is apt to be a virulent one.

Very frequently a child will have a slight earache of short duration, accompanied by what is apparently an acute intestinal attack. As the child only complained of an earache for a very short time the case is treated for intestinal disturbance. Calomel is given and the child seems better, but the fever persists, and the physician calls in a specialist who finds a bulging drum membrane with some tenderness over the mastoid cells. Incision of the drumhead, which is followed by a profuse discharge, may terminate in recovery in a short time or what more often occurs, the mastoid bone becomes more sensitive to pressure, and a mastoid operation becomes necessary. In such a case, if the ear had been examined when the child first complained of the slight pain, it would probably have been found that the drumhead was bulging and an early incision would have prevented a mastoid operation.

We frequently see patients who complain of pain which is often quite acute when pressure is made over the mastoid. This either accompanies or follows an acute purulent otitis media. In a few days this tenderness may be extremely slight or it may disappear. The patient says he feels much better, is free from pain, and believes that he is on the high road to recovery. Such a patient generally has a badly coated tongue, a slight elevation of temperature, and examination of the auditory canal will show the presence of a yellowish green and thick muco-pus. Sometimes it is tinged with blood. When we remove the pus from the canal we will find in a few moments that more pus has forced its way through the perforation in the drumhead and that in a very short time the auditory canal will be again filled. This rapid escape of pus, thick in character, which is seen a week or ten days after the onset of the disease, which is becoming more copious instead of diminishing, is a very characteristic symptom of mastoid disease and almost always means that a mastoid operation is imperative. I consider this as the most important symptom of mastoid disease and when present, a patient seldom escapes a mastoid operation.

Another very pathognomonic symptom is a sagging of the posterior and upper wall of the external auditory canal and a bulging of the posterior and upper portion of the membrana tympani.

The temperature in acute suppuration of the mastoid cells is often high in young subjects, especially when the infection is a virulent one.

In adults the patient will often have a temperature of 99.5 at night and it frequently is normal in the morning. A physician who has not had much experience in aural diseases will find it difficult to believe that a patient requires a mastoid operation when he does not complain of pain, and the temperature is only slightly above normal, especially when he makes pressure over the mastoid bone and finds that the bone is not sensitive. Some of the worst cases that I have observed have been those in which pain on pressure was absent. In such

*Read at the 262d regular meeting of the Practitioners' Society of New York, April 3, 1914.

cases we often find the dura exposed and thickened, as well as the sigmoid sinus, which may be covered with granulations—showing the presence of an extradural abscess. The outer wall of the mastoid is often very thick, which may account for the absence of pain on pressure.

Mosher of Boston has devised a transilluminator which is of value in some cases. It consists of an ear speculum closed at both ends but with a window on one side near the tip, through which the rays of an electric light are transmitted. There is an air space about the lamp, so that the speculum heats up very slowly. The patient is taken into a darkened room, the lamp adjusted to its maximum brilliancy, and the speculum inserted into the auditory canal with the window placed posteriorly. It is made to close the meatus firmly so that no light comes through the auricle.

By examining both mastoid processes one can determine whether there is any cloudiness on the affected side.

I believe that the clinical symptoms are always the most important factors in cases of mastoid disease and should give us sufficient information to decide as to the advisability of operative interference. The laboratory, however, has of late years rendered us considerable assistance, and I want to call your attention this evening to the importance of, First, skiagraphy, secondly, the microscopical examination of the pus from the tympanum, and thirdly, daily examinations of the blood to determine whether the leucocytosis is increasing or decreasing, and what relative changes are taking place in the cell percentage. To quote from my text-book, "Skiagraphy is now being extensively used for the purpose of determining whether or not the mastoid is involved and to what extent. This method of examination has proved useful in cases where the clinical symptoms are insufficient for a positive diagnosis of mastoiditis, and is particularly applicable to those cases of furunculosis which simulate mastoid involvement, and to cases of mastoiditis due to the *Streptococcus mucosus capsulatus*, which at a certain stage may present, few if any, clinical symptoms. It gives us advance information of the character of the bone, whether it is of a pneumatic or diploetic type or a combination—the arrangement of the cells; the location of the sinus in the majority of instances, whether it is near the surface or covered with cells, and it will frequently show the size and location of the mastoid emissary vein and its diverticula if any are present.

A series of *x*-ray plates may be of great value in showing an increasing cloudiness due to an empyema or intense inflammation, or the skiagraphs of the mastoid process may become gradually clearer and thus indicate a resolving mastoiditis.

Dr. Dixon, pathologist to the New York Eye and Ear Infirmary, has done a great amount of work in skiagraphy, and in the examination of smears to determine the nature of the infection in cases of suppurative inflammation of the ear and its complications, as well as in examination of blood, including blood cultures. Dixon is able now with the vast experience that he has had, not only to tell us whether there is a cloudiness of the mastoid cells, together with the position of the sinus, but whether in certain cases there are deep cells which contain pus or granulations. I have the reports of a number of operative cases in which skiagraphs were taken before operation, the accuracy of which was verified subsequently when the mastoid cells were opened. An *x*-ray is taken of all cases of mastoid disease at the infirmary in which the advisability of an operation is questioned, and it is particularly in this class of cases that much help can be given us by skiagraphy.

Then, again, an *x*-ray gives us the position of the sigmoid sinus, a most important point because it is sometimes liable to be injured if its course lies close to the antrum.

A good many years ago I asked Dr. Dixon to examine the discharge, microscopically, from the ears of my patients in the infirmary, and this work has been continued ever since with the result that much valuable information has been obtained.

To quote from my book: "During the past eleven years it has been the routine practice at the infirmary to have smear preparations examined in every case admitted to the wards to determine the nature of the infection. Dr. Dixon reports that 5496 such examinations were made during this period, a small proportion being cultivated in unusually interesting and doubtful cases. Of these cases 26.6 per cent. showed a mixed infection, that is, there was a large number of mixed germs, and it was not advisable to assume that the infection was due to any particular germ. The majority of these were chronic cases. In 24.8 per cent. the streptococcus was the predominating germ; in 12.2 per cent. the pneumococcus; in 7.4 per cent. the staphylococcus (aureus and albus); in 4.8 per cent. the *Streptococcus mucosus capsulatus* predominated, while the spirillum of Vincent was found in 1.8 per cent. of the cases. The remaining 22.4 per cent. were miscellaneous, negative, etc., among which were placed the *Bacillus pyocyaneus*, diphtheria bacillus, tubercle bacillus, *B. coli communis*, Friedlander's bacillus, etc. Dr. Dixon has found that the pus taken for examination from the external auditory canal usually shows a mixed infection—that is various microorganisms; but generally the predominating germ is found in the mastoid cells, the sigmoid sinus or brain itself, when these regions are involved. The streptococcus is found frequently in pure culture in cases of infective sinus thrombosis while the microorganisms from the auditory canal may be of the mixed variety. If both the streptococcus and pneumococcus are found in the external auditory canal, we are apt to find these organisms associated in the more deeply seated suppurations, the other microorganisms which may have been present in the discharge from the canal having disappeared.

I quite agree with Dixon when he says that the *Streptococcus mucosus capsulatus* is the most insidious germ the otologist has to deal with. There is apt to be extensive bone destruction when this germ is present. The pain and tenderness may disappear in such cases and the temperature and pulse become normal, but if the discharge persists after two weeks' time, there is grave danger of complications unless a mastoid operation is performed. In cases in which both mastoid processes are opened, it is most important to know the predominating germ because we may have a mixed infection on one side and a virulent streptococcus infection on the other. In such cases when symptoms of infective sinus thrombosis have followed, I have opened the sinus in which the infection was the more virulent and have generally located the thrombus in this way.

Dixon has devoted a great deal of time in the

infirmary to the subject of leucocytosis and has examined the blood in a great number of cases and his conclusions are that in cases of acute otitis media, with mastoiditis as a complication, the leucocytosis ranged from 5,000 to 17,800, and the average polynuclear percentage was within normal limits and that it was not until the more serious complications occurred, such as epidural abscess, sinus thrombosis, and intracranial invasion that the blood count began to have any very marked significance. Important information can be obtained from daily examinations of the blood to determine whether the leucocytosis is increasing or decreasing and what relative changes are taking place in the cell percentage. A most important point to start from would be a knowledge of the normal average leucocyte count and cell percentage in each individual. Impracticable as this may appear, I feel it to be the only rational basis from which to draw conclusions in individual cases.

Dixon read a paper entitled "The Combined Laboratory and *X*-ray Indications for the Mastoid Operation" before the Medical Association of Greater New York on February 17, 1913, in which he speaks of the insidious and destructive character of the *Streptococcus mucosus capsulatus*. He reports six cases of acute suppurative otitis media due to this germ and followed by inflammation of the mastoid cells, which were taken from the records of the hospital, one of them being a patient of mine. These patients all died, five of meningitis and one of brain abscess. According to my experience the most virulent infection is that due to the *Streptococcus mumosus capsulatus*, after that the streptococcus, then the pneumococcus, and lastly the staphylococcus.

In this paper Dixon says "It is not to be understood that the blood count, the form of infection, or positive *x*-ray findings alone can be relied upon to any considerable extent as determining the necessity for a mastoid operation. The clinical symptoms are all important; without them our modern aids are of little value. We may have a rather violent streptococcus infection in the canal, or a pneumococcus infection which looks vicious in the smear, but both may recover after myringotomy, though there may have been considerable mastoid tenderness. In either streptococcus or pneumococcus cases (though we believe more liberty can be taken with the latter, as a rule), the danger signal may be a sudden rise in the polynuclear count, with or without an increased leucocytosis, especially the latter. A positive *x*-ray plate will again settle the diagnosis, though the clinical symptoms may not alone be sufficient to indicate the mastoid operation."

47 West Fifty-fourth Street.

SOURCES OF ERROR IN THE DIAGNOSIS OF PULMONARY TUBERCULOSIS.*

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Scientific investigations depending on careful and exact measurements of concrete facts, areas, distances or certain vital phenomena have shown that human observations are often peculiarly and distressingly liable to error because of inevitable fallacies in observation, measurement and calculation. In fact, there have been devised special methods for the calculation of the so-called "standard deviation," and the "probable error" currently used in dealing with mathematical and statistical facts, be they such as are ascertained by astronomers while measuring rates of motion or distances of heavenly bodies, the size and shape of leaves, stalks, and fruits or other morphological data by botanists, the dimensions of the human body as determined by anthropometrists, or the various vital, social, and psychic phenomena which have been measured with greater or lesser accuracy by the biometricians. Medical diagnosis has not yet reached that stage of perfection as to be considered a science, and the chances of error are consequently greater than encountered in those branches of knowledge which are based on exact mathematical measurement and calculation. It is for this reason that the sources of error are prolific and exact diagnosis depends to a great extent on the personal equation of the clinician, and error is at times unavoidable. In the diagnosis of such an insidious disease as phthisis the errors into which we are liable to fall are almost invariably of such immense importance to the patient as well as to those who have to live and work with him, that a summary review of the causes why we so often fail to recognize this disease in its incipiency, or even in the advanced stages; or why we often believe we have discerned its presence in persons who are not at all tuberculous, may stimulate us in the direction of greater care, judgment and caution before expressing an opinion in doubtful cases and thus reduce the number of diagnostic errors to a minimum.

Of course, when speaking of tuberculosis the active form of the disease, phthisis, is referred to. Infection with the tubercle bacillus is one of the most common of pathological phenomena among modern city dwellers, and it is doubtful whether many escape it. It is also one of the easiest to diagnosticate by means of the harmless cutaneous tuberculin test devised by von Pirquet. A positive tuberculin reaction, which may be found in seventy-five to one hundred per cent. of adults in cities in Europe and America is reasonable proof that the person has been infected with tuberculosis at some time of his life; but it by no means indicates active phthisis, and we must always bear in mind that what we attempt to ascertain is the latter, and not merely infection which is mainly of theoretical importance. That we often fail in our attempts is evidenced by that large contingent of persons of both sexes and all ages who have been told that they were not at all tuberculous but only suffer from mild innocuous "colds," bronchitis, pharyngitis, malaria, gastritis, etc., until they found themselves in an advanced stage of phthisis when treatment is of little avail; and also by the large number of persons who were told years ago that they suffered from tuberculosis, yet without any care or treatment they have been working steadily and feel healthy, often frivolously referring to alarmist doctors who had scared them without any reason. The sources of error in this sort of cases will be discussed in this paper.

The diagnosis of phthisis is often difficult, but more difficult indeed is to decide in many cases when one is not suffering from this disease. It seems to me that by pursuing the inductive or analytic method we are on safer ground when we attempt to discover or exclude phthisis than by

*Read before the Association of Physicians attending the Tuberculosis Clinics of New York City, April 8, 1914.

following the deductive method which is more often used by physicians than it should. By ascertaining the clinical facts of the case the subjective symptoms and the physical signs revealed by exploration of the chest we can, in the vast majority of cases, arrive at a reliable conclusion as to the nature of the process we are dealing with. When we find that a person has been coughing for some time, losing weight and strength, has had fever even of a slight degree, has night sweats and feels fatigued after slight exertion, and also shows signs of a localized and circumscribed infiltration in the lung, we may decide in favor of phthisis. This is a safe decision in most cases, but there are many exceptions in which any or all of these symptoms and signs may be present, yet the person may not suffer from active phthisis as is shown by the subsequent course of the case. On the other hand, not all these symptoms and signs are encountered in many cases of phthisis, or they are not clearly evident and easily overlooked by the patient or his physician, and the result is that the diagnosis is made rather late and the chances of complete recovery are proportionately diminished. Let us see the causes of these errors which are made more often than they should and ascertain whether they are at all avoidable.

Contact Infection.—One of the greatest sources of error in the diagnosis of tuberculosis is a history of contact with a consumptive. It appears that everything has been considered a sign or symptom of tuberculosis excepting the name of the patient and each author has his favorite and infallible criterion for diagnosis, but nearly all agree that when in addition to any obscure and doubtful symptoms there is also a history of exposure the diagnosis is clinched. Now, to my mind this is one of the greatest fallacies we have to cope with. No one living in a large industrial city escapes exposure to infection with the tubercle bacillus, and in fact practically everybody has been infected as is evident from data brought out by the most delicate of tests for infection, the tuberculin reaction which only rarely fails. The ubiquity of the tubercle bacillus is even greater than is generally appreciated. It is, however, a traditional dictum among physicians to accuse all those who have lived with consumptives of being sick with phthisis. As regards infants there is great justification for alarm, but it is different with adults who have surely been infected during childhood and reinfection is known to be exceptional, perhaps impossible, and a history of exposure is of no value and is no criterion of morbidity. This is best proven by a consideration of persons who are most exposed to infection through intimate contact, such as husband and wife. The fact is that marital phthisis is relatively scarce, which tends to point to some form of immunity acquired through constant and intimate association with consumptives. It also appears that physicians, nurses, and hospital attendants in sanatoria and hospitals for consumptives, are no more liable to suffer from phthisis than other classes that only rarely come in close contact with tuberculosis. This is true not only at present when precautions are taken to prevent infection in sanatoria, but was already observed some forty years ago by C. Theodore Williams at the Brompton Hospital, and used as an erroneous argument against the transmissibility of tuberculosis. It is, therefore, erroneous to pronounce a widow, whose husband died from tuberculosis, as phthisical without valid clinical evidence, as has been the rule among those who are active in the campaign against the white plague. In this city I find it very often difficult to convince persons who have been exposed to infection that they are not sufferers from phthisis. The least cough or debility scares them to an unreasonable extent, and they are supported as a rule by physicians as soon as they give them a history of exposure.

Sources of Error in Bacteriological Diagnosis.—The diagnosis of active tuberculosis is clinched by the finding of tubercle bacilli in the sputum, but is not at all excluded by negative bacteriological findings. Unfortunately too many wait rather long for the bacilli, thus losing valuable time which can not often be reclaimed by any known means. I find this one of the most common fallacies in the diagnosis of incipient tuberculosis. We must always bear in mind that tuberculosis begins as an infiltration of the peribronchial tissues which may remain for a long time beneath the mucous membrane of the bronchi, and it is thus clearly evident why the sputum may not contain any bacilli for a long time, till the lesion is quite advanced, when caseation and softening has taken place and the products of tissue disintegration are eliminated by breaking through a bronchus. In many cases waiting for tubercle bacilli in the sputum is as hazardous as waiting for pus to make its appearance through a fistula or sinus before diagnosing tuberculous joint disease.

From the theoretical, and especially from the statistical standpoint, the finding of tubercle bacilli in sputum is a sure indication of active phthisis, and among thousands of cases the number in which this is not the case is undoubtedly small and insignificant. But with an individual patient, as we deal with in our offices or clinics, even in this there may be a source of error which is hardly ever mentioned while discussing the problem. In New York City we meet with many persons who have reports from some private, or the municipal laboratory, stating that the sputum of the bearer has been examined and found to contain tubercle bacilli. Yet, without any treatment or special care, they have kept at work for years and felt well. Indeed, many cases are admitted to sanatoria solely on the strength of positive sputum findings to be declared non-tuberculous after careful clinical observation. The reason for this anomaly is to be sought for in several facts which have not been emphasized as strongly as they should. I have no doubt that many cases in which the sputum was examined in a busy laboratory there may have occurred some mistake in handling the sputum bottles, in numbering the slides, or while entering the findings in the report. Laboratory workers are human, and even with the most conscientious care which they usually exercise they are liable to err, just as bank clerks occasionally do, though the latter find their mistakes as soon as they attempt to add up their columns, while laboratory workers may never know of an error committed. But in addition there are other sources of error in the examination for acid-fast bacilli. The rod-shaped bacillus which is the cause of tuberculosis is not the only acid-fast microorganism we know. There are many others which, on staining, simulate the tubercle bacillus to an extreme degree. They are found in butter, milk, on graminacea, in the soil, in dung and manure, and even in tap water supplied through metal pipes. We may recall the search

for tubercle bacilli in the blood of consumptives that has been going on during recent years, and that some bacteriologists have discovered the bacilli in fifty to one hundred per cent. of tuberculous, and also in a large proportion of apparently healthy persons. Other investigators have, however, found the sources of error in these cases. Walter V. Brem has shown that the acid-alcohol resisting organisms were found eventually in fresh distilled water, in tap water, in old distilled water made with care in a pathological laboratory. These microorganisms were dead or non-pathogenic to guinea pigs, but they gave the usual staining reactions. Then we have the smegma bacillus, which has been mistaken for the tubercle bacillus, and led to erroneous diagnosis and extirpations of healthy kidneys. There is also the acid-fast lepra bacillus and the bacilli which greatly resemble it and found in the secretions of the mucous membrane of the nose, and also the acid-fast rods found in the saliva and in the secretions in cases of bronchitis and pulmonary gangrene.

In a recent communication Dr. L. Napoleon Boston reports on finding tubercle bacilli in sputum of acute colds and influenza with disappearance during convalescence. In the cases observed by him careful physical examination failed to disclose positive evidence of a pulmonary lesion, although the signs of acute bronchitis were more or less well marked in each case. Many showed a greater tendency toward violent irritation of the nasal mucous membrane than they did of the bronchial tract. In some instances the sputum was slightly tinged with blood. They all made rapid and apparently permanent recoveries.

Many of these microorganisms are difficult to differentiate from tubercle bacilli microscopically, through culture and even by animal inoculations. It has also been found that the spores of lycopodium are acid fast, so that persons taking pills covered by that substance may impart some to the sputum and thus lead to error. There is a possibility that the acid-fast specks or rods found in sputum may not have been there before it left the bronchial tubes and trachea, but got into the sputum while it was passing through the pharynx, mouth, or lips, especially in a house inhabited by a careless consumptive. It is also important to mention a striking fact that ordinary smear preparations are less likely to lead to this sort of error than the antiformin method.

To be sure, the most reliable sign of phthisis is finding of the bacilli in the sputum, and I do not at all intend to underestimate its significance. Statistically the chances of error just mentioned are undoubtedly insignificant. But as has already been stated in the individual case, especially when the course of the disease is not such as would be expected in phthisis, it is of immense importance to bear in mind that an error may have crept in somewhere.

Abortive Tuberculosis.—In many of these cases we actually deal with active pulmonary tuberculosis which ran an abortive course. The notion that phthisis is invariably a progressive disease, running a certain course, variable within certain limits and terminating in death, or, when timely and properly treated, in recovery, is erroneous. There are more cases that are aborted within a few months than those which pursue the usual acute or chronic course which we are wont to consider phthisis, as is evident from the enormous number of persons dying from any cause who show healed lesions at necropsy. I have no doubt that in many cases in which we believe that our diagnosis of active tuberculosis was rendered doubtful by the mild and short course of the malady and the prompt recovery of the patient, we have dealt with abortive tuberculosis of which I have spoken in detail elsewhere.

Tuberculin.—In sanatoria, after all the available means of diagnosis have been exhausted, or even before, tuberculin is used to clear up doubtful cases, and the outcome of this test is considered specific. Personally I have never been impressed with this diagnostic agent. From the scientific standpoint we are far from having sufficient and satisfactory proofs to speak with certainty about the cutaneous tuberculin test and its underlying causes, and from the theoretical standpoint, its specificity has not been proven conclusively. The cutaneous tuberculin reaction is admittedly of little value as a diagnostic agent for active tuberculosis in individuals over two years of age. It also appears that other toxins, such as that of typhoid, cholera, dysentery, etc., give the same skin reaction in tuberculous individuals as tuberculin. Conversely, there are records of autopsies in which the reaction was positive during life and no macroscopic tuberculous changes could be found in the body.

The subcutaneous tuberculin reaction has also been found to lead to erroneous conclusions in some cases. In a recent collective inquiry in Germany most of the replies were to the effect that many cases of active tuberculosis are met with in which the reaction is negative, and *vice versa*. In addition, it must be mentioned that the heightened susceptibility of the tuberculous to suggestion plays a great rôle, and that an injection of water, *injectio vacua*, may give a typical tuberculin reaction with fever, malaise, aching of bones and joints, etc. F. Kohler found that 21.7 per cent. of his tuberculous patients responded to the *injectio vacua* in the same manner as to tuberculin, and Lorenz and others have confirmed this observation. On the other hand, it has been found that five to ten per cent. of persons clinically free from active tuberculosis give positive reactions to the tuberculin test. It is thus evident that we are not justified in relying implicitly on the results of the tuberculin test when attempting to clear up a doubtful case. Considering that it is by no means devoid of danger, it is clear that it should not be used as often and indiscriminately as it has been.

Hemoptysis.—When we consider the subjective symptoms of tuberculosis which are liable to mislead, we must always bear in mind that hemoptysis is one of the most unreliable symptoms of this disease, although a great clinician once said that it is always of tuberculous origin unless proven to be caused by some other condition. But it is just because the vast majority of hemoptyses are of tuberculous origin that when it is derived from some other source it may at times prove a strong source of error. I need not dwell on the cases in which it is due to bleedings from the nose, throat, gums, or stomach, which are quite frequent; nor need I more than mention that acute inflammations of the trachea and larynx may be accompanied by blood-tinged sputum, and that the blood may be derived from angiomata of the esophagus. But I shall emphasize the frequency with which we meet hemoptysis in cases of organic heart disease, espe-

cially mitral stenosis. Inasmuch as these patients are often emaciated, cough, and occasionally run mild fever, the diagnosis of tuberculosis is at times made erroneously. It is, in fact, usually supported by some physical signs in the lungs, because many cardiacs show some defective resonance, alteration of breath sounds and even râles at one apex. I have seen numerous patients suffering from organic heart disease who are cared for in the tuberculosis clinics and day camps in this city. This source of error can, as a rule, be eliminated by carefully examining the heart in each case and bearing in mind that while tuberculosis is not entirely excluded in cases of heart disease, it is extremely rare, especially in mitral stenosis.

Hemorrhages in cases of bronchiectasis are also a cause of error in diagnosis, and it is often very difficult to differentiate between bronchiectasis and advanced phthisis. I have been guided by the general nutrition of the patient, relying on the fact that a large proportion of bronchiectatics are fairly well nourished, while the tuberculous having such extensive involvement of the lung with so many large consonating râles are cachectic and run a hectic type of temperature. But even this is liable to mislead because we have occasionally cases of phthisis in which the panniculus adiposis is quite well preserved, or with marked and annoying obesity. Other points in differentiating these conditions are that the sputum in tuberculosis is only rarely fetid and usually contains tubercle bacilli, while in bronchiectasis it is often extremely malodorous and is evacuated periodically in large quantities. Syphilis of the lungs is also at times accompanied by hemoptysis. The Wassermann reaction is of some assistance in diagnosis which is very difficult in many cases. In syphilis the lesion is usually localized in the lower lobes, and the dyspnea is severe, out of proportion to the extent of pulmonary involvement. In most cases the therapeutic test alone can decide—an extensive process clearing up after the administration of a dose of salvarsan or mercury for a month.

Fever.—Active phthisis, even in its very incipiency, is accompanied by fever, and it may be laid down as a rule which has few, if any, exceptions that if there is no fever there is no active tuberculosis. But when we attempt to elicit the fever in incipient cases we are often misled to a perplexing degree. In nearly every case of incipient tuberculosis we find a subfebrile temperature during the afternoon or evening. The elevation of temperature may be of only one or two degrees, but it can be found if carefully looked for, and in many cases some subnormal temperature may be found during the early morning hours. Measuring the temperature in these cases, if not done methodically, is open to many fallacies. It must be taken at least every three hours, because when taking it only three times a day we are apt to fall into the grave error of pronouncing a patient free from fever, when in fact he has had a subfebrile temperature which escaped our attention. Thus there may be a rise of one or two degrees at two o'clock in the afternoon which fades away within two or three hours, and when we take the temperature only at about 7 A.M., 12 M., and 6 or 7 P.M., we may find it normal. In such cases, if the temperature had been taken every two hours we would have found that at 5 to 7 A.M. it was subnormal, 96.5° F. to 98 F., while at 2 to 5 P.M. it was 99.5° F. to 100° F. There may also be rise of temperature exclusively during the night, and thus remain undiscovered. Other sources of error in suspicious cases of phthisis are bad thermometers, which are more frequent than good ones, and the taking of the temperature in axilla, or mouth. The ways to avoid these fallacies are obvious. In my experience intelligent patients may be entrusted with taking their own temperature and keeping a record of each reading in a note book. I have had some patients who gave me reliable data for plotting temperature curves from figures representing thermometrical readings every two hours for weeks, and very often this has been of great assistance in clearing up doubtful cases, and arriving at a conclusion much earlier than I could had I not temperature curves representing thermometrical readings every two hours.

We are, however, apt to fall into error when we rely solely on the slight elevations of temperature for a diagnosis of tuberculosis without localizing the lesion in the chest. Thus, many cases of chlorosis and other blood diseases show a slight elevation of temperature in the afternoon, or after moderate exertion. Purulent diseases of the accessory sinuses of the nose and chronic infection of the tonsils may act likewise, and so may ulcer of the stomach, syphilitic disease of the liver, exophthalmic goiter, chronic inflammations of the female pelvic organs, and last, but not least, bronchiectasis, etc.; they may all show slight fever which is not unlike that of active tuberculosis.

Percussion.—It is thus evident that the diagnosis of tuberculosis should only be made when we have definite signs of a local lesion in the lung, and this can only be done by careful and conscientious physical exploration of the chest and with the aid of radioscopy. But here also there are many sources of error which must be borne in mind, especially in doubtful cases.

Differences in the resonance elicited when the two sides of the chest are comparatively and symmetrically percussed, especially in its upper third, are the best indications of airless pulmonary tissue in the less resonant area. But to make a diagnosis of an active tuberculous infiltration with this sign alone would be sheer madness in a large proportion of cases. Thus we may have differences in resonance, when the two sides of the chest are compared, due to faulty technique of percussion, also because of asymmetry in the contour of the thorax, in cases of kyphosis, or scoliosis, or unilateral hypertrophy of the muscles. Dull areas must also be properly interpreted if we want to avoid errors. Chronic pneumonic processes, healed apical pleurisies, and especially collapse induration caused by the inhalation of dust in persons affected by mouth breathing may be mistaken for tuberculosis. The last is so often a cause of error that one must be on his guard when finding signs of airless lung tissue in the right apex and not be too ready in making a diagnosis of incipient tuberculosis. We also find occasionally dullness in the apices among persons leading a sedentary life, particularly chlorotic girls who do not breathe deeply, and for this reason a good way to reduce the chances of error to a minimum is to make the patient breathe deeply for several minutes and also to practise Da Costa's method of respiratory percussion, which often clears up a case otherwise obscure.

Percussing the apices we must also remember that only infiltrations located superficially can be demonstrated by this method of examination, and

that small airless areas surrounded by normal lung tissue do not impair resonance; in fact, they may impart a tympanitic quality to the percussion sound. The percussion stroke does not penetrate deeper than six centimeters into the chest, and from this is to be deducted some two or three centimeters making up the parietes, so that the percussion blow reaches only three to four centimeters deep into the lung. It is thus obvious that centrally located infiltrations can not be made out by percussion, and in cases of emphysema the difficulties are even greater, at times invalidating this method of exploration. Some lesions are surrounded by vicariously emphysematous lung tissue and escape detection, while disseminated tubercles relax the lung tissue and may produce tympany. This can be seen in many incipient cases in which the lesion is centrally localized at one apex, or better still, in acute miliary tuberculosis in which the tubercles are scattered all over both lungs and the resonance all over the chest is tympanitic. In fact, we often meet with cases in which apical percussion reveals no deviation from the normal, yet auscultation, sputum examination, symptomatology, and course of the disease all combine to show that we are dealing with an undoubted case of active tuberculosis.

Radiography.—Radioscopy, while of immense importance, and often giving clues as to pathological processes in the lungs which could not be elicited by any other diagnostic procedure, is subject to just as many chances of error as percussion. Both radioscopy and percussion, when carefully performed and interpreted, show localized areas of airless tissue. In the former it is shadows and mottling that indicate the affected areas, and in the latter defective resonance and dullness in an area that normally should be as resonant as the opposite side of the chest betrays the affected spot. But we are not always justified in assuming that these airless areas are due to tuberculous infiltrations. The chest showing no shadows suggestive of pulmonary or glandular lesions on the roentgenogram has hardly been met. Persons clinically free from pulmonary disease often show on the radiogram shadows and mottling exactly like those of active pulmonary tuberculosis, which is to be expected considering that the *x*-ray picture discloses not only active pathological changes in the thoracic viscera, but also traces of all the changes that have taken place in these organs during the lifetime of their owner. It is also a fact that early tuberculous lesions, slightly enlarged bronchial glands, unless caseated or calcified, as well as mucous secretions, usually permit the rays to pass through without casting any shadow on the plate. On the other hand, optical sections of blood vessels, due to any condition that may cause vascular engorgement, may show opacities on the plate simulating those characteristic of tuberculous lesions and may thus lead to error. Even when the airless areas revealed by the roentgenogram have been caused by a tuberculous process we are not justified to conclude invariably that the disease is active, because healed lesions in the lung, unless covered by emphysematous tissue, remain less resonant on percussion than normal lung tissue, and permanently show shadows on the radiogram. Whether a lesion, discovered by percusion or radiography, is active, can only be determined by a careful consideration of the accompanying symptoms and signs of the disease.

Other sources of error in radioscopy of the chest are: Asymmetry of the thorax due to spinal deformities and the differences in the intercostal spaces resulting from them; unequally developed muscles on the two sides, enlarged breasts in women and occasionally in men, etc., all of which may show shadows on the radiogram which are not due to pathological processes in the lung proper. It is also precarious to consider all shadows and mottlings in the region of the hilus as caused by enlarged tuberculous glands because there are other conditions which may be responsible. To mention but few other sources of error, it must be always borne in mind that we may find shadows in the upper part of the lung which are not due to tuberculosis, but to simple atelectasis, acute non-tuberculous pulmonary indurations, and also collapse induration, as well as compression of the apex by an enlarged thyroid, etc.

Auscultation.—Auscultation, which is the method of exploration of the chest mostly resorted to and relied on by physicians, is subject to erroneous interpretation to the same extent as any other diagnostic method. In incipient tuberculous lesions the changes in the breath sounds and the adventitious sounds encountered, to be of significance, must be localized and persistent for some time. Evanescent râles, unless accompanied by important signs and symptoms, are, as a rule, of no significance. When we hear changed breath sounds and râles scattered all over the chest the chances of it being of a tuberculous nature are rather slight, though not invariably excluded. Tuberculosis implanted in a chest affected by general bronchitis, or pulmonary emphysema is difficult, often impossible to diagnose without positive sputum findings. The localized tuberculous process can not be delineated and differentiated because it is obscured by the large number and variety of adventitious sounds heard all over the chest. But even unilateral lesions are apt to be misleading. There are simple, non-tuberculous apical catarrhs, especially after attacks of influenza, in persons with pulmonary emphysema, or who are of poor muscular development, particularly women, and among individuals engaged in indoor and dusty occupations. I have recently been impressed that in a large number of persons working in dusty workshops, inhaling animal and vegetable dust, the breath sounds at the right apex are harsh, the expiratory murmur prolonged, often of a bronchovesicular or even bronchial character. Among several hundred apparently healthy tailors, furriers, carpenters, etc., that I have examined annually during the past ten years, I found that about fifty per cent showed such changes in the auscultatory phenomena of the right apex in various degrees. When such persons are attacked by influenza, rhinopharyngitis, tonsillitis, etc., and run a mild fever for several days, cough, expectorate, etc., and a careful physical examination is made, a fallacious conclusion is apt to be drawn, and tuberculosis of the right apex diagnosed or suspected.

There are other sources of error which must be guarded against while auscultating the chest with a view of determining the absence or presence of phthisis. We often miss adventitious sounds because the bronchus leading to the site of the lesion is plugged up by secretions and we may thus get feeble or even absent breathing in the affected area. Inducing the patient to cough vigorously may clear up the condition, but not always. On the other hand, we may hear râles which are altogether of extrapulmonary origin. This is often the case with

persons who suffer from nasal obstruction, and making the patient breathe through the mouth while we auscultate the chest may change the condition. A frequent cause of extrapulmonary râles is the falling back of the tongue when the patient makes strong efforts to breathe deeply; also after vigorous coughing the patient swallows and we believe we hear râles in the chest.

Other extrapulmonary râles, described by Peretz and Ewart in England and Bushnell in this country, are caused by muscular contractions, especially the trapezius, and on raising and lowering the shoulders and arms. French authors speak of "*craquements et frottements sous-scapulaires*," which can be heard very often over the upper part of the chest posteriorly. Then we have the so-called atelectatic, and marginal râles heard over the anterior and lower margins of the lung and which are probably caused by the unfolding of collapsed alveoli in individuals who breathe superficially, and also by the peeling off of the diaphragm from the chest wall as the lung descends into the complemental space. Bushnell also describes sounds originating in the sternum and its articulations and heard particularly at the second costal articulation which may lead to error, and I have been able to verify his findings in a large number of healthy persons, especially muscular men. In some cases they resemble crepitation, and occasionally even medium-sized moist râles and clicks, like the adventitious sounds of phthisis. They can usually be distinguished from pulmonary râles by the fact that they are localized and heard loudest over the sternum and its articulations, but in doubtful cases, especially in those showing a short note at one apex, they may lead to error. Recently there have been described râles heard over the acromion as an infallible sign of incipient tuberculosis, and carefully searching for them, I found that they are of the "extrapulmonary" variety, of the same character and origin as the sternal sounds just mentioned, and are heard in many healthy people. This again illustrates one of the sources of error in the diagnosis of phthisis.

Conclusion.—Errors in the diagnosis of active tuberculosis can be avoided when we always bear in mind that there is no single symptom or sign which is pathognomonic of this disease. The most reliable criterion for diagnosis is undoubtedly the tubercle bacillus, but in some cases even this may lead us astray, and recently, since the antiformin method is extensively used, the number of errors of this character has enormously increased. In cases showing tubercle bacilli in the sputum, but in which careful clinical observation discloses no symptoms of phthisis, there is always a possibility that some other acid-resisting microorganism has been mistaken for the tubercle bacillus. With the antiformin method of sputum examination, errors of this kind are more liable to be committed, and a single examination of the sputum showing but few bacilli is to be taken with considerable reservation unless the symptomatology and course of the disease is that of phthisis.

The signs revealed by physical exploration of the chest, as well as radioscopy, are indicative of the physical condition of the thoracic viscera, particularly the air content of the lung, and at times anomalies of the chest wall obscure the picture and may lead to error in findings and interpretation. Percussion and radioscopy may show us airless areas in the lung, or enlarged and calcified thoracic glands, but whether these processes are of tuberculous origin or, if so, whether the lesion is active, these methods can not decide in each case. Auscultation reveals interference with the entry and exit of the air stream through the bronchi and air vesicles, but whether we are dealing with changes caused by the tubercle bacillus and if so whether the process is active and progressive, or merely an old scar, or calcified nodule, auscultation can not decide in every case, and at times may lead to error. Even râles, which are excellent proof of activity of the process in the vast majority of cases, must not be invariably considered as of pulmonary origin. In doubtful cases it is advisable to guard against extrapulmonary râles before pronouncing a patient tuberculous. To avoid error we must always bear in mind that there are nontuberculous apical catarrhs caused by the pneumococcus, the streptococcus and the influenza bacillus, and also collapse induration of the right apex in mouth breathers, all of which show local signs simulating tubercle of the apex. Error in judgment and fallacy in reasoning can best be avoided by correlating all the subjective and objective symptoms and signs elicited at several examinations and assigning each one its proper place and value before drawing conclusions.

1337 Madison Avenue.

WILLIAM WITHERING AND HIS BOOK ON THE FOXGLOVE.

By Louis Kolipinski, M.D.,

Washington, D. C.

In writing of the history of digitalis in medicine it is proper to introduce the subject with a biographic sketch of the physician whom a fortunate accident and a clear and correct judgment guided in the proper use of the drug. His book upon it is a model for medical observation and its value today is the same as when written, barring the advancement in chemistry and pathology, in therapeutics and practice. These have extended and amplified our knowledge, they have detracted nothing from the correctness of the original description of the action and value of the remedy in impairment of the vascular circulation.

Thus Wm. Cullen in his "Treatise on the Materia Medica" (3rd American Edition, 2 vols., 1808) does not describe digitalis or foxglove at all, but says: "I can direct my reader to a more proper means of instruction by referring him to the treatise of my very ingenuous and learned friend, Dr. Withering, on this subject, which is a treatise in many persons' hands and in my opinion should be in the hands of every practitioner of physics."

William Withering* was born March 17, 1741, at Wellington, in Shropshire, England. More anciently the family name was written, Witherings, Widdrington, or Witherington. His father was a practitioner of physic. The same profession being chosen, he was matriculated at the University of Edinburgh, 1762. His first medical essay, "Topical Bloodletting," was written in 1764, and in the same year his first treatise, "Inflammation of the Pericardium," upon which Cullen bestowed an encomium. He wrote further: "Commentary on the Aphorisms of Hippocrates"; "Dissertation on Dropsy"; "Treatise on Rickets"; "A History of Angina Inflammatoria." His inaugural dissertation was upon "Malignant Putrid Sore Throat."

*"Miscellaneous Tracts of William Withering by His Son," two volumes, 1822.

He received the degree, Doctor of Physic, July 31, 1766. Thereupon he made a trip to Paris of which he said that it "was not deficient in medical science; in surgery it was unrivaled."

He married in 1772 and began practice, but "his professional engagements scarcely produced, on an average of six years, one hundred pounds per annum." He then left Stafford for Birmingham to succeed Dr. Small. In 1776 his practice and receipts increased so that he soon had an income of a thousand pounds a year. Ill health began to appear and he became the victim of an irregular fever.

He published: "A Botanical Arrangement of All the Vegetables Growing in Great Britain According to the System of the Celebrated Linnæus; with an easy introduction to the study of Botany." Two vols. Next came "Bergman's Essay, De Analysi Aquarum." He engaged himself in the chemical analyses of natural waters and became a member of the Lunar Society with men like Dr. Priestly and Messrs. Boulton, Keir, and Watt. This was one of the best private philosophical clubs in the kingdom.

He aided the completion of the general hospital at Birmingham. At his own house on stated days he gave gratuitous advice to the poor. His extensive practice caused him to travel day and night. Whilst on such journeys he read and wrote. On winter nights for such purpose he had a light in his chariot. Thus he prepared among other works, "An Account of the Scarlet Fever and Sore Throat or Scarlatina Anginosa, particularly as it appeared at Birmingham in the year 1778."

He became an active member of the Society for Promoting the Abolition of the Slave Trade. In the winter of 1783 he suffered from a severe pulmonic affection.

His next work was a translation of Sir Torbern Bergman's Sciagraphia Regni Mineralis under the title, "Outlines of Mineralogy." In the Philosophical Transactions appeared, "Experiments and Observations on the Terra Ponderosa." He discovered aerated barytes or carbonate of barytes. The native barium carbonate is named after him *witherite*. In 1785 he published his celebrated "Account of the Foxglove and Some of Its Medical Uses, with Practical Remarks on Dropsy and Other Diseases." This was published at this time, his biographer says, because of the possibility of being anticipated by other claimants to whom he had taught the use of it; especially the endeavors of one physician who most unfairly attempted to arrogate the discovery to himself.

In this same year he was made a fellow of the Royal Society and received a diploma from the Medical Society of London. With increasing fame his house was a resort of intelligent and educated travelers. His income from his medical practice reached two thousand pounds per annum. In 1787 appeared a new edition of his "Botanical Arrangement." A new genus of plants *Witheringia solonacea* was named after him by L. Heritier de Brutelle.

He was consulted medically from remote parts, patients coming from London, Paris, and from different places in Britain and Ireland. Amongst other celebrities came Benjamin Franklin, the American philosopher. In the spring of 1790 he suffered from peripneumony, and the next year had still another attack.

Withering had a tolerable facility in writing Latin and in reading Greek. He held the dead languages to be vehicles of knowledge. For the medical profession he advised the study of Celsus. Upon the drink habit he most aptly wrote: "Those who have been only a few years in medical practice become aware that by far the greater number of diseases which embitter and cut short our existence are the effect of intemperance in strong liquors; nor does there seem much difference in the choice of them."

In 1791 he was made a Fellow of the Linnean Society. In 1792 he went to Portugal for his lung trouble, as the South of France, a preferable climate, was then much disturbed. Of Portugal as a health resort he said, "perhaps the climate of Portugal may rather be deemed inefficacious than unfavorable in consumptive cases." Of pulmonary consumption he wrote: "And not many medical men are sufficiently aware that phthisis is contagious. Though some writers positively deny that phthisis pulmonalis is infectious the contrary fact is to me indisputable."

In 1793 he made a second trip to Portugal for the sake of his health. Whilst there he wrote a memorial on the caldos water, a physical and chemical examination of which he presented to the Royal Society of that state. In 1794 his health grew worse, he had inflammatory lung attacks, dyspnea, and repeated hemoptysis. He grew incapable of general practice and engaged in writing and in botanical studies.

In 1795 his health improved.

In 1796 he issued the third edition of the "Arrangement of British Plants" in 4 vols.

In 1797 and 1798 his illness grew worse, he was so dyspneic that writing was difficult. He died October 6, 1799, after twenty years of sickness, aged 58. His death was tranquil; after being dressed he said, "Now I am ready."

The nature of Withering's long sickness was then chronic bronchitis and bronchiectasia, not primary tuberculosis; if tuberculosis was present at all it was implanted upon the chronic process in the bronchi.

The full title of the book on digitalis is: "An Account of the Foxglove and some of Its Medical Uses with Practical Remarks on Dropsy and other Diseases by Wm. Withering, M.D., Physician to the General Hospital at Birmingham. Birmingham, 1785. In the original edition is the motto from Horace: "Nonumque prematur in annum."

In the preface he gives the reason for the publication. "The use of the Foxglove is getting abroad and it is better the world should derive some instruction, however imperfect, from my experience than that the lives of men should be hazarded by its unguarded exhibition or that a medicine of so much efficacy should be condemned and rejected as dangerous and unmanageable."

A good botanical description of the plant is given concluding which is said: "This plant ranks amongst the Luridæ, one of the Linnean order in a natural system. It has four congeners, Nicotiana, Atropa, Hyoscyamus, Datura Solanum, etc. So that from the knowledge we possess of the virtues of those plants and reasoning from botanical analogy we might be led to guess in some degree at its properties. The plant has a bitter taste but not a nauseous one, as declared by others." To his knowledge it has been mistaken for mullein (Verbascum.)

Withering's attention was attracted to digitalis in the following way: "In the year 1775 my opinion was asked concerning a family receipt for the cure of the dropsy. I was told that it had long been kept secret by an old woman in Shropshire who had sometimes made cures after the more regular prac-

titioners had failed. I was informed also that the effects produced were violent vomiting and purging; for the diuretic effects seemed to have been overlooked. This medicine was composed of twenty or more different herbs; but it was not very difficult for one conversant in these subjects to perceive that the active herb could be no other than Foxglove.

As further introductory is inserted an historical view of the properties of digitalis by Dr. Stokes of Stourbridge. These notes are very short and cursory, but very interesting and of much importance. The principal subjects are therefore here presented more properly and fully from the original sources.

The following is the title page and the description of Foxglove from the folio on medicinal plants of Leonhard Fuchs of Tuebingen: De Historia Stirpium Commentarii insignes, maximis Impensis et Vigiliis *Elaborati*, adjectis earumdum vivis plusquam quingentis imaginibus nunquam antea ad naturæ imitationem artificiosius effictis et expressis Leonharto Fuchsio medico hoc nostra ætate longe clarissimo Autore. Basileae, Anno Christi *MDXLII*. By the publisher; Sequentia duo capita quoniam absoluto ferme opere ad nos venerunt et idcirco suo loco reponi non potuere tamen ne lector iis fraudaretur in calcem potuis rejicere quam omnino praeterire, collibuit.

De Digitali. Cap. CCCXLII. Nomina. Digitalis. Quod appelatione tum Græca tum latina herba hæc hodie destituta sit, nulla alia de causa factum existimamus, quam quod veteribus incognita fuerit Nos pulchritudine eius anonumom esse diutius non sumus *passi*. Appellabimus autem Digitalem, alludenter ad germanicam nomenclaturam. Fingerhout sic enim Germani hanc stirpem nominant a florum similitudine, quæ digitale pulchre referunt ac exprimunt. Hac appellatione utemur donec nos vel alii meliorem invenerint.

Genera. Digitalis purpurea. Digitalis lutea. Duum est generum una enim purpureos obtinet flores ideoque Digitalem purpuream appellavimus. Germanis brauner Fingerhut dicitur. *Altera luteos* habet flores ob id Digitalis lutea dicta nobis est. Germanis geeler Fingerhut nominatur. In aliis per omnia similes sunt.

Forma. Herba est cubitalis foliis latis et oblongis, Plantagini non dissimilibus, in extremitatibus serratis floribus a lateribus caulis ordine dependentibus, digitalis formam referentibus, purpureis out luteis. Quibus decidentibus, semen in calycibus latum et oblongum profert. Radix illi est exigua et capillata.

Locus. Nascitur in montibus, umbrosis et saxosis locis.

Tempus. Floret Julio potissimum mense atque subinde cadentibus floribus semen producit.

Temperamentum. Impense amara est herba perinde atque Gentiana ut hoc nomine calidam et siccam esse evidentissimum sit.

Vires. Haec herba haud dubie quum opus est extenuatione, abstersione, purgatione et obstructionis liberatione, efficax admodum esse solet. Nam ut testatur Galenus libro iiii de simpl. med. facul. cap. XVII Amari sapores abstergunt, expurgant et quæ in venis est crassitiem incidunt. Quamobrem menses etiam quæ amara sunt movere possunt et ex thorace et pulmone pus educere. Quid multa potest hæc herba fere omnia quæ Gentiana cujus vires suo in loco invenient studiosi.

That digitalis was unknown to the Ancients is generally believed. What records are available as testimony are here appended. No writer has been found in modern medical literature who asserts that this evidence is anything but uncertain.

Pedanii Dioscoridis Anazarbei, de medicinali materia libri Sex, Joanne Ruellio Suessionensi interprete. Francofurti 1549, lib. iii Cap. XLII.

Baccharis. Baccharis herba fructicosa quæ in coronas additur, cuius folia aspera sunt media violæ et verbasci magnitudene: caulis angulosus cubiti altitudinem empetens aliquantulum asper, non sine appendicibus adnatis: flore purpureo, subalbicante, odorato: radicibus veratro nigro similibus, quibus odor inest cinnamomo proximus. Asperum squalidumque solum amat.

Radix in aqua decocta ruptis vulsis, ex alto præcipitatis, spirandi difficultati, salutaris *item* diutinæ tussi et urinæ difficili; menses pellet contra serpentium morsus utilissime datur in vino. recens radix opposita partum extrahit; puerpesis eius decoctum in deffessionibus prodest. In diapasmata utiliter inseritur, jucundi odoris gratia folia utpote quæ adstringast, capitis doloribus illitum prosunt. oculorum inflammationbus mammis tumentibus a partu ægilopiis incipientibus ignibusque sacris auxiliantur. odor somnum gignit.

Nomina et Explicatio. Nostrates officinæ Baccharim non norunt. Rura apud Gallos diuæ Mariæ chirotecas. Germani unser frawen hendtschuch appelant eamque nectum in coronas, Baccharim esse facile potest intelligi cum fructicosa sit herba, cuius folia quandam referunt asperitatem media violæ verbascique magnitudine, caule anguloso cubiti altitudinem petente, agnatis appendicibus *quandam tenus* scabris, flore purpureo, subalbicante, radicibus nigro veratro similibus, cinnamomum subolentibus asperum *squalidumque* solum amat. Paulus odoratam esse tradit herbam, odore cinnamomum imitantem quam coronis dicari soleat. Bacchare fascinum depelli *Virgilius* autor est; ita canens:

baccare frontem
Cingite, ne vati noceat mall lingua futoro

Quidam hanc herbam pro Chrysogono *habent* Germanice *Benedictenkraut*.

C. Plinii Secundi, Naturalis Historiæ, lib. XX. 16.

Bacchar quoque radicis tantum odoratse est quibusdam nardum rusticum appelatum. *Unguenta* ex ea radice fieri solita apud antiquos. Aristophanes priscæ comœdiæ pœta testis est. Unde *quidam* errore falso barbaricam eam appellabant. Odor est ei cinnamomo proximus; gracili solo nec humido provenit. Simillimum ei, combretum appellatur, foliorum exilitate usque in fila attenuata, et procerius quam bacchar. Nec hæc sunt tantum; sed eorum quoque error corrigendus est, qui bacchar rusticum nardum appellavere; est enim alia herba sic cognominata, quam Græci asaron vocant, cujus specien figuramque diximus in nardi generibus. Quin immo asaron invenio vocitari quoniam in coronas non addatur.

Lib. XXI. 77. Bacchar in medicinae usu aliqui ex nostris perpressam vocant. Auxiliatur contra serpentes, capitis dolores fervoresque; item epiphoras. Imponitur mammis tumentibus a partu, et ægilopis incipientbus, et *ignis sacris*. Odor somnum gignit: Radicem decoctam bibere, spasticis, eversis, convulsis suspiriosis, salutare est. In tussi vetere radices ejus tres quatuorve decoquuntur ad tertias partes. Hæc potio mulieres ex abortu purgat. Laterum punctiones tollit, et vesicæ calculos. Tunditur et in diapasmata. Vestibus odoris gratia inseritur. Combretium, quod simile ei diximus, tritum cum axungia vulnera mire sanat.

The note to Chapter 16 in the English translation of Pliny's history by Bostock and Riley, Vol. IV, p. 318, is as follows: Fee is inclined to coincide with Ruellius and to identify this with the Digitalis purpurea, Clown's spinard or our Lady's Gloves. The only strong objection to this is the fact that the root of the digitalis has a very faint but disagreeable smell and not at all like that of cinnamom. But then, as Fee says, we have no positive proof that the cinnamomum of the ancients is identical with our cinnamom. Sprengel takes the "bacchar" of Virgil to be the Valeriana celtica and the "baccharis" of the Greeks to be the Gnaphalium Sanguineum, a plant of Egypt and Palestine. The Bacchar has been also identified with the Asperula odorata of Linnæus, the Geum *urbanum* of Linnæus (the root of which has the smell of cloves), the Inula *Vaillantii;* the salvia sclarea and many other plants.

John Parkinson, apothecary of London and the King's Herbarist in his great work "Theatrum Botanicum," London, 1640, thus described digitalis purpurea vulgaris:

The Virtues. The Italians have an usuall proverbe with them concerning this herbe called by them Aralda, which is *aralda*, tutte piaghe salda; aralda selveth all sores; for they use it familiarly to heale any fresh or greene wound or cut, the leaves being but bruised and bound too, and sometimes also they use the juyce in old sores to clense them, dry up their moysture, and heale them the more speedily, which it performeth by the bitter quality therein whereby it is found to be healing and drying and clensing withall; so that whensoever there is neede of a rarefying or extenuating of thicke tough plegme and viscous humours troubling the chest or stomacke; the decoction or juice hereof made up with some sugar or honey is available, as also to clense and purge the body both upwards and downwards sometimes of tough plegme, and clammy humours and to open the obstructions of the Liver and Spleene; and yet notwithstanding that these qualities are found to be in it, there are but few Physitions in our times that put it to these uses but is in a manner wholly neglected. It hath been found by late experience to be available for the King's Evil, the herbe bruised and applyed to the place, or the juice made up into an ointment and used thereon: And it hath beene of later experience found also to be effectual against the Falling Sickness, that divers have been cured thereby; for after the taking of the decoction of two handfulls thereof with foure ounces of Pollipody, of the Oake bruised made in Ale, they that have been troubled with that disease 26 yeares and have fallen once in a weeke or two or three times in a moneth have not fallen once in 14 or 15 moneths, that is untill the writing hereof which I think may be sayd to be an absolute cure not to be presumed that after so long stay it should returne againe.

Amongst the earliest experiments with the poisonous properties of Digitalis are those of Salerne of Orleons. Hist. de l'Acadam., 1748, p. 84. This one amongst others: A turkey-cock of 7 pounds was given half a handful of the chopped leaves mixed with bran in the space of four days. It began to droop, refused to eat more of it. Its excrement was like a dysentery. It had convulsions. Death took place on the eighteenth day. Its weight then was three pounds. "On opening him," Stokes quotes, "we found the heart, the lungs, the liver, and gall-bladder shrunk and dried up; the stomach was quite empty, but not deprived of its villous coat."

Withering said he used digitalis at first in his dispensary practice, but the dose he gave was too large and continued too long. After the cure of Dr. Cowley of Oxford University of hydrops pectoris by an empirical exhibition of the root of the foxglove after some of the first physicians of the age had declared they could do no more for him, he thought the use of a root of a biennial plant uncertain and he continued to use the leaves and was determined to pursue his former ideas more vigorously than before. He found the dose of the leaves to vary with the seasons and to be most constant in the flowering state. The more he saw of the great powers of the plant the more it seemed necessary to bring the doses of it to the greatest possible accuracy.

He thought a decoction might be carelessly made or its properties impaired by long boiling. The infusion was therefore substituted for it and after this he also used the leaves in powder.

He perceived that its diuretic effect is not dependent on nausea or vomiting; if the medicine purges, he said, it is almost certain to fail in its desired effect. He saw it succeed here with small doses of opium.

Digitalis was admitted to the Edinburgh Pharmacopœia of 1783 on the recommendation of Dr. Hope. Withering regretted that at that time in the medical practice of London and Edinburgh doses too large were given. In his hands the plant did little service in phthisis pulmonalis, although he desired to make further use of it. It was a domestic remedy of the common people in the west of England for this disease. Withering records the histories of the patients treated by him with digitalis in the years 1775-1785, being one hundred and sixty-three. They are all of interest to a practitioner and Case IV may be an example.

Withering examined Mrs. H. of 40 or 50 years, July 25, 1776. Her sickness began about June 4, since which time she was treated by Dr. Darwin. A chill and fever, a pain in the left side, shortness of breath, and persistent cough; after some days copious expectoration. Withering found her nearly suffocated, with a weak and irregular pulse, breath short and labored, arms leaden in color, clammy, and cool; she could not lie down; had much thirst; stomach, legs, and thighs swollen; the urine small in quantity, being passed a spoonful at a time.

Scarification of the legs was not acceded to. He hesitated at first to recommend digitalis as the case was one so unfavorable. However with Darwin's consent he prescribed:

Fol Digital purp. recent ℥ iv.
Coque ex. Aq. fontan. puræ lb. iss ad lb. i. et cola.
R. Dicoct Digital, ℥ iss.
Aq. Nuc. Moschat, ℥ ii M. fiat haust.
2 dis horis sumend.

The patient took five of these draughts which made her very sick and acted powerfully upon the kidney, for in 24 hours she passed upwards of eight quarts of water.

July 26. Our patient thus snatched from impending destruction.

August 1. Free from dropsy, breath easy, still very weak.

September 17. The dropsical symptoms made it necessary to repeat the digitalis. After nine years the patient relieves herself whenever she chooses with digitalis infusion. Since the first exhibition

of that medicine very small doses have been always found sufficient to promote the flow of urine.

Further is published the histories of more cases treated with digitalis by fifteen correspondents; of these, Jones in Lichfield reports twenty-four cases which the author arranges in a form of disease and results, thus:

Anasarca, 7 cases, 3 cured, 1 relieved, 3 failed.

Ascites, 5 cases, 4 cured, 1 relieved.

Odematous leg, 1 case, 1 cure.

Ascites and Anasarca, 7 cases, 4 cured, 2 relieved, 1 failed.

Asthma and Dropsy, 1 case, 1 failed.

Hydrothorax and Dropsy, 1 case, 1 cure.

Hydrothorax, Ascites, and Anasarca, 2 cases, 2 cured.

Withering's book ends with the section, entitled "Practical Remarks on Dropsy and Some Other Diseases," which record his opinions of the actions and effect of digitalis in diseases as understood with the scant knowledge of pathology of his time. His reasoning and judgment, however, are those of a skilled and practical clinician.

Anasarca is generally curable in the subcutaneous cellular tissue or in the substance of the lungs. Ascites, without anasarca in children, is curable, in adults, generally incurable by medicines. Ascites and anasarca are incurable in diseased viscera or old gouty constitutions; in other situations it is curable In cases of ascites, anasarca, and hydrothorax one can get relief only. True spasmodic asthma is not relieved by digitalis. Asthma and anasarca, if the affection of the breath depends upon cellular effusion, are curable. Epilepsy, dependent on effusion, is curable. Hydatid dropsy is incurable. In hydrocephalus (meningitis) digitalis is uncertain in its effects.

Withering thought the effusion originated in inflammation. His case LXIX, was probably one of cerebrospinal meningitis. Master Whaet, aged 6, treated with bleeding, daily mercurial inunction into the legs, and later infusion of digitalis, with recovery. Hydrothorax and dropsy of the pericardium, with intermittent pulse and pain in the arm, are curable with digitalis. Hydrothorax and anasarca are curable. In insanity digitalis does good. Case XXIV, with recovery, was one of delirium tremens. Case XXXIV, a young puerpera with anasarca of legs, was also cured. (It was puerperal mania.) Ovarium dropsy defies the power of medicine.

In late ovarian dropsy with anasarca digitalis gives relief for a time. In phthisis pulmonalis with anasarca or hydrothorax, digitalis relieves suffering, but Withering saw no good results from it in consumption. In puerperal anasarca digitalis gives an easy and certain cure.

Of the preparations and doses of the foxglove, Withering preferred the leaves to the root, stem, flower, or seeds. He rejected the leaf stalk and midrib of the leaf which he dried in the sunshine or before a fire. A beautiful green powder was obtained, one-fifth of the original weight. An adult was given 1 to 3 grains of the powder twice a day. In a reduced state of disease 4 grains a day were enough. As a liquid, one dram of dried leaves was infused for four hours in one-half pint of boiling water and one ounce added of any spirituous water. The medium dose for an adult was 1 ounce twice a day. If the patient was strong and the symptoms very urgent the dose might be given once in 8 hours; but in many instances half an ounce at a time would be sufficient. About 30 grains of the powder or eight ounces of the infusion could generally be taken before the nausea commenced.

The following were his remarks on the effects, rules, and cautions: "The foxglove when given in very large and quickly repeated doses, occasions sickness, vomiting, purging, giddiness, confused vision, objects appearing green or yellow; increased reaction of urine with frequent motions to part with it and sometimes inability to retain it; slow pulse, even as slow as 35 in a minute, cold sweats, convulsions, syncope, death. (Note, I am doubtful whether it does not sometimes excite a copious flow of saliva.) Even in a less violent manner it produces most of these effects in a lower degree and it is curious to observe that the sickness with a certain dose of the medicine does not take place for many hours after its exhibition has been discontinued; that the flow of urine will often precede, sometimes accompany, frequently follow the sickness at the distance of some days and not infrequently be checked by it. The sickness thus excited is extremely different from that occasioned by any other medicine, it is peculiarly distressing to the patient; it ceases, it recurs again as violently as before and thus it will continue to recur for three or four days, at distant and more distant intervals."

He thus details his own improvements regarding its use. He first thought sickness necessary for the diuretic effect, and patients were directed to persist till nausea came on and then stop, but it was found diuresis might occur first, so the direction was changed to continue the medicine till the urine flowed or sickness or purging took place. After some years he found cases where the only effect was an alarmingly slow pulse, so he amplified the directions: "Let the medicine be given in the doses and at the intervals mentioned till it acts on the kidney, stomach, pulse, or bowels; let it be stopped upon the first appearance of any of these effects. If it purges it seldom succeeds well. Patients should drink freely as they are very generally prepossessed with an idea of drying up a dropsy by abstinence from liquids and fear to add to the disease by indulging their inclination to drink. . . . From some cases which have occurred in the course of the present year I am disposed to believe that the digitalis may be given in small doses, viz., two or three grains a day, so as gradually to remove a dropsy without any other than mild diuretic effects and without any interruption to its use until the cure be completed." For its poisonous effects he thought that an antidote might in time be discovered. He found cordials and volatiles were usually rejected, but aromatics and strong bitters were longer retained. Brandy would remove slight sickness. He thought small doses of opium sometimes useful, but felt more confident of the advantages of blisters. He held the constitution of the patient unfavorable to the helpful aid of digitalis in men of great strength, tense fiber, warm skin, florid complexion, and light and cordy pulse; also in cases of tense and circumscribed ascites, solid, and resisting anasarca.

He tried to change the constitution of the patient by blood-letting, neutral salts, crystals of tartar, squills, and occasional purging but succeeded imperfectly. Next in power to the lancet to lower the tone of the system, he said, is squill "consequently it will always be proper in such cases to use squill, for it is one of the best preparations to the adoption of the digitalis. Tendency to paralytic affection, stroke of palsy, or stone in the bladder is no objection to the use of digitalis."

Withering submits these inferences upon the uses of digitalis: "(1) Digitalis will not universally act as a diuretic. (2) It does so more generally than any other medicine. (3) It will often produce this effect after every other probable method has been fruitlessly tried. (4) If this fails there is but little chance of any other medicine succeeding. (5) In proper doses it is mild in its operation. (6) When dropsy is attended by palsy unsound viscera, great debility, or other complication of disease, neither the digitalis nor any other diuretic can do more than obtain a truce to the urgency of the symptoms; unless by gaining time it may afford opportunity for other medicines to combat and subdue the original disease. (7) The digitalis may be used with advantage in every species of dropsy except the encysted. (8) It may be subservient to the cure of diseases unconnected with dropsy. (9) It has a power over the motion of the heart to a degree yet unobserved in any other medicine and that this power may be converted to salutary ends."

In the third volume of medical transactions published by the College of Physicians in London, 1785, is the account of the successful use of the foxglove in some dropsies and in pulmonary consumption by Erasmus Darwin, with an appendix by Sir George Baker narrating a case in which it was used. These papers confirm the good effects from the use of digitalis in cardiac dropsy. Its good action is doubtful in the other diseases related. These productions are of some amusing interest as they make it plain that Darwin was unfriendly to Withering and Sir George likewise both to Withering and the foxglove. Darwin does not mention Withering. Sir George says: "As a remedy for a dropsy this plant seems to have been but of late introduction. But at what time and by whom, it was first given in this disease, it has not, I believe, hitherto been ascertained." In a note to a second appendix by Baker, he says of Withering's book that it was a numerous collection of cases. "To these cases the ingenious author has added some instructions respecting the use of this plant which claim our attention; for a substance possessing so extraordinary and peculiar a power over the motion of the heart, if administered by the hand of ignorance and inexperience, is in its effects much more likely to be a poison than a remedy."

As the foxglove is a biennial plant, wrote Darwin, it may be procured fresh at all seasons of the year. He made use of a decoction. Four ounces of the fresh leaves in two pints of water are boiled down to one pint and two ounces of vinous spirit added. Dose, a tablespoonful every hour till from three to eight or nine are taken or sickness produced. The hydropic fluid disappeared on the second or third day without repetition of the medicine, frequently without apparently increased evacuations, at other times with vomiting and large flow of the urine and sometimes with purging stools.

To more robust patients he gave a spoonful and a half of the decoction or two spoonfuls. In some patients two or three times relieved by the same method in the space of from six to ten months, a lesser quantity was found to succeed. In consumptives and in cases of scrofulous ulcers half an once of the decoction of digitalis was administered twice a day for many weeks.

In a pamphlet with the title, "Experiments establishing a criterion between mucoginous and purulent matter with an account of the retrograde motion of the absorvent vessels," 1780, printed for Codell of the Strand, Darwin subjoined half a dozen cases of dropsies treated successfully by the decoction of digitalis. Now he adds a score of other cases of dropsy, the seat of which is supposed to be in some part of the thorax and which is attended with anasarca of the limbs.

The patients here attended to had in general passed the meridian of their lives, and had habituated themselves to too great a quantity of fermented or spirituous liquors. Many of them had previously been subject to the gout, and had a considerable degree of corpulency. They had in general edematous swellings of the legs and thighs, great difficulty of breathing, and very unequal pulse. Some of these patients had experienced no return of the disease from the first day of their having taken the medicine; many of them had three or four times in the space of two years been obliged to have recourse to the same method, generally in lesser quantity than at first and with the same success; that is, their difficulty of breathing and the swelling of their limbs vanished in one day or two; and their pulse became much less irregular; but Darwin said he did not recollect that in those where it was very unequal it ever returned to perfect equality; which gave reason to suspect that the disease was not radically cured, and was therefore more liable to recur after some weeks or months. The following cases, grouped by classes, were reported by Darwin:

1. Dropsies of the Thorax and Limbs: Three cases, antecedent gout; men of 45 to 60 years.

2. Dropsies of the Abdomen: Three cases and two others without record. The author recommends its further trial in dropsies of the ovarium and in ascites and also in hydrocephalus internus.

3. Pulmonary Consumption: One case cured; a shoemaker of 20, apparently with febrile consumption for two months. One tablespoonful or one and a half tablespoonfuls of the decoction given twice a day until recovery.

4. Scrofulous Ulcers: A young woman of 20, pale ulcer on each external ankle. Five to ten grains of the powder of the dried leaf were given twice a day and a bandage applied. Cured. In the second case, also a woman of 20, ulcers were present on the neck, cheek, sternum, arm, and other parts, oozing thin matter. The decoction twice daily nearly finished the cure in two months.

5. The common or humoral asthma with distressful breathing at night helped by use of the decoction.

6. Melancholia. A miss of 30 to 40; the despondency of her mind gradually wore off in a few weeks after nausea and vomiting had been produced by digitalis.

The case of Sir George Baker was a gentleman of 60, with anasarca and dyspnea who was at first relieved by a bolus of five grains each of purified quicksilver and fresh squills taken every second night. Growing worse he was encouraged by Darwin's experience to make a trial of the decoction of foxglove. He took a tablespoonful of it every hour for three doses. In twenty-four hours he passed six quarts of urine, his pulse fell from 90 and 120 to 54 and 60 a minute and was very irregular. He obtained great relief. In a few weeks the dropsy returned. Later he took the powder in one grain pill, but one or two a day. The dropsy again disappeared and his breath was not oppressed when quiet. His body and limbs were every day well rubbed, and to this operation he partly attributed his recovery. He died a few months later, the disease returning and the foxglove being taken without avail.

A woman servant of this gentleman had pain in the abdomen, shortness of breath, edematous legs, nausea, and scant and turbid urine. She took a one-grain pill of digitalis powder twice a day, until she had used thirty-one. The pulse from the beginning became slow and irregular. The nausea and all the other symptoms ceased. In two cases of ascites, one treated with the decoction, the other with the pill, the medicine failed in both cases.

Darwin also aimed to make the medicinal virtue of foxglove immortal by means of poesy, singing thus:

Bolster'd with down, amid a thousand wants,
Pale Dropsy rears his bloated form, and pants;
"Quench me ye cool pellucid rills," he cries,
Wets his parched tongue and rolls his hollow eyes.
So bends tormented Tantalus to drink
While from his lips the refluent waters shrink;
Again the rising stream his bosom laves
And thirst consumes him mid circumfluent waves.
Divine Hygeia from the bending sky
Descending, listens to his piercing cry;
Assumes bright Digitalis dress and air;
Her ruby cheek, white neck and raven hair;
Four youths protect her from the circling throng,
And like the Nymph the Goddess steps along.
O'er him she waves her serpent wreathed wand,
Cheers with her voice and raises with her hand
Warms with rekindling bloom his visage wan,
And charms the shapeless monster into man.

Botanic Garden. Part 2. Canto. 2.

PSYCHOLOGICAL ASPECTS OF THE RELATION OF DIVORCE, ACCIDENTS, CRIME, ETC., TO MENTAL DEFECTS.*

A PRELIMINARY REPORT.

BY SIEGFRIED BLOCK, A.M., M.D.,

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THE purpose of the paper is to show some of the psychological connections between mental deficiency and divorce, alcoholism, insanity and personal accidents, and especially death resulting from these accidents. That illegitimacy is a cause of mental defect is at present quite well established. There is no doubt that defect of mentality is hereditary, that such bodily affections as phthisis and syphilis may in some manner be associated with this inferiority. That alcohol and perhaps some other drugs have a definite connection with mental defect cannot be denied. Which is the cause and which the effect depends in a goodly measure on the individual case, but the writer believes an absolutely normal individual will practically never become an habitué of any drug.

With the acceptance of these premises the writer first wishes to take up briefly the problem of divorce in general, from the viewpoint of the psychologist. Separation, desertion, and divorce proper are included in the term under discussion. Practically every case of the character mentioned is the result of a long time of quarrel, disagreement, and unhappiness on both sides. When two persons cannot be made to realize that to come to terms is for their mutual benefit, particularly when they must appreciate that their causes of differences are trivial in character, enlarged only by association with other and graver matters, some defect of reason, or faulty judgment, perhaps, may be at the bottom of the whole trouble.

*Read before a conference on psychology, at Columbia University, April 8, 1914.

That weakened judgment is hereditary is to be accepted without proof. Suffice it to say that defects of mentality are positively inherited, according to Galton, Davenport, Prince, Cattell, Ellis, Lombroso, Goddard, Barr, Forel, Wundt, etc. In the high types of mental defect even when the defect is not superficially evident to friends and relatives, judgment must be affected. Judge Nash, of the Domestic Relations Court, in discussing this subject with the writer, said that he was seeking a woman to do some darning and mending by the day at his home and of all the cases that came before him he found it almost impossible to find any woman capable of doing this practically simple kind of work, although in every case these women claim they are down and out. On the face of such facts inferiority must be acknowledged. That divorces run in families can hardly be denied. The writer has personally gathered statistics of twenty-four such families. No general statistics are so far available on this matter.

In general the causes for coming to a Domestic Relations Court are desertion, non-support, brutality, incompatability, bad habits of one or the other party, as alcoholism, etc. In most of the cases of non-support, the underlying factor is inability to support. This at once characterizes the person as deficient mentally. If a person cannot agree with his life-partner on account of a bad habit, such as alcoholism, mental abnormality must be acknowledged, at least on the part of the habitual drunkard. Gross immorality is one of the points of diagnosis in the discovery of abnormal mental status. In the same way real brutality, if it is grave enough to appear in court as a proposition by itself, may suggest perversion. Crime is never a cause for divorce, yet each one of these twenty-four families has criminals, mental defectives, etc., on one or both sides of the house. The writer will briefly give the histories of two of the families and a short description of the trouble between man and wife to show that heredity is an element to be reckoned with:

CASE I.—S., male, albino, sent to me for a diagnosis of his mental condition. On investigation this is the family history: Father's mother, a periodical drunkard; the husband of this woman separated from her. One sister of the father was separated from her husband. The maternal grandparents separated. The parents separated; the mother charged her husband with bigamy. This boy was feebleminded and epileptic; his mother's sister was epileptic and mentally deficient. This boy met with two serious accidents in life. When twelve years of age an iron column fell on his left heel and he was in a hospital; at thirteen he had a compound fracture of his left hand due to a fall. This will be taken up later.

CASE II.—This case shows a frequent type of disagreement between man and wife. Both parties are highly moral, educated, refined, and cultured people. The writer has known the family for four years. In the beginning there was only a spat now and then. The husband was an excessive whiskey drinker. Then came arguments about his drinking too much; these were justifiable. Then he began to make less money and the wife was unhappy. She quarreled more and he became more stubborn and, although he stopped drinking for months at a time, both developed a hatred for each other. Finally they did not talk, and could not live together, and he became lax in his obligations. She saw a lawyer. The three children were told the father was no good. A new gentleman became interested in the family's welfare, etc. Although the writer brought these two factions to an understanding for weeks at a time the patchwork was only temporary. Arguments like these were presented, "You only buy me nice clothes so that you can go out with a well-dressed woman." "In other words, you do not supply

me for my sake, but for your own sake. You are very selfish."

This case, which seems to be a simple one, has also an antecendent history. It was related to the writer that the mother of this woman nagged her husband, that they were finally divorced, and that a second husband lasted only a short time, when he also was separated from his wife. The husband's mother became a widow very early. One of the children was distinctly abnormal. The father has met with several accidents and one of the children has had her finger partly amputated as the result of an accident.

The faulty judgment here shown is quite typical of many cases and should be more thoroughly studied psychologically. Like every other case that I have in the list of twenty-four, this case came to me on account of a mental examination that was desired for some member of the family.

One of the main causes of divorces, etc., are the prostitutes. Lombroso and others have classed these people midway between normal and criminal types, if there are such types. Almost every observer to-day classes them for the most part as degenerates, regarding them at best as morons. The class of people who disregard marriage laws because they do not care for society or its institutions, and act as they wish regardless of what their relatives or acquaintances may think of them, may be regarded as of the same type as the anarchist who carries out his dogmas by means of bombs, fire, etc. Some are actually insane, others are defective. Mock marriages, rash unions, and unions for lustful reasons, are all liable to be of short duration and the parties to such life contracts do not fully appreciate what they do. The District Attorney's office in New York City is opposed to going far for deserters and bringing them back, their principal argument being that the men are usually not worth the expense.

Before closing this subject, the writer desires to emphasize his conservative attitude with regard to these two propositions, which are daring to say the least. It is true that the institution of divorce is a blessing many times for those concerned. These ideas are based on the facts that cases which come up before the Domestic Relations Court often have the same motives as those coming up before the higher courts. In the State of New York, in all the other States, and in all civilized countries, actual separations and divorces can be obtained only from the highest courts. The expenses of these trials with the preliminary fees, etc., are so great that the masses find it almost impossible to avail themselves of the privilege. It is, therefore, rather unscientific to consider only actual divorces in a paper such as this. It is always difficult to enumerate the defectives among the wealthy, but even in these cases, if proper examinations could be made, it is likely that parallel results would follow. The vast amount of statistics regarding mental defectives is practically a compilation of masses and not of classes. Individual cases hardly count, especially when both parties are not submitted to a mental examination.

A study of accidents is very close to a study of reaction-time. When a person does not know whether it is better to go backward or forward in order to avoid an accident and gets caught for the mistake, it may mean that he has not responded quickly to a stimulus which surely was important to the individual concerned. To take hazard risks is not always a sign of mental deficiency, but to take such a chance without careful forethought is a sign of lack of judgment. This is putting it mildly. If an unfinished building is in the way and a sign for danger advises everyone to cross the street to avoid falling timber or bricks, and one person gets hit who takes a chance, and does not obey, such a person is a fool or a moron. The best proof of this is to go through the wards of any emergency hospital and look over the patients who have been picked up by the ambulances. After we omit the alcoholics, who we know in most instances are below par, and then cut out those in whom positively slow reaction was responsible for the accident, we will find very few patients left. This is the reason why accident insurance companies, as the "Travelers'," etc., have such low rates. The largest proportion of their customers are average or better and take few chances. Even such instances as accidental shootings, or of being shot for someone else, etc., can be proven to indicate a tendency toward degeneration in many cases. For example, the association with persons who would be likely to shoot another, or the act of playing with a dangerous weapon without proper precautions, suggests inferiority.

One of the most interesting points in this comparison is that the same individuals meet with frequent accidents. The rule on questioning persons who have met with a serious accident is to find that they have had at least another accident. It is interesting to note that in many cases at least one other member of his or her family also met with some accident. In fact, heredity plays a very strong part in a series of twelve cases I have enumerated It is interesting that in so many cases where divorces are common in families accidents occur frequently. If we add epilepsy, crime, and mental deficiency we get a group which can be found in a majority of the members of certain families. It simply means that certain traits were inherited in these cases, traits such as weaknesses, negative characteristics. In prisons it is estimated that between 25 and 80 per cent. of the inmates are known to be feeble-minded. A large proportion have deserted or divorced the rest of their families. An astounding number of convicts have scars showing previous accidents. The pictures in the rogues' galleries prove this. In institutions for the feeble-minded practically all the inmates have scars.

It must be remembered that separate courts have been designated to take care of marital disputes on account of the enormity of the problem. Like mental defectives the calamity is on the increase. My groups are far too small to provide important statistics, but nine mothers, nine fathers, five brothers, and three sisters of people (twenty-four) who were examined as to their mental condition have had family disunion to a marked degree. Likewise of 112 persons interrogated in four semi-private hospitals, forty-six had had a previous accident and thirty-two had had more than one serious previous accidents, and twelve had near relatives who had been in hospitals on account of some injury. The regular city and county hospitals were not taken into account because it is quite evident that a large percentage of their population is always below the average mentality. These varied statistics have been obtained from the German, St. Catherine's, the Jewish and the Long Island College hospitals. The writer cannot at this writing remember a single case out of a possible 40,000 or 50,000 examinations in which an undoubted defective did not have a scar from some accident. Of eight automobile owners who hire chauffeurs, the

writer has inquired if any had reckless chauffeurs, and without exception on discussion they agreed that such drivers were not quite normal, taking a chance without forethought or purpose. This kind have most accidents.

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CAUSE AND PREVENTION OF PYORRHEA ALVEOLARIS AND FURUNCULOSIS

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Pyorrhea alveolaris is not a new disease. It has existed in all ages and attacked men of all nations. It is not influenced by climate, nor is it limited to any particular type of human being. The jaws of the ancient Egyptians, of the Assyrians, and of other Orientals are said to show undoubted evidence of it. It is very prevalent in carnivora, especially in old age, but I have not been able to discover whether herbivora are ever affected by this disease.

In looking over the medical literature on the subject, one is positively bewildered at finding nearly every conceivable disease or condition put down as a cause for pyorrhea alveolaris. Here are some of them: heredity, constitutional disorders or debility; thermal, chemical or mechanical changes, whatever these may mean; irregular and crowded teeth, stomatitis, oral catarrh, chronic nasal catarrh, gingivitis, mouth-breathing, uncleanliness, irritating deposits, skin eruptions, gout, rheumatism, tuberculosis, nephritis, syphilis, diabetes, "lung affections," malnutrition, luxury, nervous debility or defect in innervation, minute organisms, indicanuria, sanguinary calculus, frequent pregnancies, amenorrhea, dysmenorrhea, paretic dementia, locomotor ataxia: certain metals and salts, *e.g.*, mercury, sodium, phosphorus, lead, lime, common salt, "uratic salts," and so on. I could add more to this long list, but it is unnecessary. It would have redounded to the credit of the dental authorities to have said in plain English: "We do not know the origin of this disease," for that is what it amounts to after all. No doubt pyorrhea alveolaris has often been associated with some of the above diseases or conditions, but that is a different matter.

We know, however, that there are many otherwise healthy persons who are afflicted with Riggs' disease, which would incline us to believe that it is due to faulty metabolism. Mercury, potassium iodide, lead and the constitutional diseases of rickets and scurvy profoundly affect the teeth and gums, but we know how to deal with such cases as soon as we can ascertain the cause.

Talbot reports that 33 per cent. of the children with rickets are sufferers from Riggs' disease. These children are constitutionally below par and they are consequently far more liable to infections than healthy children.

A specific germ has not yet been demonstrated. Talbot has shown that pus from dogs infected with pyorrhea alveolaris injected into the gums of healthy dogs did not produce the disease, which is another proof of faulty metabolism. The tissues of healthy dogs therefore contain some substance which resists this particular type of infection and this substance evidently is deficient in dogs afflicted with pyorrhea alveolaris. What is this substance?

The treatment for Riggs' disease so far has been almost entirely mechanical, *i.e.*, scraping of the roots of the teeth, applications of the tincture of iodine to the gums, antiseptic mouthwashes, prophylactic toothbrushes. Some authorities have prescribed tonics. Once started, the disease usually gets worse, the patient suffers more and his visits to the dentist become more and more frequent. In the end the teeth become so loose that they have to be removed. Sometimes a splint is applied to a loose tooth to try and save it, but this is only of temporary benefit. Autogenous vaccine has given very poor results, for the simple reason that the pus from which it is made is a local manifestation of a faulty metabolism, as I shall show later on.

I shall now describe the means by which I arrived at the conclusion that pyorrhea alveolaris is due to faulty metabolism, owing to the deficiency of a certain substance in the blood, the supplying of which promptly checks the pyorrhea.

Four years ago I had occasion to treat a case of recurring boils. Autogenous vaccine, large amounts of yeast, and calcium sulphide had been given thorough trials, but apparently without result. In despair I prescribed plain powdered sulphur, one heaping teaspoonful three times a day after meals. The laity have used it from time immemorial to "purify the blood," and evidently for very good reasons. After its administration the infiltrated area of the boil became circumscribed, and if not discharging pus, shrank, and was gradually absorbed. No more boils appeared whilst the sulphur was taken. In the case of a boil discharging pus the astringent action of the sulphur was noticed, the inflamed area became restricted and its tissues contracted, forcing out the pus. The cavity healed up far more rapidly than after an incision. Boils not discharging required no dressing, those discharging needed only a simple clean dressing.

The numerous trials I gave sulphur were sufficient to convince me that it was effective in every case. The only objection to it was its bulk and sandy feeling in the mouth. I knew of no liquid preparation of sulphur in the pharmacopeia that might take its place. Thinking the matter over carefully I came to the conclusion that sulphur taken internally is assimilated to a certain extent through chemical action of the body fluids, and that possibly sulphur trioxide (SO_3) is thus formed and absorbed by the blood.

Now, sulphur trioxide is one of the inorganic salts of the blood and exists both in the plasma and the corpuscles. The only sulphate said to be present in the blood is that of potassium. The feces contain the sulphates of sodium and calcium and we are told that sulphuric acid is excreted in the urine. Indican is also a sulphate. Sulphuric acid taken internally would probably split up as follows: $H_2SO_4 = H_2O + SO_3$.

Realizing this chemical action I gave sulphuric acid a trial and found its action far quicker and more effective than sulphur. Using the diluted sulphuric acid, I ordered from thirty to sixty drops, diluted in two to three ounces of water, three or four times a day, the mouth to be well rinsed immediately after. The effect on boils and carbuncles in every case was astonishing, the astringent action being wonderful. Within twenty-four hours marked changes for the better were noted.

Since sulphuric acid has such a favorable action on boils, we cannot but come to the conclusion that furunculosis is due to a hematogenous infection, perhaps through the oropharynx. The old and hitherto accepted and unchallenged etiology, *i.e.*, infection through a hair follicle or sebaceous gland,

is to my mind no longer tenable. The latter is only a local manifestation of serious metabolic changes. We often see furunculosis and abscesses in cases of malnutrition and diabetes, which are not due to a local but a hematogenous infection. There can be no question about this. Uncleanliness and dirty surroundings do not bring about furunculosis; on the contrary we find this disease exists mostly, perhaps entirely, in those persons who are of cleanly habits, but in poor health, overworked, dissipated, or subject to much worry and anxiety, and I might perhaps add, those who are deprived of proper physical exercise and fresh air.

Does a deficiency of sulphur trioxide in the blood and tissues invite infection? Would an excess of calcareous matter in the blood account for a decrease of sulphur trioxide therein?

In my experience during the past four years, sulphur or sulphuric acid has invariably been successful in combating furunculosis and I am convinced that the blood and tissues are deficient in sulphur trioxide, else why should sulphuric acid act so promptly and efficaciously in these cases? It might be asked what checks the infection of furunculosis and prevents future attacks? Are the staphylococci killed by sulphur trioxide in the circulation, or does sulphur trioxide so alter the blood that these germs are not able to get a foothold?

It would be interesting to know in all pus conditions, not only whether the blood is deficient in sulphur trioxide, but also whether the excretion of sulphates in the urine and feces is lessened and whether this excretion rises in amount after the administration of sulphuric acid.

L. D. Bulkley, of New York, in his article, "On the Non-Surgical Treatment of Boils, Carbuncles and Felons," highly recommends an iron tonic by the name of Startin's Mixture, which gave him good results in dram doses. This mixture contains dilute sulphuric acid, ten minims to the dram, which is too small, but had he trebled the amount of dilute sulphuric acid he would have had unfailing results.

J. and R. J. Reynolds, of London, report wonderderful results during a number of years from the use of dilute sulphuric acid in a variety of pus conditions, *i.e.*, boils, carbuncles and streptococcic infections. Cases even of bronchiectasis and pulmonary tuberculosis were markedly benefited.

Having had good results in pus conditions, other than furunculosis, I should like to mention a few of them:

CASE I.—A severe and chronic case of acne rosacea yielded to treatment within a month. This patient came to see me during the stage of telangiectasis, showing diluted capillaries and many pustules, which had resisted treatment for over four years in the hands of New York and Boston specialists.

CASE II.—A chronic and severe form of acne indurata resisted the usual treatment by tonics and curettage. After a bacteriological examination, vaccines were given a trial, but without success. Dilute sulphuric acid, given in thirty-drop doses, was followed by slight improvement, and when it was increased to fifty drops the pustules cleared up.

CASE III.—Fully convinced now that sulphuric acid could be used successfully in all conditions where pus existed, I did not hesitate to give it a trial in pyorrhea alveolaris. In this case the patient had already had two teeth pulled out within the last two years. A right lower molar was very loose, very sensitive and felt about a quarter of an inch too long, so that the patient could not masticate his food. The gum was painful and much inflamed and there was a discharge of pus at the gum border. The gum over some of the other teeth likewise showed inflammation and pus could be expressed. The patient visited his dentist, who treated the condition in the usual way by scraping the roots and by painting the gums with tincture of iodine. He was informed that the tooth would probably have to be removed in the course of a few days. Talbot states that "the loosening of the teeth is their death knell, and the sooner they are removed the better." As I shall show, this statement no longer holds good, for the patient took sulphuric acid in the manner previously mentioned and when he visited his dentist four days later the tooth was firm, the inflammation had subsided, and the discharge of pus had ceased. Since then he has been taking occasional doses of sulphuric acid, for he noticed that when without treatment for a few weeks, one or the other tooth became sensitive during mastication, or that the surrounding gum was inflamed. However, he noticed with satisfaction that these symptoms disappeared within twenty-four hours after treatment.

Several other cases of pyorrhea alveolaris have been equally benefited. The teeth, however, remain very sensitive to cold liquids, owing to the retraction of the gums, and I am at present unable to say whether they will ever cover the teeth properly, as they do in a normal condition.

Judging by the medical literature and the treatment in the clinics it is surprising to me that no advantage has been taken of the announcement of the Reynolds' method for the treatment of boils and carbuncles and infections by means of sulphuric acid. There is no longer any need for such treatment as incision and suction cups (Bier's) in ordinary cases, the latter causing unnecessary suffering to an extreme degree.

Small doses are of no use, and if there is no improvement after forty-eight hours, the dose should be increased. Improvement is so rapid that it is seldom necessary to continue treatment for more than eight or ten days, usually less. The patient in most cases can himself decide when to discontinue treatment. No gastric or other symptoms were ever noticed as a result of taking this drug.

Sufferers from pyorrhea alveolaris are not to conclude that the treatment by sulphuric acid does away with the necessity of periodical visits to the dentist. On the contrary, they should be especially careful to give their teeth proper attention.

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ARTERIAL HYPERTENSION: ITS RELATION TO ARTERIOSCLEROSIS AND BRIGHT'S DISEASE.

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SYMPTOMATICALLY, arterial hypertension may be characterized by a train of symptoms entirely independent of those found in arteriosclerosis or Bright's disease. Arteriosclerosis *per se* may be characterized by symptoms and conditions entirely independent of either arterial hypertension or

Bright's disease. Bright's disease is entirely different in symptoms and conditions from those found in arteriosclerosis and arterial hypertension. These three diseases have long been classed as relating one to the other, but in the light of advanced research and knowledge the time has come when they must be separated from one another in searching for the cause of these different conditions. Heretofore the three have been believed by many to originate from the same remote cause.

Arterial hypertension is characterized by a sense of insecurity, both mentally and physically. There may be present extreme mental unrest, either exhibited as mental depression amounting to actual melancholia or mental excitability and nervousness. Mental and physical fatigue on little or no exertion are prominent symptoms. Bodily equilibrium is disturbed, and a patient may speak of staggering instead of dizziness or vertigo. There may be present a percordial distress causing great uneasiness, with a foreboding of impending dissolution. The severity of these symptoms is not always in proportion to the reading of the sphygmomanometer. I am convinced that the cause of high blood pressure is due to a toxemia or to toxemias only, but may be associated with both arteriosclerosis and Bright's disease. Most convincing of the latter assertion is the fact that arterial hypertension can and does occur without any evidence whatever of either arteriosclerosis or Bright's disease being present. The rather recent idea that arterial hypertension contributes to the safety of a kidney lesion is fallacious. One cannot but believe that the kidneys, as well as other structures, are all in equal danger from this condition.

There seem to be two forms of toxemia or intoxications responsible for arterial hypertension. Both no doubt are of intestinal origin. One in an indicanuria, the other is problematic as to origin, but may be related to the acetone bodies. Arterial hypertension due to intestinal intoxication, decomposition or fermentation resulting in an indicanuria is most amenable to treatment and is classed as the most frequent cause of high blood pressure. Thorough disintoxication measures with rigorous dietary restrictions have not failed either to greatly benefit or entirely relieve arterial hypertension in the indican class and have influenced favorably the other class or cause of hypertension, together with the internal use of the iodides, and especially when the iodine is administered intravenously. Arteriosclerosis is not well understood but is undoubtedly associated with disordered metabolism, when not following some of the specific diseases, and when occurring with arterial hypertension the toxemias or intoxications are also present and treatment would necessarily be followed along similar lines.

In a former article MEDICAL RECORD, February 14, 1914, page 292, I have taken the stand and have produced material proof that Bright's disease is purely an infectious disease, and as such has no relation to the other two diseases now under discussion. Arterial hypertension may accompany Bright's disease as a result of an intestinal fermentation or stasis, which stasis is also responsible for the infectious character of Bright's disease. In order to lend weight to the statements made above a few short case histories will be confirmative:

CASE I.—S. H. C.; age fifty-five years; short stocky man; plethoric; has always been a hearty eater and high liver. About December, 1912, became very dizzy, cyanotic and staggering; blood pressure said to be 190 mm.; came under observation May 19, 1913; blood pressure 180 mm., severe indicanuria, which was very persistent; urine perfectly free from kidney débris or albumin, thus indicating normal kidneys; arteriosclerosis absent. In this case the blood pressure was reduced in proportion to the disappearance of the indican. Under treatment of thorough disintoxication, regulation of diet and the intravenous method of administering iodine the blood pressure became normal and recovery seemed complete.

CASE II.—Miss McL.; aged nineteen years. Negative family history except for digestive disturbances. Slender and about 5 feet 4 inches tall, but fairly well nourished. This patient came under observation for a bronchitis of some years standing. Sputum was positive to a mixed variety of organisms. Tubercular bacillus negative. Infection seemed to be confined to large bronchi and upper air passages. Physical signs in chest were negative. Blood pressure 140 mm. Abdomen distended and tympanitic with tenderness over the illiocecal region. Urine contained indican, albumin (2 per cent.) casts, and other débris. Blood culture gave a pure growth of colon bacillus. Since this case had no acute symptoms it would have been classed as a beginning Bright's disease had not the infectious character been proved. The stasis in this case is more than likely responsible for a double infection, *i.e.* a colon bacillus bacteriemia with infected kidneys and a bronchitis with a mixed infection as a result of such a stasis. There were no symptoms of arteriosclerosis found in this case.

CASE III.—H. B., age twenty-seven. Negative family history. Well nourished but anemic. Red blood count, 3,500,000; white, 500,000. Blood pressure, 148. Has been troubled with intestinal disturbances for several years. Abdomen distended and tender over left hypochondrium. Evidently a severe chronic stasis attended this case. The urine was normal except for indican. Blood culture was positive to a pure growth of colon bacillus. In this case there is an absence of arteriosclerosis. There was no kidney complication but a hypertension prevailed.

CASE IV.—J. E. O., age thirty-one years. Negative family history, except father was an alcoholic. Good physical condition. City fireman for several years. Patient came under observation about one year ago for a heavy and persistent cold with some loss of weight. This attack responded to treatment with recovery. Recently this patient reappeared, complaining of extreme fatigue, shortness of breath and palpitation of the heart on the least exertion. Chest shows diminished or absence of vesicular breathing on right side. Left apparently normal. Cardiac hypertrophy with a mitral murmur was present. Abdomen distended and tender. Urine contained albumin, casts and other renal débris. Blood, sputum, and urine were positive to a streptococcus on culture. This stasis, no doubt, caused an infection of the lungs, blood and kidneys of the same type. In this case a nephritis (Bright's disease) was present, but arterial hypertension and arteriosclerosis were absent.

CASE V.—L. S., age forty-two years. Slender but very well nourished. Good family history. Has had albuminuria with casts for a number of years. This was no doubt a mild form of true Bright's disease, but treated as an infection recovery was complete. In this case there was no arteriosclerosis and the blood pressure was subnormal, *i.e.* 100 mm.

CASE VI.—L. V., age thirty years. German descent. Good physical condition. Family history positive to this condition. Car repairer, but has been unable to work for two years on account of extreme vertigo, nervousness, and insecurity on his feet. Blood pressure has been as high as 240 mm. In this case there is an absence of kidney disturbance and arteriosclerosis.

Conclusions.—(1) Arterial hypertension occurs independently of either Bright's disease or arteriosclerosis and is due to toxemia or intoxications only. (2) Bright's disease is independent of arterial hypertension or arteriosclerosis and is due to an infection only. (3) Arteriosclerosis occurs independently of either arterial hypertension or Bright's disease and may be caused by altered metabolism or toxemias.

201-202 SYMES BUILDING.

WOUND HEALING WITH THE AID OF VACCINES.

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TOLEDO, OHIO.

To allow a wound to heal from the bottom up has been proven by experience the best and quickest way. To close a wound in the presence of infection is considered bad surgery. But the following case demonstrates the advantage of combining vaccine treatment with the suturing of an infected wound, where limited portions of tissue have been lost or removed. Great tension may be employed, as in this case, with a negligible amount of cutting through of the sutures.

An infected sacral dermoid, filled with hair, was removed from a well developed patient. In an effort to get below the infected area the tissue was removed down to the sacrum, leaving a wound five inches long, two and one-half inches wide in its greatest width, and about two inches deep. The wound was closed, at least the skin flaps were approximated, and a small cigarette drain was inserted. There was immediate absorption and a general infection took place lasting four days, when it subsided. The wound was opened and an infected blood clot was removed. Staphylococcus and colon bacillus were found and a vaccine was prepared and administered.

Ten days after the operation an attempt was made to reduce the granulating surface. It was recognized that great tension was necessary, and it occurred to me to place the sutures at some distance from the wound, in order to preserve the nourishment to the parts as much as possible. Silk worm sutures were inserted, with the aid of novocain anesthesia, through the fascia, well down into the muscle, these sutures being placed three-eighths of an inch apart and alternately, one-half inch and one inch from the edges of the wound. The tension was so great, because of the natural inelasticity of the tissue in this region, there was danger that the sutures might cut through. However, there was very little pressure necrosis caused by the sutures, and no stitch abscess. The vaccine was given every five days and each inoculation was followed by a good reaction. The sutures were removed on the twelfth day. The wound was now reduced to one three inches in length, one-fourth of an inch in width and one and one-half inches in depth. The wound healed by granulation, with a scar whose greatest width was one-fourth of an inch instead of two and one-half inches as it would otherwise have been. While the granulations were being formed the tension was kept up by adhesive strips extending from one hip over the back to the opposite hip.

For the protection of the skin in applying the adhesive strips, the following method proved to be of great advantage. The general practice of pulling off adhesive plaster and applying fresh adhesive at each dressing soon takes off the epidermis and annoying ulcers of varying diameter result. This trouble can be obviated by using zinc oxide adhesive and cutting away at each dressing only that portion which covers the dressing, thus allowing the location of tension to remain undisturbed, and applying the new strips directly over these. The original adhesive strips applied in this way may remain indefinitely and will cause no trouble whatever.

Medicolegal Notes.

Improper Removal of Healthy Tissue—Evidence—Specialists—Degree of Skill and Knowledge.—In an action against a physician for the death of a patient following an operation on his nose claimed to have been caused by improper after-treatment, it appeared that the physician kept cutting away a tissue growth that formed in the nostril under the suspicion that it was a malignant growth. There was testimony tending to show that if it was not a malignant growth, but a normal product of the inflammatory process set up by the operation, its removal was not proper and might have caused the death. The court excluded a question asked an expert witness as to whether a reasonably prudent surgeon, if in doubt as to the nature of the tissue, would not have had a prompt analysis made. It was held on appeal that the exclusion of this question was error, as the plaintiff was required not only to satisfy the jury that the tissue removed was in fact healthy tissue that should not have been disturbed, but also that its removal without ascertaining its real nature, or employing the means at the physician's command to that end by causing a pathological analysis, was negligence.

The trial court was requested to instruct the jury that, as the defendant was a specialist, he was bound to have that degree of skill and knowledge ordinarily possessed by specialists, and a greater degree than that which a physician in regular practice is bound to have and exercise. The court refused to give these charges, and repeatedly told the jury that the defendant was only bound to exercise the reasonable care and skill of his profession. Once the jury was told that the defendant was not liable "if he did everything which a careful, prudent physician of his class would have done," which was immediately nullified by the additional words "or his profession."

The case conclusively showed that the defendant held himself out as a specialist in the treatment of diseases of the nose, and that as such specialist he was consulted by the deceased upon the advice of the ordinary practitioner who had attended him. Under such circumstances, the question whether the defendant was a specialist, while one of fact was primarily for his own determination, with the result that if he held himself out as a specialist it became his duty to bring to his patient's aid that degree of skill that such a practitioner assumes to possess.—Coleman v. Wilson, New Jersey Court of Errors and Appeals, 88 Atl. 1059.

Act To Authorize Sterilization of Feeble-Minded, etc., Held Invalid.—The New Jersey Board of Examiners of Feeble-Minded, created by "An act to authorize and provide for the sterilization of feeble-minded (including idiots, imbeciles, and morons) epileptics, rapists, certain criminals and other defectives" (V. L. 1911, p. 353), ordered that the operation of salpingectomy be performed upon one Alice Smith, an epileptic inmate of a state charitable institution, as the most effective operation for the prevention of procreation. On appeal the order was reversed. It was held that the statute in question was based upon a classification that bore no reasonable relation to the object of such police regulation, and hence denied to the individuals of the class so selected the equal protection of the laws guaranteed by the Fourteenth Amendment to the Constitution of the United States. The artificial regulation of the welfare of society by means of surgical operations for the prevention of procreation, being based upon the suppression of the personal liberty of individuals, must be accomplished, if at all, by a statute extending to the persons thus injuriously affected such equal protection of the laws.—Smith v. Board of Examiners, New Jersey Supreme Court, 88 Atl. 963.

Mental Healers Must Stand Examination.—In proceedings for violation of the Alabama statute, under which "all persons who treat or offer to treat diseases of human beings by any system of treatment whatsoever," must obtain a certificate of qualification from the State Board of Medical Examiners, the defendant admitted that he attempted to make cures by the power of mental suggestion, that he used harmless pills and a little dry telephone battery merely as aids to this suggestion, and did not attempt to treat cases requiring surgical operations. It was held that he must first stand an examination and obtain a certificate of qualification from the State Board, as required by Code 1907, § 1625.—Smith v. State, Alabama Court of Appeals, 63 So. 28.

MEDICAL RECORD.

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POLYGLOBULIA AND DISEASE OF THE LIVER.

THE association of these two conditions has been noted for a long time. In 1907 Mosse of Berlin reported the case of a patient in whom polycythemia was associated with urobilinuria, icterus, and a splenic tumor. This case recently came to autopsy. A careful histological examination of the liver and spleen was made so that the question of the relation of polyglobulia to disease of the liver could be more thoroughly studied. Accordingly Mosse was able to present a comprehensive analysis of this subject in the *Zeitschrift für klinische Medizin*, Vol. 79, Nos. 5 and 6.

He points out in the first place that Taussig was the first to note the polyglobulia resulting from phosphorus poisoning. This observation was later confirmed by von Jaksch and Silvermann. Since then a number of observers have reported cases of polyglobulia associated with disease of the liver. One of Türk's cases was that of a 36-year-old patient with large liver and spleen and with a considerable degree of urobilinuria. There was no cyanosis of the lips, cheeks, or ears. The erythrocyte count was 10,000,000. Türk made a presumptive diagnosis of biliary cirrhosis of the liver, splenic tumor, and hyperplasia of the erythroblastic myeloid tissue. He advanced the hypothesis that the primary defect was in the erythroblastic apparatus of the bone marrow. More recently Türk included these cases with the erythremias, regarding the erythrocytosis as a secondary phenomenon. He advanced the belief that the same poison which in Banti's disease causes a chronic anemia, in other cases is set free from the diseased spleen in a smaller amount and gives rise to a hyperglobulia. In this manner Türk sought to reconcile the conception of Banti's disease with its large spleen and anemia with the conception of polycythemia megalosplenica. With this category of cases must be included those with marked cirrhotic changes in the liver, for liver and spleen share in a common functional activity just as do the spleen and bone marrow.

The clinical and pathological study of Mosse's case appears to add further weight to the above observations, namely, that in a series of cases there are sharply marked off the following phenomena: The presence during life of polycythemia, urobilinuria, icterus, and a splenic tumor; and at autopsy of a highly vascular spleen, a hyperblastic red bone marrow, and a cirrhotic condition of the liver. Mosse believes that all these cases belong to the same category, and discusses the nature of this condition. He believes that the cirrhosis of the liver, least of all, is likely to be a primary condition, in other words, that one is here dealing with the typical picture of Laennec's cirrhosis. There remain three possible interpretations: first, that advanced by Hess and Saxl, namely, an alteration in the liver cells causes a loss in the hemoglobin-destroying function of the liver; second, Türk's conception of a secondary erythrocytosis; third, the following explanation which is offered by Mosse. The anatomical cause, a primary diffuse disease of the bone marrow gives rise to an increase in the red blood cells as well as the leucocytes. This causes a secondary enlargement of the spleen. The cirrhosis of the liver is likewise a secondary manifestation. The liver is damaged as the result of an increased functional activity necessitated by the transformation of an excessive amount of noxious material. Mosse concludes that the syndrome of polycythemia with urobilinuria, icterus, and a splenic tumor is in no sense to be included among the common clinical pictures. The anatomical basis is a hyperplasia of the bone marrow, an excessive vascularity of the splenic pulp, and cirrhotic changes in the liver.

TRACHOMA IN THE MOUNTAIN SECTIONS OF VIRGINIA.

THE fact was demonstrated some time ago by Drs. I. A. Stucky and John McMullen, U. S. Public Health Service, that trachoma is unduly prevalent in certain of the mountain counties of Eastern Kentucky. After these reports had been published it was decided to make a survey of the entire Appalachian mountain chain in order to determine the extent of the spread of trachoma among a population allied by blood and affected by propinquity to the people of this infected region. The results accruing from this survey have been published in Public Health Reports June 5, by Dr. Taliaferro Clark, Surgeon U. S. Public Health Service. The survey was commenced in September, 1913, at Wheeling, W. Va., with an examination of the school children of that city for trachoma; inspections were made in 23 counties of West Virginia, during which 20,848 persons were examined, among whom 340 cases of trachoma were found, 1.63 per cent. The survey of the mountainous sections of Virginia was ended at Staunton, Va., April 29, 1914. In the course of the survey 10 counties, contiguous to the known infected territory of Kentucky and West Virginia, were visited and 7,801 persons were examined for trachoma. Of these 108 had the disease, 1.38 per cent. Clark points out that a significant fact revealed by this survey is the wide distribution of trachomatous infection throughout the greater portion of West Virginia.

The object of the survey has not been to uncover every case of trachoma, but to outline the limits of infected territory and to bring to the attention of local physicians, school boards, and other authorities the menace of the disease, and the necessity of concerted action for its eradication. The origin of the disease, so far as Virginia is concerned, is obscure, but it is Clark's belief that it has existed among the people since their earliest settlement, and that it has spread as the population increased and because of the lack of sanitary precautions.

The following recommendations with a view to stamping out trachoma in Virginia are made by Clark: (1) Systematic examination for trachoma should be made of all school children of the State; (2) all children suffering from active trachoma should be excluded from school under medical supervision until pronounced in condition to return without danger to others; (3) the expense of such medical supervision of school children should be borne by the State whenever necessary; (4) a school nurse should be employed wherever practicable, whose duty would be to visit the homes of children debarred from school by reason of trachoma and put into practice, under the physician's direction, the principles of control of the disease from the standpoint of the individual and the public; (5) a campaign of education in infected territory by means of talks to school children and the distribution of printed information relative to the dangers and prophylaxis of trachoma; (6) free hospitals to be erected at suitable and convenient points; (7) the co-operation of the mining companies should be secured in order that a systematic examination of all miners may be made by their physicians, and all cases of trachoma found among them treated; (8) a systematic effort should be made to improve the sanitary condition of rural schools to the end that the dangers of school infection may be lessened.

ETIOLOGY OF THE INFECTIOUS DISEASES.

WITHIN the past few years our knowledge of the etiology of the infectious diseases has greatly increased. In an address delivered before the Richmond Academy of Medicine and Surgery on February 10, 1914, and published in Public Health Reports, April 3, 1914, Dr. John Anderson, Director of the Hygienic Laboratory, dwelt on the recent additions to our knowledge of the etiology of the infectious diseases. He pointed out that while very recent years have witnessed remarkable advances in our knowledge of many of the phenomena of disease, in our understanding of its true nature, there was a period not long ago in which little was done to forward our knowledge of some important infectious diseases endemic almost throughout the civilized world, and research workers realized that new methods or agencies must be employed. It has been due to the recognition and application of certain methods and agencies of research that our present understanding has been obtained.

Furthermore, pari passu with the advance of knowledge in this direction has come the discovery that some diseases formerly thought not to be communicable really belong to the infectious class. Poliomyelitis is the most outstanding example. The use of the monkey as an experimental animal, according to Anderson, has contributed more than any other single factor to the important recent additions to our knowledge of the acute infections. Another important advance, to which attention was drawn by the speaker, was in the adoption of methods of experiment by which the infective material was introduced into the body so that it was brought into immediate contact with the organs or tissues primarily and most seriously affected in the natural disease, as in experimental meningitis and poliomyelitis, where the infective material is put directly into the cranial or spinal cavity.

The progress of knowledge regarding the infectious diseases in a comparatively short space of time has been wonderful, and has paved the way to the prevention and treatment of these maladies. In the field of medical research, American investigators have played a prominent part, and probably no living student of medical research has done more to clear up obscure points in the origin of disease than Theobald Smith.

A NEW REACTION IN THE CEREBROSPINAL FLUID.

IF one cubic centimeter of cerebrospinal fluid is placed in a small test glass, and an equal amount of a 1-1,000 potassium permanganate solution is superadded while the glass is held at an angle, a negative behavior shows that the fluid is normal, the glass having previously been shifted to the perpendicular. If the fluid is not normal a yellow color zone will appear at the junction of the two liquids, and if the glass is now shaken the entire bulk of the fluid becomes bright yellow, the rose-violet color of the permanganate solution vanishing. But if the fluid is normal shaking causes it to assume the rose-violet hue of the reagent. The more decided the reaction in a pathological fluid, the more promptly it appears. Thus far nothing is known of the rationale or significance of a positive reaction.

We are indebted for this innovation to Piero Boveri, who is connected with the neuropathological division of the Ospedale Maggiore of Milan. He has submitted 40 patients with nervous affections to the test and has established a scale between the highly positive and negative extremes, in which promptness, the length of the cycle, and other elements figure. The outcome of this series of examinations has convinced the author that a positive result is the most delicate evidence that something pathological is present in the cerebrospinal fluid. For one thing the albumin content is increased, not in a mere majority, but in all cases. There is no parallelism with any kind of cell count. The most marked reactions are seen in myelitis. It is possible that escape of hemoglobin into the fluid will turn out to be the cause of the reaction. Another hypothesis, quite in line with the work

of others, is that the latter is provoked because of the presence in the fluid of the catabolic products of endogenous albumin.

The Possible Relationship of Endemic Goiter to Water Supply.

In January, 1913, Major Robert McCarrison, of the Indian Medical Service, delivered the Milroy Lectures before the Royal College of Physicians of London, taking as his subject the etiology of endemic goiter. These lectures created somewhat of a sensation in the medical world. McCarrison concluded from a study of the behavior of endemics and of authenticated outbreaks occurring in his own experience and in the experience of others, that endemic goiter is due to the existence of a specific living excitant. He claimed that living organisms bringing about goiter were found in water and that these organisms and not dissolved salts were the cause of the affection. Drs. Taliaferro, Clark and Claude C. Pierce, Surgeons U. S. Public Health Service, in Public Health Reports, April 17, 1914, analyze McCarrison's findings and summarize their own conclusions as follows: (1) The cause of endemic goiter is not yet determined. (2) The extensive prevalence of goiter in rural communities, where families are widely separated and have separate water supplies, tends to preclude the possibility of the affection being due to a water-borne, living, organic excitant. (3) The enormously greater prevalence of goitrous endemicity in regions underlaid by carboniferous, devonian, and silurian strata, can certainly bear some relation to the water supplies which should carry in solution, or do not, as the case may be, the same or similar chemical substances. (4) The observations of Howell on the prevalence of endemic goiter in an arid region of New South Wales, in which the sole water supply is rain gathered and stored in cisterns, point to the probability of the affection being due to a deficiency of certain necessary chemical substances. (5) The experiments of Marine and Lenhart, by which goitrous fish were cured by the addition of iodine in the form of Lugol's solution to their water supply, indicate that the affection may be due to a lack of iodine in the drinking water or in vegetables grown on the soil of goitrous districts. In fact, the administration of iodine, either locally or internally, is a recognized method of treatment of the affection in man. Many recoveries are reported as due to this treatment. (6) The experimental production of goiter in man by McCarrison is in need of corroboration. His interpretations also are somewhat indefinite.

Needless Alarm.

At the meeting of the American Institute of Homeopathy held in Atlantic City this week, Dr. DeWitt Wilcox of Boston, in his presidential address, as reported in *The Sun*, warned his hearers that "the American Medical Association has formed an unholy alliance with the medical departments of the army and navy by which they propose to own and control every medical college in the country, together with all the university hospitals, thus getting into their own grasp all the examining and licensing boards of the United States." The lingering vibrations of the American Medical Association meeting of the previous week must have affected Dr. Wilcox unpleasantly, for the facts do not warrant his fears. Our homeopathic brethren are well represented on all the State examining boards and there has been no attempt to prevent the licensing of graduates of homeopathic colleges. If any of the colleges of that school are below standard they must bestir themselves and rise to the grade required of all, regular, homeopathic, and eclectic alike. As for the American Medical Association getting control of the State boards, it would have to reckon not only with the homeopathic and eclectic members of those boards but with the members of the State legislatures as well. Dr. Wilcox's alarm is purely "psychological."

The Early Period of Microscopy.

It would be a truism to say that no one factor has contributed more to the advance of medical knowledge than the microscope. Without the microscope medical research would be impossible. At a meeting of the Section of the History of Medicine of the Royal Society of Medicine, held in London on May 27, 1914, Dr. Charles Singer gave an account of the earliest period of microscopy. It seems that convex lenses, though known for centuries, were first adopted for the purpose of investigation at the end of the sixteenth century. They were probably used by Mouffet and Hoefnagel more than 60 years before such workers as Hook and Leeuwenhoeck perfected their methods of manufacture. The compound microscopic was discovered more or less accidentally by Zacharias, a Dutch spectacle maker, about 1590. The introduction of the microscope into medicine may be especially attributed to Borel and Kircher. The pioneer period of microscopic discovery closed and the classical period commenced with the work of Hook and Malpighi after the middle of the seventeenth century.

News of the Week.

Plague in the South.—Announcement of the discovery of a case of bubonic plague in New Orleans was made by the health officers of that city on June 27. The patient had been in the city for eleven days, but it could not be learned where he had contracted the disease.

Studying Pellagra.—The commission for the study of pellagra, composed of physicians from the Medical Corps of the United States Navy and Army, the Public Health Service, and the New York Post-Graduate Medical School, was joined on June 20 by Dr. Simon Flexner and Dr. Peyton Rous of the Rockefeller Institute, New York, and Dr. Linsly R. Williams, deputy commissioner of health of New York State. The members of the commission are now at Spartanburg, S. C. It has been estimated that between 50,000 and 75,000 cases of pellagra exist in the South, while of the 8,000 cases studied by the commission 28 per cent. have proved fatal.

Seaside Hospital Opens.—The Seaside Hospital of St. John's Guild, situated at New Dorp, Staten Island, was opened for the summer on June 21.

Sanatorium Dedicated.—In the presence of a number of officials and guests of the Metropolitan Life Insurance Company, on June 20, the tuberculosis sanatorium erected by the company for the benefit of its employees was formally dedicated and opened. The sanatorium is situated on

Mount McGregor, nine miles from Saratoga, N. Y., and at present houses sixty-nine patients. When it is completed accommodations for 229 will be provided. The Metropolitan is the first insurance to establish such provisions for the treatment of its employees, and its right to do so was passed upon by the Supreme Court of the State before the work was undertaken.

Medical Museum.—The Wellcome Historical Medical Museum which was founded in London by Mr. H. S. Wellcome in connection with the Seventeenth International Congress of Medicine, was reopened on May 28 last as a permanent institution. Since its closing last October the museum has received a number of additions and the collections have been rearranged. The exhibition is open daily at 54A Wigmore street, Cavendish Square, W., and is free to members of the medical profession on presentation of their visiting cards, and cards of admission can be obtained by others interested on application to the curator, with this important exception: "Ladies will be admitted, *only* if accompanied by a qualified medical man." Thus are the activities of the strenuous suffragette feared even in scientific circles.

Public Health Sunday.—Forty of the Philadelphia churches opened their pulpits to physicians on June 21 in celebration of "Public Health Sunday."

New York State Board of Medical Examiners.—Dr. Hans Zinsser, professor of bacteriology in Columbia University, New York City, has been appointed examiner in bacteriology in place of Dr. H. U. Williams of Buffalo, who resigned.

The Board of Regents has revoked the medical license of Abraham Glickstein on the complaint of the Medical Society of the County of New York.

New Rockefeller Gift.—The trustees of the Rockefeller Institute for Medical Research, New York, have recently received from Mr. John D. Rockefeller an additional gift of $2,550,000, which is to be used for the acquirement of land adjoining the present holdings of the Institute on the East River and the erection and equipment of new laboratory buildings. Only a short time ago Mr. Rockefeller gave $1,000,000 to the Institute for the establishment of a department for the study of diseases of animals, making his total gifts to the Institute thus far, exclusive of the land which it now owns, amount to about $12,500,000. This means that the Rockefeller Institute is the most richly endowed institution for medical research in the world.

Sterilization Law Killed.—The United States District Judge of the Southern District of Iowa on June 24 declared unconstitutional, and therefore null and void, the law passed by the last General Assembly of Iowa providing for the sterilization of certain criminals. This decision was based on the belief that the penalty was in violation of the Constitution, which provides that cruel and unusual punishment shall not be inflicted.

American Medical Association.—The following officers were elected at the annual meeting at Atlantic City, June 23-26, 1914: *President*, William L. Rodman, Philadelphia; *1st Vice-President*, E. S. Fairchild, Kansas City, Mo.; *2d Vice-President*, D. Misner R. Townsend, New York; *3d Vice-President*, Alice Hamilton, Chicago; *4th Vice-President*, William E. Darnall, Atlantic City, N. J.; *Secretary*, Alexander R. Craig, Chicago; *Treasurer*, William Allan Pusey, Chicago; *Trustees*, Philip Marvel, Atlantic City; W. T. Sarles, Sparta, Wis.; Philip Mills Jones, San Francisco. The next meeting of the association will be in San Francisco in June, 1915.

Medical Licenses Granted.—As a result of the spring examinations eighty-one physicians have received licenses to practice medicine in the State of North Carolina. There were 118 applicants in all.

The Louisiana State Board of Medical Examiners has licensed fifty-nine physicians to practice in that State, refusing five others who had applied.

The Mississippi State Board of Health examined fifty-five applicants on June 16, 17, and 18, and granted licenses to thirty-five.

Cripples' Welfare Commission.—This national commission held its annual meeting in Philadelphia on June 20, following the convention of the American Orthopedic Association. Plans were made for the establishment of a central bureau for literature relating to the education and care of cripples, and the *American Journal of Care for Cripples*, published by the Federation of Associations for Cripples, in New York, was designated as the official organ of the commission. The following officers were elected: *President*, Dr. Arthur J. Gillette, St. Paul, Min.; *Vice-President*, Dr. H. Winnett Orr, Lincoln, Neb.; *Secretary*, Mrs. E. R. Solenberger, Lansdowne, Penn.; *Treasurer*, Dr. John L. Porter, Chicago; *Editor*, Mr. Douglas C. McMurtrie, New York. The other members of the commission are Dr. Leonard W. Ely, San Francisco; Dr. A. H. Freiberg, Cincinnati, O.; Dr. Michael Hoke, Atlanta, Ga.; Dr. Robert W. Lovett, Boston, Mass.; Dr. John Ridlon, Chicago; Dr. Harry N. Sherman, San Francisco; Dr. David Silver, Pittsburgh; Hon. George W. Sweney, Marion, O., and Dr. H. Augustus Wilson, Philadelphia.

Nurses' Home Begun.—The cornerstone of the new home for nurses of the German Hospital, Williamsburg, was laid on June 21, by ex-Mayor Kline in the presence of five thousand persons. The home will cost $45,000 and will be ready for occupancy in October.

Cocaine Users Sentenced.—Five persons, four men and one woman, convicted of using cocaine, were sentenced in the Court of Special Sessions last week to terms of from six months to one year in the penitentiary for using cocaine. In the Court of General Sessions a man, convicted of selling cocaine, received a sentence of six years and one month.

Home of Surgery.—At the annual meeting of the American College of Surgeons in Philadelphia on June 22, a movement was begun for the establishment of a permanent home of surgery in Washington, for which an endowment fund of half a million dollars will be needed. More than $100,000 was pledged by the members of the association within an hour, and it was predicted that the fund would easily reach $1,000,000. The college now has a membership of 3,200, having admitted 1,100 surgeons to fellowship at this meeting. Dr. Thomas Addis Emmett of New York was elected an honorary fellow of the college.

New Post-Graduate School.—With the purpose of increasing the efficiency of the physicians and surgeons of the South, a number of physicians of Louisiana have recently formed and incorporated the New Orleans Post-Graduate School of Medicine. Dr. Homer Dupuy, chief of the eye, ear, nose, and throat department of the Charity Hospital, New

Orleans, has been made president of the school, which includes among its other officers and board of directors a number of the most prominent medical men of the city.

Sick Rate at Vera Cruz.—The sick rate among the soldiers and marines at Vera Cruz decreased slightly during the week ending June 20 as compared with the previous week. In the army the rate fell from 2.15 to 2.03, and among the marines from 2.88 to 2.30. Forty-three soldiers and marines are being cared for in the hospital and seventeen are reported ill in quarters.

Dr. Morton Reinstated.—Dr. William J. Morton, who was debarred from the practice of medicine in New York State by his conviction some time ago in the Federal Courts of illegal acts in relation to a mining promotion, was reinstated by the State Board of Regents at its regular meeting on June 25. This action was taken under the authorization of a special act of the Legislature passed at the last session, and was based particularly upon a letter from the President of the United States, a letter from the judge who presided at Dr. Morton's trial, a letter from the prosecuting attorney, and the favoring attitude of medical societies and many prominent physicians.

City Death Rate.—The death rate of New York City for the week ending June 20 was only 11.42 per 1,000 of population, the lowest rate on record for any week since 1868 when the Department of Health began the compilation of statistics. The total number of deaths was 1,222. Pulmonary tuberculosis and pneumonia were the only causes of death showing increases as compared with the corresponding week of last year, while all the age groups showed decreases, with the greatest decline in that below five years of age. The death rate has dropped below 12 per 1,000 only three times in the history of the department. For the first twenty-five weeks of this year the death rate was 14.91, as compared with the 15.18 for the same period of 1913.

Gifts to Charities.—A large number of charitable institutions receive bequests under the will of the late Mrs. Morris K. Jesup, of New York, among them being the Presbyterian Hospital, New York, $150,000; the Manhattan Eye and Ear Hospital, New York, $50,000; the Woman's Hospital, New York, $150,000; the General Memorial Hospital, New York, $10,000; St. Luke's Hospital, New York, $10,000, and the Home for Consumptives, Denver, Col., $50,000.

The New York Eye and Ear Infirmary receives a bequest of $10,000 under the will of the late Miss Serena Rhinelander of this city.

Personals.—Dr. Godfrey Roger Pisek of New York received the honorary degree of doctor of science from the University of Vermont at its 110th commencement on June 24.

Dr. Henri de Rothschild of Paris, who prefers to use his medical title only although he is a baron of the Austrian Empire, was shot on June 21 by a milk dealer of Paris who says that his business was ruined by the opening of one of Dr. de Rothschild's philanthropic milk stations in his neighborhood. Dr. de Rothschild was not seriously wounded.

Dr. Josephine Walter of New York was recently appointed consulting physician to the Medical Department of the New York Infirmary for Women and Children and was also appointed a trustee of the Infirmary. The latter appointment gives great satisfaction to the women connected with the hospital and to the women of the profession generally, as it has long been felt that the Board of Trustees of the infirmary would be benefitted by a larger representation of physicians. Dr. Walter has served as attending physician at the infirmary for a number of years, and as an appreciation of her faithful services and a token of the high esteem in which she is held by her associates in the hospital, she has been presented by them with a beautiful silver loving cup.

Dr. Margaret N. Sullivan, president of the Child Welfare Association of New Jersey, has been appointed assistant to the chief surgeon, Dr. J. J. Mooney, at the Jersey City Hospital. Dr. Sullivan is the first woman physician to serve upon the hospital staff.

Mr. James U. Norris, assistant superintendent of the Rockefeller Institute, has been appointed superintendent of the New York Polyclinic Medical School and Hospital, succeeding Mr. John Gunn, resigned.

Medical Society Elections.—Medical Society of North Carolina.—Annual meeting at Raleigh on June 16 to 18. Officers elected: *President*, Dr. Lewis B. McBrayer, Asheville; *Vice-Presidents*, Dr. J. J. Philips, Tarboro; Dr. Charles W. Moseley, Greensboro, and Dr. Samuel M. Crowell, Charlotte; *Secretary*, Dr. John A. Ferrell, Washington, D. C.

Litchfield County (Conn.) Medical Society.—Annual meeting at Winsted on June 12. Officers elected: *President*, Dr. Elias Pratt, Torrington; *Vice-President*, Dr. Robert Hazen, Thomaston; *Secretary*, Dr. Charles H. Turkington, Litchfield.

Complimentary Dinner to Dr. Edred Corner.—On the evening of June 26 at the Waldorf-Astoria Hotel, New York, Dr. W. Seaman Bainbridge gave a complimentary dinner to Mr. Edred Corner, F.R.C.S., surgeon to St. Thomas's Hospital, London, and to other British and American medical friends. Mr. Corner gave an address on the surgery of the knee joint; Dr. W. E. Nicholls Dunn, the medical officer in charge of the hospital at Luxor, Egypt, gave an interesting account of the diseases met with in Egypt, and Dr. Eugene Fuller of New York gave a description of his operation for the relief of gonorrheal rheumatism.

Obituary Notes.—Dr. Daniel William Flemming of Philadelphia, a graduate of the Jefferson Medical College, Philadelphia, in 1889, died at his home on June 14, aged 54 years.

Dr. George Frederick Reinhardt of Berkeley, Cal., a graduate of the University of California, Medical Department, in 1900, professor of hygiene in his alma mater since 1903, for several years president of the State Board of Medical Examiners, and a member of the American Medical Association, the Medical Society of the State of California, and the Alameda County Medical Society, died at the University of California Infirmary, of which he was physician in charge, on June 7, after a short illness, aged 45 years.

Dr. Samuel H. Moore of Indianapolis, Ind., a graduate of the Indiana Medical College, Indianapolis, in 1870, a veteran of the Civil War, died at his home, from paralysis, after a long illness, on June 15, aged 71 years.

Dr. Charles M. Butterworth of South Bend, Ind., a graduate of the Medical College of Ohio, Cincinnati, in 1889, first city health officer of South

Bend, formerly county physician and a member of the staff of the Epworth Hospital, and a member of the American Medical Association, the Indiana State Medical Association, and the St. Joseph County Medical Society, died at his home, from pneumonia, after a short illness, on June 12, aged 47 years.

Dr. HERBERT SNOWDEN FAIRALL of Deep River, Minn., a graduate of the State University of Iowa, College of Medicine, Iowa City, in 1903, died at his home, from pneumonia, after a brief illness, on June 9, aged 35 years.

Dr. WILLIAM HENRY POMEROY of Springfield, Mass., a graduate of the Harvard University Medical School in 1886, visiting physician to the Springfield Hospital since 1898, to the Home for the Friendless since 1899, and to the Children's Home since 1889, for many years post surgeon at the United States Army Barracks in Springfield, and a member of the American Medical Association and the Massachusetts and Hampden District Medical Societies, died at his home, from heart disease, suddenly on June 10, aged fifty-six years.

Dr. EDGAR H. NEYMAN of Milwaukee, Wis., a graduate of University of Kiel, Germany, in 1890, died at his home from pneumonia, on June 7, aged forty-nine years.

Dr. FREDERICK FERDINAND RUDOLPH BERLIN of New York, a graduate of the University and Bellevue Hospital Medical College, New York, in 1900, and a member of the American Medical Association, the New York State and County Medical Societies, and the Medical Society of Greater New York, died at his home suddenly on June 14, aged fifty-five years.

Dr. SIMON MARX of New York, a graduate of the College of Physicians and Surgeons, New York, in 1884, surgeon to the New York Maternity Hospital, gynecologist to the Red Cross Hospital, formerly lecturer on obstetrics at the New York Post-Graduate Medical School, and a member of the New York Academy of Medicine, the New York State and County Medical Societies, and the New York Obstetrical Society, died at his home on June 16, aged fifty years.

Dr. MARVIN REED PALMER, chief surgeon of the Police Department of New York, and for twenty-five years connected with the service, died on June 20, following an operation for appendicitis a few days before. Dr. Palmer was fifty years of age and was graduated from the College of Physicians and Surgeons, New York, in 1882.

Dr. RUPERT NORTON of Baltimore, assistant superintendent of the Johns Hopkins Hospital, a graduate of the Harvard University Medical School in 1893, and a member of the American Medical Association, the Medical and Chirurgical Faculty of Maryland, and the Baltimore City Medical Society, died at the hospital, from typhoid fever, on June 19, aged forty-seven years.

Dr. EDWARD M. SHIPP, Surgeon, Lieutenant Commander, U. S. N., in command of the Puget Sound Naval Hospital, a graduate of the Medical College of Virginia, Richmond, in 1891, and a member of the American Medical Association, died at the Naval Hospital, Puget Sound Navy Yard, Wash., on June 17, aged forty-six years. Dr. Shipp saw active service in the navy during the Spanish war, and had served also at the Naval Hospital, New York, and Naval Medical School, Washington, and as commander of the Naval Hospital at Yokohama.

Dr. THOMAS G. FOX of Hummelstown, Pa., who for some years had had the distinction of being the oldest living graduate of the Jefferson Medical College, Philadelphia, from which institution he received his degree in 1851, died at his home on June 18, aged eighty-seven years.

Dr. JOHN SENTER DAVIS of Lone Oak, Ky., a graduate of Vanderbilt University, Medical Department, Nashville, Tenn., in 1892, and a member of the Kentucky State Medical Association, the Southwestern Medical Society, and the McCracken County Medical Society, died suddenly, after a brief illness, in a sanatorium at Memphis, Tenn., on June 15, aged 46 years.

Dr. DANIEL LANGAN of Clinton, Ia., a graduate of the State University of Iowa College of Medicine, Iowa City, in 1863, a veteran of the Civil War, and a former president of the Clinton County Medical Society, died at his home on June 13, after several weeks' illness, from nephritis, aged 79 years.

Dr. JAMES H. MORGAN of Wilmington, Del., a graduate of the Jefferson Medical College, Philadelphia, in 1889, died suddenly at his home, from apoplexy, on June 17, aged 56 years.

Dr. CALEB SCATTERGOOD MIDDLETON of Philadelphia, a graduate of the Homeopathic Medical College of Pennsylvania, Philadelphia, in 1862, died at his home at Ardmore, on June 24, aged 75 years.

Dr. FREDERICK JOHNSON KINNEY of Olds, Ia., a graduate of the Northwestern University Medical School, Chicago, in 1912, died at his home after a brief illness, on June 12, aged 27 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

HOSPITAL SUNDAY—DEGRADING SCENE IN ST. PAUL'S CATHEDRAL — OLIVER-SHARPEY LECTURES — OUTBREAK OF DISEASE IN SHEEP—TRAINING OF MIDWIVES—HOSPITAL SHIP STRANDED.

LONDON, June 19, 1914

THE week opened with Hospital Sunday and collections were made at the places of worship of all denominations. At St. Paul's Cathedral the annual Hospital Sunday service was attended, as usual, by His Majesty's judges, accompanied by the lord mayor, sheriffs, aldermen, and councillors. The female suffrage fanatics seized this occasion to make a more disgraceful demonstration than would be thought possible for their most degraded followers. As soon as the anthem began one of them shouted and police who had been stationed in aisles went to remove her. She had been chained to the plank connecting a row of chairs and either the whole row must be removed or the plank sawn through. The latter plan was adopted, a saw obtained, and while the organ and choir continued the anthem the plank was sawn in halves and the woman, chair, and chain affixed to her taken out. Meanwhile there was great disturbance. Two women flung themselves on the floor and shrieked and kicked. One chanted "God Save Emmeline Pankhurst." People stood up in their places and the interrupters kept up deafening noises. Some were gagged by those near—hands and handkerchiefs being freely applied. The indignation of the public generally was deep before this exhibition. On Sunday, too, at Hampstead Heath the suffragettes held or tried to hold a meeting. A crowd

surrounded them and endeavored to carry the platform to the pond. The police got the woman speaker off before reaching it but the platform was broken and thrown into the water, in which also some of the suffragists got ducked. In Hyde Park also an attempt to hold a meeting was prevented by the crown. A heavy thunderstorm dispersed the would-be speakers. Other meetings in the previous week had roused the mob in different places. Yet the government, which pretends not to fear the civil war threatened by its action and policy, drifts helplessly along unable to control a few female fanatics.

The Oliver-Sharpey lectures of the Royal College of Physicians were this year delivered by Dr. Gowland Hopkins who devoted them to an exposition of some of the effects which follow upon "changes in the reaction of the blood." The lecturer is Reader in Chemical Physiology at the University of Cambridge and you will therefore be prepared to hear that the subject was treated from the most advanced standpoint of these sciences. Valuable essays you may term them bringing certain questions up to date, but as rather abstruse reports more adapted for reading than for listening. Indeed one might be excused for wondering how many of the eminent physicians present could grasp their significance on simply hearing them.

It is a common observation that the blood is alkaline and that giving alkaline medicines tends to increase that reaction while acids decrease it, just as it is also said that the development of acids in the blood or in the tissues constitutes the state called acidity. But this rough physico-chemical explanation is unsatisfactory and may be met at once with the statement that whatever the reaction the blood is in fact neutral or nearly so and is maintained in that condition by the action and reaction of factors which confine its variations within extremely narrow limits. Dr. Hopkins put the effects of alkalies as increasing and acids decreasing the oxidative processes of metabolism. Evidence as to the effect of acidity he held was shown by Rona and Willenks's experiments on the isolated perfused heart, which prove that the utilization of sugar by the heart is depressed by rise of acidity in the circulating medium. But reactions in the blood must affect the tissues also and changes may take place in these, of a temporary character in health, or more permanent under abnormal conditions.

In 1907 the lecturer jointly with W. M. Fletcher investigated the conditions of lactic acid in muscle. They showed that the estimation of the amount in resting muscle had been greatly exaggerated as no small proportion of this had been produced by the manipulations of the analyst and further that a sufficient supply of oxygen to the muscle caused a disappearance of the lactic acid *in situ*. They suggested that this removal does not necessarily imply actual oxidation of the acid, but rather the restoration of some complex from which it arises, a reversal of a reaction under oxygen. But the lecturer suggested that a very low concentration of lactic acid in other organs as well as muscle might be normal even when the cell or fibre was resting, though increase was always imminent. With regard to muscle in particular he quotes Mines as formulating as a possibility that every localized production of lactic acid in the fiber at high concentration might be the cause of muscular contraction and he seemed to intimate agreement with this view as he spoke of it as perhaps having been vaguely in the minds of many.

Scrapie is the name given to a disease which lately appeared among the sheep in the northern counties and along the Scottish border. It is not, however, a modern development, but was known in these islands as well as on the continent two centuries ago. Dr. J. P. McGowan has investigated it in the Laboratory of the Edinburgh College of Physicians and his report will be very gratifying to farmers for he does not consider it contagious—a conclusion borne out by the farmers' experience as some of them have got rid of it by bringing on to their farms healthy young sheep to mix with their flocks. Dr. McGowan found the *Sarcocystis tenella* a prevailing parasite, but the symptoms of scrapie only appeared when it was present in large numbers. Rabbits developed symptoms of scrapie when inoculated from the muscles of affected sheep, but not from healthy ones. The first symptom seems to be itching, for the animals show every evidence of skin irritation which goes on to emaciation and weakness—the parasite increasing to great numbers in the muscles. The report advises to continue the plan of mixing fresh members with the flock, but never of breeding from those affected.

The annual meeting of the council for promoting the higher training of midwives was held on Wednesday when Lady Balfour spoke of amalgamation with another branch of their work and Dr. Eric Pritchard gave statistics showing that whereas fourteen years ago their infant mortality was 1 in 7 it was now only 1 in 10. This he claimed was in great measure due to the excellence of the training of midwives and the influence of those trained.

Telegrams announce that yesterday the hospital ship *Maine* had gone ashore on a small island on the southeast coast of Mull in the Firth of Lorne. All the *Maine's* boats had been lowered and a number of the patients landed and accommodated under canvas. The scene of the stranding is a wild rocky coast fully exposed to the swell of the Atlantic. But several vessels are reported to arrive to succor the *Maine* and it is expected the invalids and crew will all be brought away safely.

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

HEALTH WORK AMONG NAVVIES—VACCINOTHERAPY IN PUERPERAL INFECTION—MALARIA DURING THE PUERPERIUM—RASHES FROM MANGOES—IMPROVED HEALTH CONDITIONS IN MANILA—MEASLES ON A UNITED STATES TRANSPORT.

MANILA, P. I., May 12, 1914.

EXPERIENCE in the Philippines has shown that where large numbers of workmen are collected for the purpose of carrying out extensive public works, such as the building of railroads, the grading of wagon roads, the laying of sewers, etc., unless the rules of primary sanitation are carefully observed a high mortality and morbidity rate results in almost every instance. The principal trouble is usually due to intestinal diseases, the transmission of which is caused by the faulty disposition of human excrement. Malarial fever is also an important factor in camp life. On the new wagon road which is being built from Baguio, which is at an elevation of 5,000 feet, to Bauan, on the sea, a distance of 56 kilometers, 1600 to 2000 men have been continuously employed during the past four months. This labor was largely recruited among the Igorot and Ifugao wild tribes. The former are known frequently to be afflicted with or to have

among them carriers of bacillary dysentery. Only one death has taken place and there have been but a few cases of illness. An inspection made recently of the camps shows that while in many respects there is much room for improvement, the disposal of human excrement has been carried on in a sanitary manner and it is to this that the good results are probably due. A railroad is also being constructed between the same points and similar success has been had with the workmen who are employed on that project. That the danger of the spread of disease is ever present was well shown by the fact that a high morbidity rate was continuously present among a group of Italian laborers who were employed on tunnel work and who refused to carry out the sanitary measures which had been prescribed for them.

The regular monthly meeting of the Manila Medical Society took place in the amphitheatre of the College of Medicine and Surgery at 8:30 P. M., May 4, 1914. The first paper was read by Doctor Fernando Calderon, Professor of Obstetrics in the University of the Philippines, and was entitled "Vaccinotherapy in Puerperal Infectious Fevers." The author came to the conclusion, after two years' experience in the Philippine General Hospital, that vaccinotherapy had little or no influence upon cases which had been treated there. The second paper, entitled "Malaria During the Puerperium," was read by Doctor M. Tolentino. The author stated that the administration of quinine for malaria during the puerperal period apparently had no untoward effects and did not interfere with the pregnancy.

A preliminary report on the "Lymphagogic Action of the Mango" was read by Doctor R. B. Gibson. The author stated that preliminary investigations made on the dog indicated that the mango had no lymphagogic action. In view of the frequent rashes which are produced in persons presumably by mangoes, he requested that cases be referred to him in order that the matter might be given further study.

During the month of April the death rate for the city of Manila reached a lower point than for any other April since American occupation. The rate was 21.16 per 1000. This is most interesting when it is remembered that nearby foreign ports with which the Philippines are in intimate communication are having epidemics of plague, smallpox and typhus fever. It also affords striking proof of what modern health organization may be able to accomplish in the control of dangerous communicable diseases. The danger from an increased death rate in Manila due to an increase among the intestinal diseases was happily averted by the appearance of rains, which made it unnecessary to use water for any length of time from the polluted Mariquina River.

The last transport which arrived from the United States had a number of cases of measles aboard. In view of the modern conceptions with regard to the transmission of this disease, only those persons were placed in quarantine who could not give satisfactory evidence of having had a previous attack. Measles in the Philippines is ordinarily a very mild disease and it is only apparently when a new strain is introduced from the United States or Europe that it assumes a severe type which is capable of causing death. For this reason the local health authorities regard measles as one of the major quarantinable diseases.

DANGER OF OXYTOCICS IN OBSTRUCTED LABOR.

To the Editor of the Medical Record:

Sir:—In the issue of your journal of May 30 there appears an article by Dr. S. J. Druskin of New York upon "Cesarean Section," which contains some statements which I feel should not go unchallenged. The article, taken as a whole, is an excellent one and I heartily agree with most of the statements made and deem it quite unfortunate that the author should have spoiled it by making certain recommendations.

The point upon which I would take issue with him is that of the administration of such a powerful oxytocic as pituitrin in cases where there is even a suspicion of mechanical obstruction to delivery. In his Case No. II he gives his measurements which he clearly understood to indicate a contracted pelvis. He states: The patient was admitted to hospital January 11, at 6:30 A.M., after having been in labor for six hours, and she was allowed to continue in labor until January 13 at 11 A.M., nearly 60 hours after labor had set in. Examination revealed an occipitoposterior position, a condition itself which should absolutely forbid the administration of pituitrin; still with this fact and the fact of a generally contracted pelvis before him the doctor gave this most powerful of all ecbolics.

Again, in summing up his recommendations for the management of cases of contracted pelvis he says: "Having given the natural forces a trial, having strengthened the labor pains by the administration of pituitary extract . . . and having failed to deliver the child by the natural route, we still have at our command an operation that is relatively safe and efficient, namely, the extraperitoneal cesarean section."

Now, I must protest against the recommendation to use so powerful an ecbolic where there is any obstruction to delivery, no matter whether it be due to a contracted pelvis or some malposition. Such teaching is dangerous in the extreme and should not go unchallenged.

While we all recognize in this preparation a valuable adjunct in obstetric practice we must also recognize its dangers and limitations. The administration of pituitary extract in cases of contracted pelvis is like sending an irresistible force against an immovable object—something must happen; and in this case I would certainly expect this to be a ruptured uterus with death of the patient as a consequence.

Leon L. Sheddan, M.D.

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Progress of Medical Science.

Boston Medical and Surgical Journal.

June 18, 1914

1. A Possible Factor in the Production and Distribution of Edema. F. C. Shattuck.
2. On the Simultaneous Occurrence and Interrelation of Basedow's Disease and Tabes. H. Barkan.
3. Observations on Sterility in the Male. J. D. Barney.
4. Statistical Notes on a Series of 6000 Wassermann Tests for Syphilis Performed in the Harvard Neuropathological Testing Laboratory, 1913. E. E. Southard.
5. Cystitis—an Incomplete Diagnosis. B. Tenney.
6. A Study of Extra-Pulmonary and Other Sounds Which May Lead to Errors in the Diagnosis of Pulmonary Tuberculosis. J. B. Hawes.
7. A Plea for Early Operation for Gallstones Based on Autopsy Records. J. C. Hubbard.

2. Interrelation of Graves' Disease and Tabes.—H. Barkan states that Pierre Marie in 1892 was the first

to call attention to the simultaneous appearance and possible interdependence of the symptoms of Graves' disease with those of incipient or already well developed tabes. Judged by the history and physical findings in eight cases, the author believes that Marie's opinion was correct and that the coincidence of these diseases and a possible relationship when they are so coincident has been somewhat neglected in medical literature and teaching. All of the patients were afflicted at the same time with Graves' disease and tabes. All but one showed a positive Wassermann reaction; all showed the cardinal symptoms of tabes; the Argyll-Robertson pupil and the absence of the patellar or tendo Achilles reflex; all but two showed Romberg's sign; three cases in addition to the cardinal symptoms showed primary optic atrophy; one case showed marked ataxia, two cases showed distinct areas of paresthesia, and one case showed lancinating pains. Six of the eight patients admitted having had lues. As a group they presented just as typical a picture of Graves' disease. All showed exophthalmus, a pulse varying from 96-120, a fine tremor of the extended hands and tongue, and a palpable and enlarged thyroid, though to a slight degree in all but one; all complained of perspiration, of restlessness, and nervousness. All showed marked loss of weight.

6. **Errors in Diagnosis of Pulmonary Tuberculosis.**—J. B. Hawes discusses certain sounds, not due to tuberculosis or any other pulmonary disease, but to physiological processes, which sometimes lead to confusion in the diagnosis of pulmonary tuberculosis. These sounds may cause errors in diagnosis, either by simulating râles or else by obscuring the breath sounds or such râles or other abnormalities as may be present. Muscle sounds were a potential source of error in 9.2 per cent. of the author's 250 cases. Such sounds occur particularly in muscular persons of nervous temperament. These sounds can be lessened by quieting and calming the patient and by seeing if the examining room is sufficiently warm. Errors due to these sounds can be avoided only by great care and concentration on the part of the physician. Joint sounds resembling râles and a potential source of error occurred in 22 per cent. of this series. Errors due to this cause may be avoided by the procedure of making the patient go through the motions of breathing without taking a breath. This should be done in every doubtful case. Tendon or bursal sounds, atelectatic râles, or marginal sounds ought not to cause confusion or be sources of any mistakes in diagnosis.

New York Medical Journal.

June 20, 1914.

1. Report of the Scoliosis Clinic of the Children's Hospital, Boston. J. W. Sever.
2. The Determinants of Tabes. W. J. M. A. Maloney.
3. The Alien in Relation to the Spread of Acute Infectious Disease. L. L. Williams.
4. The Antituberculosis Campaign. J. Rosenberg.
5. Erroneous Deductions fom Tracheal Insufflation. R. C Coburn.
6. The Identity of the Lane Kink with the Joseph Price Elbow. J. W. Kennedy.
7. Idiopathic Splenomegaly; Splenectomy. A. E. Sellenings.
8. Sources of Error in the Wassermann Technique. C. T Stone.
9. Neosalversan in Concentrated Solution. J. Girsdansky.
10. A Possible Solution of the Mercury Bichloride Problem J. H. Heacock.

2. **The Determinants of Tabes.**—W. J. M. A. Maloney states that cases of syphilis are vastly more numerous than those of tabes; that tabes, far from being an inevitable, is a rare sequel of syphilis. A syphilitic protozoon may acquire a special power to attack the nervous system, and this power may be transmissible through successive generations of spirochetes and may persist in passage from host to host. The spirochete thus becomes a nerve spirochete. This so-called nerve spirochete may be a spirochete which has acquired abnormal resistance to the human defense agents; or a spirochete which is introduced as spores, which, owing to cultural characteristics acquired in the previous host, can now only or best germinate in the tissues of the central nervous system; or a spirochete in a host who, owing to individual, familial, or racial characteristics, has an imperfect resistance. The perfection of the resistance is not directly dependent upon or parallel to the local proliferative reaction; tabes may follow lesions of an ordinary or extraordinary character, or lesions of insignificant severity, or even infections which have produced no known lesions. The resistance of a host to a spore-forming organism which may invade the body tissues in succession probably depends upon the correlation of the local reaction and the biological chemical reaction of the body. This correlation probably is under the control of the autonomic and sympathetic nervous system and is achieved mainly through the medium of the ductless glands. The chemical affinities of the nerve tissues are at least as important as are anatomical relations in the distribution of syphilitic lesions throughout the central nervous system. The tabetic toxin acts as a vagotonic substance, and its action may be reinforced by autogenous and exogenous vagotonic substances. The nature of the spirochete, of the correlation of the activities of the ductless glands, and of the biological peculiarities of the chemical composition of the central nervous system determines whether or not syphilis in a given individual will result in tabes.

3. **The Alien and Infectious Disease.**—L. L. Williams believes that there is an unnecessary percentage of morbidity and a corresponding unnecessary percentage of mortality from infectious disease among immigrant children. A large number of persons infected with various acute contagious diseases pass through the immigration stations while in the incubative stage of these diseases. There is now no practicable method of effectively preventing this influx of disease. While this influx of contagion cannot be altogether stopped, it can be greatly reduced by amending and strictly enforcing the navigation laws, and by a reasonable increase of the appropriation for caring for aliens at immigration stations.

Journal of the American Medical Association.

June 20, 1914.

1. Hookworm Disease. Its Ravages, Prevention and Cure. J. A. Ferrell.
2. Induced Pneumothorax. E. von Adelung.
3. The Germicidal Activity of Calomel. J. F. Schamberg and J. A. Kolmer.
4. Spontaneous Rupture of the Healthy Esophagus. I. J. Walker.
5. Four Years' Experience with Salvarsan and Neosalvarsan in the Treatment of Nervous Diseases Due to Syphilis. C. B. Craig and J. Collins.
6. Case of Poisoning by Scopolamine Hydrobromide. M. T Sudler.
7. Pellagra with Late Skin Lesions. T. Frazer.

4. **Spontaneous Rupture of the Healthy Esophagus.**—I. J. Walker states that this condition is most frequently seen in men who are addicted to alcohol. In practically every case rupture has followed vomiting or retching after an abnormally large meal. The point of rupture in every case has been just above the diaphragm. Difficulty in making an early diagnosis in this condition is due to the fact that the symptoms are referred to the upper abdomen and not to the esophagus. The patient is in a state of marked shock with subnormal temperature, high pulse, profuse sweating, and some cyanosis. The respirations are usually slightly elevated. The face is drawn and anxious and the patient lies or sits with the knees drawn upward. Pain is referred to the epigastrium and lower chest, either on the right or left, but usually the latter. There is

marked tenderness and board-like rigidity throughout the upper abdomen. Chest examination may show a few râles at the base and sometimes hyperresonance or flatness on percussion, depending on whether there is much air or fluid in the pleural cavity. The picture up to this time is that of acute perforation of a gastric or a duodenal ulcer or acute pancreatitis. As time goes on, and especially if the patient has swallowed any liquid, the symptoms point more to some chest condition. The respirations become rapid and shallow, and the temperature elevated. The chest signs become more pronounced and the heart pushed towards the right, and the area of heart dullness practically obliterated. Aspiration of the chest will reveal fluid and gas. If the former is examined microscopically, food particles may be distinguished. In some cases there will be emphysema of the chest and neck. Very little except palliative measures can be found in the literature concerning treatment of this condition. It does seem possible that should the diagnosis be made early, there might be some chance of saving the patient by approaching the lesion through the posterior mediastinum, repairing the rent, and draining the mediastinum and pleural cavity.

5. **Salvarsan in Treatment of Syphilitic Nervous Disease.**—C. B. Craig and J. Collins reach the following conclusions: The treatment of syphilitic nervous diseases without the Wassermann reaction and spinal-fluid analysis is guesswork. The nervous system may be the site of attack within a few weeks after the initial lesion appears. The earlier antisyphilitic treatment is instituted in syphilitic nervous diseases, the greater the probability of complete recovery. Salvarsan is the most potent remedy in our armamentarium in the treatment of syphilis of the nervous system. Salvarsan is not all-sufficient. One or two doses are not usually sufficient to effect a cure, but may check the disease for a time. Syphilitic nervous diseases improve most when salvarsan therapy is combined with mercurial treatment and general tonic measures. Therapy should be continued, if possible, until the serology is negative. The serology should be determined periodically after a negative status has been achieved.

The Lancet.

June 13, 1914.

1. Some Effects Which Follow Upon Changes in Reaction of the Blood. F. G. Hopkins.
2. A Plea for the Degenerate. T. C. Shaw.
3. The Aerial Conveyance of Infection. F. H. Thomson and C. Price.
4. The Experimental Production of Purpura in Animals by the Introduction of Anti-Blood-Plate Sera. J. C. G. Ledingham.
5. Tubercle of the Crus Cerebri Simulating Enteric Fever. F. E. Wynne.
6. The Wassermann Reaction in Malaria. W. Fletcher.
7. On the Effect of Gastric and Pancreatic Ferments on the Potency of Tincture of Digitalis. A. Goodall and H. S. Reid.
8. Traumatic Exfoliative Keratitis. F. A. Harry.
9. Prehistoric Man and his Early Efforts to Combat Disease. T. W. Parry.

1. **Changes in the Reaction of the Blood.**—F. G. Hopkins concludes that the hydrogen ion concentration of the blood is a variable, but the interests of the body demand that its variations should be confined within a very narrow zone of change. In the maintenance of its mean value, which is such as to make the blood a very neutral fluid, a great number of factors play a part, some chemical, some physicochemical, and others more purely physiological. When appreciable variations occur they produce striking effects, especially upon the mechanism of respiration. Considerable departures from the normal indeed can only exist when the sensitivity of the respiratory center is simultaneously modified. In the tissues—at any rate, in certain tissues—wider variations in the hydrogen ion concentration probably occur, but metabolic processes are nicely adjusted to the maintenance of approximate neutrality even in the tissues themselves. Any local change of reaction when it occurs may profoundly affect the general chemical equilibrium in a tissue or organ. It is remarkable that the acidosis produced by such factors as are involved in taking exercise at high altitudes should induce more change in the actual reaction of the blood than the severer forms of acidosis occurring in a disease like diabetes. Doubtless the more gradual establishment of the acidosis favors a more complete adjustment. One has very definite evidence that variations of reaction may occur in disease and be responsible for certain symptoms, but the whole question of the range of variation in pathological states and the effects correlated with it remains for further study by modern accurate methods.

3. **The Aerial Conveyance of Infection.**—F. H. Thomson and C. Price treated certain infectious diseases in an ordinary ward with the precautions of cloak-wearing, cleanliness, and sterilization. They believe that the infection of measles is probably airborne early in the disease, but that the power of infection soon passes. They also believe that the infection of chickenpox is air-borne early in the disease, but their experience goes to suggest that on and after the third day it is probably not air-borne; in their view this probability is the most interesting outcome of the work. For many years the authors have held that diphtheria infection is not air-borne. No cross infections arose from German measles or from mumps, but the small number of cases treated scarcely warrant any definite conclusion. On the whole, however, from this and previous experience in other wards, the authors tend to the view that these diseases are probably not air-borne.

4. **The Experimental Production of Purpura in Animals.**—J. C. G. Ledingham states that during the past few years a considerable amount of attention has been directed to the part played by the blood platelets in the process of blood coagulation and to the significance of abnormal blood plate counts in those clinical conditions which have been grouped under the general heading of the hemorrhagic diathesis. The author found that a condition resembling purpura and presenting other features of the hemorrhagic diathesis can be produced in guinea pigs by inoculation of an autoserum prepared by immunizing rabbits with guinea pig blood plates.

British Medical Journal.

June 6, 1914.

1. The Prophylactic Use of Sensitized Bacterial Vaccines in Puerperal Sepsis. S. T. Champtaloup.
2. Treatment of a Uterine Abscess by Sensitized Bacilli Proteï. W. B. Alcock.
3. Excision of the Bladder for Malignant Disease. C. A. Morton.
4. A Case of Ectopia Vesicæ in Which the Ureters Were Grafted Successfully into the Rectum. T. Y. Simpson.
5. On a Direct Intragastric Method of Treating Certain Ulcers of the Stomach. J. L. Thomas.
6. Cholecystotomy in Lieu of Cholecystostomy in Certain Cases of Cholelithiasis. A. E. Maylard.
7. The Urinary Diastase Test and Loewi's Reaction in Pancreatic Lesions. L. Humphry.
8. Acidosis Terminating Chronic Myocardial Disease. C. Coombs.
9. A Suppurating Hydatid of the Crura of the Diaphragm. J. Oliver.
10. Dyspareunia and Its Surgical Treatment. J. Phillips.
11. The Identity of *T. rhodesiense* with the Trypanosome of the same Appearance Found in Game. W. Yorke and B. Blacklock.
12. Electrargol in Smallpox and Plague. R. Denman.

7. **The Urinary Diastase Test and Loewi's Reaction in Pancreatic Lesions.**—L. Humphry notes that among the more recent laboratory tests which have been introduced for the diagnosis of pancreatic disease, the quantitative estimation of diastase in the urine and Loewi's mydriasis reaction are easily and promptly carried out, and the question of their value in diagnosis can be

solved only by trial in a number of cases. The urinary diastase test does not appear to have received sufficient attention. In a paper on amylolytic ferments in the urine, Dudley Corbett, following Wohlgemuth's work, describes fully the technique for making this estimation. He finds that the amount of starch-reducing ferment passed in the twenty-four hours is fairly constant, the *d* value or index being 10 to 20 units, each unit representing 1 c.c. of 0.1 per cent. starch solution converted into dextrine in half an hour by 1 c.c. of urine. The values found in the urine are not affected by ordinary changes of diet in adults, by the reaction of the urine, or by the presence of bacteria or other abnormal constituents except blood, the ferment being also present in normal blood serum, in fact, provided the kidneys are healthy, the index value of any given twenty-four hours' specimen of normal urine keeps so closely within certain limits, that for clinical purposes no greater accuracy is required. In a variety of cases of disease examined by the author high readings were found in all cases of undoubted pancreatic disease, and also in certain acute infective conditions without pronounced renal damage and in some forms of eclampsia. Loewi's test is now well known. A few drops of a solution of suprarenal extract of 1 to 1,000 strength are instilled into the eye, previously examined to ascertain that the cornea is intact. If dilatation of the pupil takes place within an hour the test is positive. In cases of pancreatic insufficiency, and occasionally in Graves' disease the test is positive. Beyond the fact that in these cases there is an increased susceptibility of the sympathetic to stimulation by the suprarenal extract, there is no known explanation of the reaction.

8. **Acidosis Terminating Chronic Myocardial Disease.**—C. Coombs reports two cases of chronic myocardial disease in which the terminal phase was marked by clinical evidences of acid intoxication (acetone smell in the breath, "air hunger," dyspnea, thirst, and cerebral symptoms). This acidosis was apparently not of the type associated with diabetes and other well known disorders, in that the B-hydroxy acids were not present in excess in the urine. Neither alkalies nor oxygen inhalations had any effect on the course of this intoxication.

10. **Dyspareunia and Its Surgical Treatment.**—J. Phillips notes that quite a number of women suffer more or less severe pain during coitus, that this condition underlies many a case of otherwise unaccountable neurosis, and that it nearly always depends on some pathological lesion which, if properly diagnosed and treated, can generally be cured. The cause may be an unruptured hymen, a hymenal fissure, kraurosis vulvæ, or vaginismus. Dyspareunia associated with vaginismus is by far the most difficult condition to relieve. The author has never been able to cure a case in which it has persisted for several years. The treatment includes: (1) A cure of any obvious pathological condition. (2) Forcible and very thorough stretching of the genital passage under full anesthesia. (3) Lubricating and anesthetizing the vagina by glycerin and cocaine prior to coitus. Other causes of dyspareunia are a retroflexed uterus, a prolapsed ovary, an ovarian cyst, ovariosalpingitis, and parturition trauma.

11. **The Trypanosome of Sleeping Sickness.**—W. Yorke and B. Blacklock present the following facts in favor of the view that game is the reservoir of human trypanosomiasis in South Central Africa: (1) Human beings and game are known to be infected with trypanosomes identical as regards morphology, pathogenicity in laboratory animals, and their development in *G. morsitans*. (2) The human trypanosome can be successfully inoculated into game. (3) The peculiar sporadic occurrence of the disease in human beings suggests that they were infected from a widely spread reservoir of the infection (the game) rather than from one another.

British Medical Journal.

June 13, 1914.

1. The Influence and Responsibilities of the Medical Profession in Social Legislation and Administration. A. C. Farquharson.
2. Obstetric Medicine in Uganda. A. R. Cook.
3. A Plea for Surgical Work in the Cottage by the Country Practitioner. J. E. Webb.
4. The Place of X-Rays in the Treatment of Cancer. F. Fowler.
5. A Small Outbreak of Epidemic Cerebrospinal Meningitis. J. M. Clarke and J. O. Symes.
6. A Method of Anesthetizing the Larynx. C. Yorke.
7. Gumma of the Larynx Necessitating Tracheotomy. W. J. Harrison.
8. A Rare Form of Lichen Ruber Planus.

4. The Place of X-rays in the Treatment of Cancer.—F. Fowler believes that all cases of carcinoma of the breast, lip, or tongue should receive efficient *x*-ray treatment for prophylaxis immediately after operation. In the treatment of secondarily infected glands *x*-rays are preferable to excision. Efficient treatment is able to prevent local recurrence, mediastinal infection is rare, and ulceration should not occur.

6. Anesthetizing the Larynx.—C. Yorke concludes that anesthesia of the larynx by novocaine injections around the internal laryngeal nerves is of value: (a) When cocaine will not induce complete anesthesia, as in inflammatory and highly irritable conditions of the larynx; (b) when deep anesthesia is required, as when using the actual cautery; and (c) when the patient is unduly sensitive to the toxic properties of cocaine.

Berliner klinische Wochenschrift.

June 8, 1914.

Prognosis of Morphinism.—König states that nearly all cases of chronic morphinism consult neurologists. Prognosis is concerned both with the cure of the habit and the possibility of a relapse. In the first case prognosis is good save in very long standing examples with very large dosage. In the second case authorities differ, but only in degree. All look upon the prognosis for relapse as bad, but there is latitude here for many different opinions. The pessimism is founded on statistics, since the majority of cases are known to relapse. Favorable prognosis thus hinges about a small fraction of the victims. The conditions of a good prognosis must refer to total length of addiction, number of relapses, degree of tolerance to the drug, amount of daily dose and constitution of the sufferer—for example, should he be addicted to other drugs, should he have organic disease, should he be already a psychasthenic or neurasthenic. To this we must add the nature of the painful ailments, which first caused the use of the drug, for *ceteris paribus*, the prognosis of the painful disease shows a certain parallelism with that of the morphinism. Under this head of painful affections are comprised ordinary neuralgias, tabetic pains, peritoneal adhesions, gall and kidney stones, insomnia, and all conditions of psychical malaise, such as the "blues," worry, and the like. We thereby in the last category come upon a something which may be said to predispose to the use of the drug, and as a matter of fact a very large proportion of these cases of psychopathic constitution, with alternation of disposition, make up the morphine addicts who consult the medical man. Naturally they resort primarily to the drug during the phase of depression. But the apparently robust subject can readily as a result of the habit become a victim of acquired neurasthenia, so that at first sight it is difficult to distinguish between the two types, al-

though in the second the prognosis should be much more favorable. Many paradoxical findings are available for citation. Thus frequent relapse is, according to some observers, a relatively favorable prognostic, showing that the subject has never been a true addict. This is in accord with common sense: thus, a man once freed from the habit returns to it tentatively under manifold checks, and his second addiction is less masterful.

Anemic Erysipelas.—Von Czyhlarz contributes a note on this subject; the condition, however long known, is practically absent from literature. The author has seen three cases within as many years. One he narrates in part as follows: A girl of 20 came under treatment for erysipelas of the face, in all respects typical. In addition the patient had had several previous attacks. The blood count is not given for this particular case, but in another of the same clinical type there was present at the fever crisis a marked leucocytosis. The three cases cited were typical of erysipelas clinically, and the fall of the fever was synchronous with abatement of the redness and swelling. The blood changes before and after the febrile crisis are barely mentioned and mean nothing. The author seems to have invoked the known coincidence of pernicious anemia and erysipelas, and other phenomena, a foundation for the concept of anemic erysipelas. As has often been said in other connections, "Why should not an anemic subject develop erysipelas?"

Münchener medizinische Wochenschrift.

June 2, 1914.

Dystrophia Adeposogenitalis.—Weicksel reports a case of this infirmity, the nature of which is still obscure, despite the fact that it is associated with the hypophysis. Before describing this case the author alludes in passing to a second, transitory case, of ordinary obesity conjoined with polyuria insipida. Such a case was at best of doubtful nature. The actual case occurred in a youth of 15½ years. An older sister is not normal psychically, a fact of some significance. The patient began to flesh up when 10 years old and the corpulence has increased steadily from year to year. The progress of the child in school was not what it should have been, but there was no imbecility. Fatigue after slight exertion was pronounced. On inspection the distribution of the fat was seen to be as follows: Breasts, abdominal region, thighs and neck. Thyroid readily recognized. No persistent thymus, no enlarged lymphnodes. Skin dry. Little or no hair in axillæ and pubis. Genitals of infantile character, testicles size of beans. Head unusually small, fundus oculi normal, likewise visual acuity. Reflexes normal, as are other usual tests. Clinically, at least, the case was one of dystrophia adiposogenitalis. It remained to connect the author's case with some abnormality of the hypophysis, such as had been encountered in other cases of dystrophia adiposogenitalis. In the author's case there was no participation of the sella turcica. Hence, at a stroke, a distinction is set up between the latter and the original Fröhlich type. The blood count in the two conditions, however, seems to differ decidedly. Thus in the Fröhlich type this is very simple. The more, however, we depart from this type the greater the diversity of the blood picture—until, indeed, a *reductio ad absurdum* impends. The aim of the author is evidently to awaken interest in the minds of the profession concerning this class of cases.

Treatment of Whooping Cough.—As is well known, preparations of thyme have long been advocated for this affection. They grow in certain regions of the Old World, and have been sold in the United States at very high prices. Various derivatives of thymin have been used in different localities with good results. One combination comprises herb of thyme and the so-called "pilka"—an herb which grows wild in the same vicinity. If this compound is given in one or more doses, morning and evening, the patient "recovers" in due time, but the interval between the administration of the remedy and the cure may be so long as to render the curative action a matter of speculation.

Deutsche medizinische Wochenschrift.

June 4, 1914.

Occult Hemorrhage in Ulcer of the Stomach and Duodenum.—Boas states that the center of gravity in the diagnosis of these lesions is to be found in occult bleeding. Positive blood-finds, when permanent and associated with the rest of the symptom-complex, show the presence of a florid ulcer; while a permanently negative blood find might mean at most a cicatrized ulcer, but is relatively a negative find. For a diagnosis of an ulcer without hemorrhagic erosion the weak catalytic tests hardly answer. The author's modification of the phenolphthalein test is our only resource for the detection of minimal traces of blood in the feces. As soon as occult hemorrhage has been recognized in its inception an indication is at once supplied for early treatment; and as in other situations, a relapse can be detected at an early moment and easily jugulated. Thus far, Boas maintains, we are absolutely unable to diagnosticate by this test between ulcus ventriculi and ulcus duodeni.

Roentgenological Recognition of Ulcus Duodeni.—Schlesinger states that in only a fraction of cases does a radiogram in ulcus duodeni show distinct alterations in the duodenum. As a rule, ulcus duodeni exerts an intensive reflex action on the functions of the stomach. This action is not, as is commonly supposed, an alternating one, but is throughout directed toward the increase of gastric functions. There does not exist a so-called ebb and flow in gastric activity. On the other hand it has been assumed that the ulcer exerts a certain reflex activity, which may persist for a long time, until there develops certain anatomical alterations. The primary finds are increased peristalsis, hypertonia—especially at the pylorus, along with hypersecretion—and second, certain obstructive symptoms, which in the end amount to gastrectasia. Naturally so complicated a subject must be left unsolved with our present resources.

Salvarsan as an Abortive of Syphilis.—Hoffmann concludes as follows: The early diagnosis of this disease makes possible, according to all appearance, the abortive cure. This may be attained by a strongly combined salvarsan mercurial-ointment cure as measured by the curve of the WaR, which should be carried out rather strongly than weakly. For a permanent result there should be used 42 inunctions of mercurial ointment with the addition of from 4 to 6 (occasionally from 7 to 8) injections of old salvarsan. These must be controlled (1) by one exact clinical and serological supervision; (2) by excision of the scar of the chancre, after the treatment by research and test for the spirochete in darkfield illumination and by inoculation tests, and (3) by provocatory infusion of salvarsan in the cord five months later, with subsequent testing (after 10 days) of the lumbal punctate. If there follows a quiescent 18 months' period the patient may be regarded as cured, although a secondary provocative injection may be tried.

Insurance Medicine.

American Association of Medical Examiners.—At the fourteenth annual meeting of this Association, held in Atlantic City, June 22, 1914, the following officers were elected: *President*, Dr. A. T. Gaillard, Medical Referee, Travelers Insurance Company, Philadelphia, Pa.; *First Vice-President*, Dr. Wm. W. Tompkins, Charleston, W. Va.; *Second Vice-President*, Dr. J. N. Hall, Denver, Colo.; *Third Vice-President*, Dr. Einar Hansen, New York; *Fourth Vice-President*, Dr. Lewis McFarland Gaines, Atlanta, Ga.; *Secretary and Treasurer*, Dr. Foster K. Collins, Philadelphia, Pa.

Life Insurance in South Africa.—Dr. Gomann at a recent session of the Society for Scientific Insurance held at Cape Town expressed himself in part as follows: Life insurance is in such great demand in all social strata, and the activity of the solicitors is so bustling that there is a dearth, not only of examining physicians but even of medical directors who possess the requisite qualifications for their offices. It may be said in their favor that they are zealous and possess sufficient ability and judgment to reject poor risks; but they are unequal to the much more difficult task of discriminating between those who are really healthy and those who only seem thus. This phase of insurance medicine is not taught in schools—in fact this applies to prognosis as a whole. The medical director does not see the risks, and hence no real checking system exists. Correspondence and renewed examinations by the original examiner or a colleague are unprofitable. Any new facts of significance do not compensate for the expense nor for the changed state of mind of the risk, who may think that he is being persecuted. It is surely enough, he feels, to have to lay bare his entire family and personal history because he has applied for insurance chiefly out of friendship for the solicitor.

The attempts to recall the causes of death in the grandparents, what value do these possess? "Died old" is the best they can say. Their knowledge of the causes of death in parents, brothers, and sisters is usually vague; and they appear to have an instinct towards misrepresentation when they have actual knowledge of the deaths, lest their chance for acceptance be prejudiced thereby. Especially are they silent in respect to tuberculous relatives. Family pride may step in—who would admit that his father shot himself after a defalcation, or that his mother died in the poorhouse?

The same attitude appears in the personal history. Whether or not coached by the agent the risk usually makes a general denial as to previous diseases. These negative denials may be made in good faith. In the possible history of a gallstone attack, for example, the examiner may obtain only the admission of cramps in the stomach, of jaundice, etc., but the risk is honest in denying gallstones for he may have been quite ignorant of their existence.

As is known to all, the personal history in regard to the use of alcohol is *per se* almost worthless. No man can prove that he is a teetotaler. Physical examination of the chest in the short time practicable is more or less of a farce. The anxious, timid applicant often creates a bad impression based on a number of peculiarities.—*The Medical Director.*

The Significance of a Diabetic Family History.—In a paper read by Dr. Otto May, on March 4, 1914, before the Life Assurance Medical Officers' Association of Great Britain, it was pointed out that it is a commonly accepted belief that diabetes is in many cases a "family disease," *i.e.* one which is prone to occur in several members of certain families, in greater proportion than would be expected if its distribution were uniform throughout the population. If this be so it becomes a question how far, if at all, one or more deaths from diabetes in a family history should influence our recommendations on the proposed life. An analysis of the investigations undertaken by May suggests that: 1. There is a form of "family diabetes" tending to occur at an earlier age, and proving fatal more rapidly than the ordinary "acquired" type of the disease. 2. This family diabetes is more likely to occur in the male than in the female. Therefore, says May, an attempt may now be made partially to answer the question propounded at the beginning of the paper as to what weight, if any, should be attached to the presence in the family history of one case of diabetes. Since only 3.6 per cent. of the death claims from diabetes show this "positive" history, May thinks it probable that the actuary would feel it hardly justified or worth while to rate-up in these cases. If, however, the diabetic death is in a young male, and especially if, with this, the proposer is a male under forty, then he holds that the question of "rating-up" should be seriously considered.

Benefit of Reexaminations.—Bart. E. McKenzie, Medical Director, Policyholders' Mutual Life Insurance Company, Toronto, Ont., considers it a most valuable suggestion that the policyholders should be asked and encouraged to present themselves for re-examination. In one case a policyholder presented himself for examination and was told that his condition was not entirely satisfactory. As a second insurance was desired, he was examined again, but it was found to be impossible to give him a policy as favorable as the first one. He was offered one at a higher cost and it led him to think over the matter of health. As a result business was relinquished, and a few weeks were spent in the effort to win back a favorable condition of health. The experiment proved a benefit to the individual, and, consequently, to the company.—The Association of Life Insurance Presidents, December, 1913.

Health Insurance—Construction of Policy.—A health insurance policy provided for the payment of indemnity in the event the assured, under certain specified conditions, suffered from any of the diseases enumerated therein. Among these diseases were "nephritis" and "acute meningitis." The policy declared that it did not cover any chronic disease, or any disease in other than acute and fully developed form. The assured, being afflicted with chronic nephritis, sued the company under the policy. He contended that because the disease of meningitis was named in the policy "acute meningitis," and that the word "acute" was not used with reference to nephritis, therefore it was the intention of the company to insure him against nephritis in any of its forms, either acute, chronic, or otherwise. It was held that, taking the whole contract together, any one suffering from any of the diseases named in the policy was not within the intention of the parties to the contract, and the insured was not entitled to recover.—Kingkade v. Continental Casualty Co., Oklahoma Supreme Court, 128 Pac. 683.

Book Reviews.

Biochemic Drug Assay Methods, with Special Reference to the Pharmacodynamic Standardization of Drugs. By Paul S. Pottenger, Ph.G., Ph.C., Phar.D., Instructor in Pharmacodynamics, Medicochirurgical College, Philadelphia. Edited by F. E. Stewart, M.D. Ph.G., Professor of Materia Medica and Botany, Medicochirurgical College of Philadelphia. Price $1.50 net. Philadelphia: P. Blakiston's Son & Co., 1914.

This volume deals exclusively with a class of drugs which is not amenable to chemical standardization. This group includes digitalis, aconite, apocynum, convallaria, squills, strophanthus, epinephrine, gelsemium, veratrum, ergot, pituitary extract, and cannabis indica. It is intended primarily for the use of experts in laboratories devoted to drug standardization, but may be used advantageously as an aid in the instruction of students in medicine and pharmacy. Apparatus is fully illustrated and the methods are described in detail. There are many excellent illustrations. The book should prove very valuable to workers in this field.

The Biology of the Blood-Cells, with a Glossary of Hemotological Terms, for the Use of Practitioners of Medicine. By O. C. Grüner, M.D., Assistant Professor of Pathology, McGill University. Price $6.00 net. New York: William Wood & Company, 1914.

In spite of the assurance of the title it hardly seems likely that the general practitioner of medicine will be much attracted by this work. It is a highly technical discussion of the numerous theories of the biology of the various cellular elements of the blood and necessarily employs a special vocabulary. Its chief value will perhaps lie in the presentation of these theories, in which respect the work is very complete. When the author comes to present his own conclusions, however, he will find many readers who will fail to agree with him. To consider these separately would lead to endless and fruitless discussion since in few instances is the truth demonstrable. One feels that the author is apt to be too dogmatic, as a rule too sure of the correctness of his position. The work is, however, an excellent reference book for those interested in this particular line of study.

De la Néphropexie (Procédé d'Albarran-Marion), par le docteur Jules Luzoir, Ancien Interne des Hôpitaux de Paris, Aide d'Anatomie à la Faculté de Paris. Paper, 270 pages, with 49 illustrations. Price 8 francs. Paris: G. Steinheil, 1913.

After a short introductory chapter, Luzoir devotes about 80 pages of this thesis to quotations from important papers by numerous authors which have appeared during the past 25 years, thus giving a review, in chronological order, of the opinions that have been held as to the indications for treatment of a movable kidney and the comparative value of the operative and non-operative methods of handling these cases. He has succeeded admirably in showing the fluctuations of sentiment in this regard. A short chapter summarizes the indications for operation, then the author reviews all the operative procedures of which he could find record from the time of Hahn, who in 1881 did the first nephrorrhaphy, to the latest methods of Kocher and Henschen, who in 1913 reported the use of free fascial flaps in the fixation of a movable kidney. About 60 pages are devoted to the description and illustration of these procedures and among them we find the methods of Morris, Edebohls, Guiteras and several other American surgeons described and illustrated, while those of many other American operators are more or less fully reported. The author then summarizes the various types of operations and discusses the different points that have been raised, such as the relative value of high and low fixation, suture material, drainage, and the procedure of choice, which he considers to be that of Albarran as modified by Marion. A critical review is then given of thirty-five cases operated upon by this method. This is followed by a résumé of observations and results and the author's conclusions. The book is very interesting and gives by far the most complete presentation of the subject that has appeared in recent years. Those who think they have devised a new method for anchoring a movable kidney should read this thesis before publishing it, for the chances are that the principal, if not complete details, will be found noted here.

Le Traitement de la Syphilis en Clientèle "L'indispensable en syphiligraphie." By H. Gougerot, Professeur Agrégé a la Faculté de Médecine de Paris. Paper, 492 pages, with 53 plates, of which 12 are in colors. Price 10 francs. Paris: A. Maloine, Èditeur, 1914.

This book is based upon and contains the substance of a series of lectures delivered at the Hôpital Saint-Louis. As the author says in the preface, "No branch of medicine * * * brings up more difficult problems of diagnosis, of therapeusis, and of prognosis than syphilis," and while the large treatises are encumbered with too much detail for the average practitioner, most of the smaller works are deficient in therapeusis or some other important factor; so that it is hard for the non-specialist to find in a single volume all the information that he requires for the proper diagnosis and treatment of these cases as they occur in private practice. Gougerot has attempted to fill this need by incorporating all that is useful in the diagnosis and treatment of these cases, and leaving out all that is not indispensable, such as references to the anatomy, pathology, statistics, etc. All practical questions have been touched upon if not fully elaborated. The order of presentation and some of the subjects covered in this book are quite different from those found in the ordinary treatise. The style is in accord with the relations of teacher and pupil, and the author gives advice upon many unusual topics, such as the manner of revealing the diagnosis of syphilis; the proper conduct of the physician when the patient is married, a child, or a domestic; how to treat cases where the nature of the initial lesion is still doubtful—all in a rather intimate conversational way. The author then takes up in detail the description and diagnosis of the various stages of the disease as it affects the skin, mucous membranes, and all the different tissues and organs, differential diagnosis, treatment, etc. All these subjects are well covered and often in a most minute detail, thus thoroughly meeting the requirements of the general practitioner, and furnishing an unusually complete résumé of the important points in this most complex disease.

Treatment of Chronic Leg Ulcers. A Practical Guide to Its Symptomatology, Diagnosis and Treatment. By Edward Adams, M.D., Instructor of Surgery, New York Post-Graduate Medical School and Hospital. Price $1.00. New York: The International Journal of Surgery Co., 1914.

It has been said that if any young surgeon will take the trouble to study and treat carefully and scientifically all cases of leg ulcer which come to him he will soon acquire an enviable reputation and an extensive practice. Certain it is that as a general thing leg ulcers are considered undesirable and receive only routine treatment. There has been no book on the subject and the text-books on surgery usually mention them only briefly and in a casual fashion. This book is therefore a very welcome addition to medical literature. The author has covered the whole subject thoroughly and systematically and any physician will read it with profit. The volume is excellently illustrated with photographs.

Immunity. Methods of Diagnosis and Therapy and Their Practical Application. By Dr. Julius Citron, Assistant at the University Clinic of Berlin, II. Medical Division. Translated and Edited by A. L. Garbat, M.D., Assistant Pathologist and Adjunct Visiting Physician, German Hospital, New York. Second Edition. P. Blakiston's Son & Co. Price $3.50 net. Philadelphia, 1914.

The second edition of this translation appears within two years after the first and allows the insertion of the newer advances in immunity. The text has been revised to advantage in a number of instances and the few typographical errors of the first edition corrected. The discussion of small-pox and antityphoid vaccination has been enlarged and a number of new subjects introduced. The most important of these are gonococcus and typhoid complement fixation tests, agglutination and hemolysis tests for transfusion, a more detailed discussion of anaphylaxis and an account of studies of cancer in their relation to immunity. All the changes tend to increase the value of the book which remains probably the best work of its size on the subject in the English language.

Society Reports.

AMERICAN MEDICAL ASSOCIATION.

Sixty-fifth Annual Meeting, Held in Atlantic City, June 22, 23, 24, 25, and 26, 1914.

(Special Report to the MEDICAL RECORD.)

(*Continued from page* 1196, *Vol.* 85.)

HOUSE OF DELEGATES.

Thursday, June 25—Fourth Day.

THE PRESIDENT, DR. VICTOR C. VAUGHAN, IN THE CHAIR.

Report of Reference Committee on Medical Education.—This committee recommended for adoption a resolution calling for an investigation of the conditions under which the degree of Doctor of Public Health and Sanitation and similar degrees were being conferred and to make a report next year. This resolution was adopted.

Report of Reference Committee on Health and Public Instruction.—This committee reported that the resolutions of the Section on Dermatology with reference to the Federal control of lepers in Interstate Commerce and provision for the proper care of those affected with this disease by the Federal Government was recommended for adoption by the House. This committee also recommended the adoption of the resolutions urging that efforts be made to secure legislation designed to make general the adoption of the milk standards and classification of the New York Milk Commission in all communities in the United States in so far as local conditions would permit. They further recommended the adoption of the resolution calling for a proper labelling of lyes and all caustic substances used in cleansing preparations. The House of Delegates adopted these resolutions.

Report of Reference Committee on Constitution and By-Laws.—This committee presented resolutions asking that the Committee on Constitution and By-Laws be instructed to draft an amendment to the Constitution and By-Laws providing for the change in time of meeting of the House of Delegates in accordance with the resolutions that had been adopted providing that hereafter the House of Delegates should meet on the Saturday preceding the week of the annual meeting of the American Medical Association. This resolution was adopted.

Report of Reference Committee on Legislation and Political Action.—This committee expressed itself as impressed by the scope of the work of the Council on Legislation and Political Action, and commended the plan outlined in their report for a general survey of public health conditions and activities throughout the world which would furnish data invaluable in elaborating plans for a national Health Department. They also approved the plan for the investigation of the subject of expert testimony and that the committee draft a bill suitable for presentation to state legislatures and report at the next meeting. It was recommended in addition that the publicity committees which it had been decided to appoint in each county society to see that medical news was properly presented to the lay press be appointed by the state societies and be under their jurisdiction. They further recommended the adoption of the resolution urging the enactment of Federal legislation for regulation of the manufacture and sale of bichloride of mercury tablets. This report was adopted.

The Scientific Exhibit.—It was the opinion of those capable of judging that no previous exhibit had equalled this one in point of scientific interest. The seventeen research exhibits were demonstrated more or less continuously, and additional slide demonstrations were given each morning and afternoon. The exhibits embraced a wide scope of subjects, among which were: Experimental Hydronephrosis: Effects upon the Kidneys of Dogs of Collargol Injections. Hereditary Factors in Mice Cancer. Relation of Diet to Tumor Growth. Relation of Gastric Ulcer to Cancer, Lateral Blood Vessel Anastomosis in the Cure of Arteriovenous Aneurysm. Showing Communication of Erythema Nodosum to Dogs. Results of Chronic Lead Poisoning on the Liver in Guinea-pigs. The Effect of Feeding Pituitary Extract in Hastening Genital Development in Rats. The *X*-ray in Relation to the Diagnosis of Diseases of the Thorax and Gastrointestinal Tract. The Toxemias of Pregnancy. The scientific exhibit from the Mayo Clinic consisted of two divisions: First, that from the Roentgen laboratory, consisting of roentgenograms and stereoscopic slides of specimens removed at operations, illustrating lesions of the gastrointestinal tract. Second, that from the pathological laboratory which consisted of photographs and drawings illustrating work in progress on the mode and development of cancer, the pathological relationship of gastric ulcer and carcinoma, a study of the possible relationship of gastric ulcer and carcinoma, a study of the possible relationship of renal carcinoma and nephrolithiasis, and studies in the pathology of the atrophic kidney.

Attendance.—The registration up to Wednesday evening, June 24, was 3833 for the three days.

SECTION ON PRACTICE OF MEDICINE.

Thursday, June 25—Third Day.

Election of Officers.—*Chairman*, Dr. Thomas MacCrae of Philadelphia; *Vice-Chairman*, Dr. John L. Dawson of Charleston, S. C.; *Secretary*, Dr. Roger S. Morris of Clifton Springs, N. Y.; *Delegate*, Dr. Richard C. Cabot of Boston; *Alternate*, Dr. E. E. Irons of Chicago.

End Results of Cases of Gastric and Duodenal Ulcer.—Dr. ELLIOTT P. JOSLIN and Dr. HUGH P. GREELEY of Boston presented this communication. They offered the following conclusions: 1. In a study made of 234 consecutive cases of gastric and duodenal ulcer seen in private practice during the last sixteen years, 213 cases or 91 per cent were treated to date. 2. 142 were males, 92 females. 3. The average age of the males was 45 years and eight months, but the age at onset was 38 years and eight months. The average age of the females was 36 years and four months, but at onset 30 years and 10 months. The average duration of the ulcer in the cases still unrelieved was 11 years. The average duration of the ulcer before the cases reached the surgeon was 10 years. 4. One hundred and thirty-one cases were traced who were treated surgically throughout and of these at present 51 or 39 per cent. were well, 55 or 42 per cent. were relieved, 16 or 12 per cent. were unrelieved, and nine or 7 per cent. were dead. 5. Eighty-two cases were traced who were operated upon when medical treatment had failed and of these cases 33 or 40 per cent. were well, 13 or 16 per cent. were relieved, 10 or 12 per cent. were unrelieved and 26 or 32 per cent. were dead. 6. Deducting 12 deaths for which the surgeon should not be held responsible, there were 70 surgical cases of which 33 or 47 per cent. were well, 13 or 19 per cent. were relieved, 10 or 14 per cent. were unrelieved and 14 or 20 per cent. were dead. 7. The combined medical and surgical results showed at present the following: well, 84 cases or 39 per cent.; relieved, 68 cases or 32 per cent.; unrelieved, 26 or 12 per cent.; dead, 35 or 16 per cent. 8. Twelve or 6 per cent. of the 213 cases died of cancer, but of the 46 cases now dead the mortality from cancer was 26 per cent.

Gastric Cancer in the Young: A Study of Sixteen Cases in Patients Under the Age of Thirty-one Years.—Dr. FRANK SMITHIES of Chicago read this paper. The 16 instances of gastric cancer in the young, forming the basis of his report, occurred in his study of the records of 721 pathologically demonstrated cases of cancer of the stomach. He thought that this analysis might develop certain facts which would be of service in anticipating or detecting this malady at the age when it was least expected. There were nine females and seven males. The youngest age was 18 and the oldest just past 30 years. The average age was 28.7 years. Twelve patients were married. In two instances there was a family or blood relationship history of cancer. Useful facts were brought out by a study of the duration of all gastric complaints. The shortest time covering this phase was four months, while the longest was 15 years. The average time was 4.2 years.

Dr. J. N. HALL of Denver, Colo., spoke of the difficulty of making a diagnosis in some cases of ulcer of long standing. He had seen chronic pinched ulcer and puckered scar from old ulcers in cases that developed acute symptoms. He had seen the symptoms of ulcer associated with an alcoholic thrombosis of the superior mesenteric arteries and after operations for appendicitis due to dragging down of the omentum. Slight

herniæ and gall-bladder disease might also give symptoms suggestive of ulcer.

Dr. FRANK B. LUND of Boston, Mass., said that Dr. Joslin's paper showed the results of surgical treatment and was fairly well classified, and absolutely accurate. If he had made the statement that the operative mortality was 20 per cent. that was not to be applied to any given patient. He had admitted to his series several cases of perforation and one case that died six months after the operation that should have been excluded. These had raised the mortality rate; one might tell individual patients that the operative risks were much less than Dr. Joslin had stated.

Dr. FRANK BILLINGS of Chicago, Ill., said that by his own statement some of the patients had been seen only once in consultation and that as many as thirty surgeons had taken care of thirty patients, but he did not say how many physicians had carried out the medical treatment, or why the medical treatment had failed. Such a paper was valuable, but it would be much more valuable if we had definite statements of both the medical and the surgical treatment. The medical management as often carried out was not medical management at all and could not be used for comparison.

Dr. D. L. LICHTY of Pittsburgh, Pa., said that another point brought out by the paper was that the patients had not been seen on the average until the disease had run a course of five and one-half years. These patients had been treating themselves, taking soda mint, etc., for years, before they consulted a physician; this fault was not one of the laity alone, as many physicians in their own cases did the same thing. If all means were employed the diagnosis of ulcer was not so difficult to make during the first few months; it was only after they had gone five years that the diagnosis became so difficult. The one point that should be emphasized was that people should be taught to apply early for treatment in case of gastric disturbance. If cases came for treatment early the results of medical treatment would be better.

Dr. ALEXANDER LAMBERT of New York said that Dr. Joslin had not brought out the point when he spoke of thirty surgeons having operated on 30 cases whether the results were better or worse than when operations had been done by men in the habit of operating for this condition. In old ulcers there was not much question but that the mechanical interference of cicatricial tissue lessened the possibilities of cure by medical treatment which was of so many types and so badly carried out. If they were to reach a solution of the questions presented by these cases it would have to be through a study of the etiology.

Dr. F. A. SPEIK of Los Angeles, Cal., said that Dr. Billings was right in what he had said; the diagnosis of gastric and duodenal ulcer should be made early and the trouble should be energetically treated, and if this were done there would be fewer operations. Perforation demanded immediate recognition and treatment and the sooner operation was performed the better.

Dr. ALLEN A. JONES of Buffalo said that there was one thing that Dr. Joslin's paper brought out and that was that there should be no contention between the medical and the surgical men on this subject. Surgery was but a form of mechanical therapeutics and if the patient did not progress under medical treatment he should receive the mechanical treatment offered by surgery. As to the medical treatment of gastric and duodenal ulcer, every patient should be in a hospital under strict surveillance so that the physician should be in a position to know of every thing that went into the patient's stomach. In 556 cases medically treated by absolute rest, milk diet, poultices to the epigastrium, and with the administration of very little medicine, there were 95 per cent. of cures. He did not know the end results in these cases, but probably there were a number of recurrences.

Dr. J. R. VERBRYKE of Washington, D. C., said that the thread test and the benzidine reaction for occult blood as well as the radiograph he held of more importance than the clinical history. When a number of thread tests had always shown the blood at the same place on the thread, this had been almost infallible proof of the presence of ulcer. He rarely made a positive diagnosis of ulcer without a positive benzidine test. The speaker said he was still finding more gastric than duodenal ulcers. The localization of the ulcer was of great importance, both as regarded prognosis and the treatment chosen. A duodenal ulcer operated upon with gastroenterostomy and closure of the pylorus usually gave a spectacular result, while ulcer of the greater curvature might not only not be cured, but might even be aggravated unless excision was practiced. The patient supposed to be cured should be asked to report once a month and to bring a specimen of feces to be examined for occult blood; if a patient had no return of symptoms or of occult blood for twelve months one could consider him cured.

Dr. ANTHONY BASSLER of New York made the distinction of hard and soft ulcers. All the ulcers that were soft, whether called erosions or fissures, whether in the stomach or duodenum, would get well on medical treatment, but a vast number of ulcers began as a cicatricial process and when there was formation of cicatricial tissue there was small hope of medical treatment effecting a cure. Dr. Joslin's statistics had not been optimistic enough from either the medical or the surgical standpoint. The etiology of these ulcers should be studied, and they should be classified as good, bad, and indifferent, how treated, how long treated, when operated upon and how operated, and then they might begin to understand the subject as they should.

Dr. M. H. FUSSELL said that in reference to gastric cancer occurring under the age of 30 years, he had had three cases, one at 18 years, one at 24, and one at 30, and in every instance there was free hydrochloric acid and the total acidity was increased, and all were of the fulminating type. They were all confirmed by histological examination.

Dr. J. M. RECTOR of Columbus, Ohio, said that in all this discussion he had not heard the word "indigestion," yet most of these patients with ulcers gave long histories of indigestion and the real trouble was not recognized in many cases until the patient was beyond the help of surgery. He suggested that when a physician met a case such as had always been called indigestion he should go over the patient very carefully and find out what was the matter. When, after a certain length of time medical treatment failed to give relief, an exploratory operation should be done; this was less dangerous than prolonged medical treatment that was unsatisfactory.

Dr. ELLIOTT P. JOSLIN of Boston, in closing the discussion, said he hoped no other series would be reported in which the patients had suffered five years before seeking relief. As to the end results in surgical treatment, about 60 per cent. of the operations had been performed within the past four years, while the end results of medical treatment were based on observations covering a period of sixteen years. Dr. Joslin called attention to the large number of relapses and deaths in the earlier series of cases treated medically in the Massachusetts General Hospital where the patients were well treated, and thought it would be found about the same elsewhere.

Dr. FRANK SMITHIES of Chicago said, in closing, that this whole subject was in a stage of transition, medical men were trying to interpret surgical statistics and surgical men were trying to interpret medical statistics. The life history of these ulcers was one of remissions and exacerbations and the whole subject was very complicated. Many so-called cases of gastric ulcer in young people were cases of vagotonia or of gallbladder disease. Dr. Joslin was justified in giving such statistics as he did; he had gone as far as one could go at present. As to the thread test and the benzidine test, in 167 cases of proved ulcer they had only obtained a positive result in seven cases by the thread test. With the benzidine test the results were not to be relied upon as carrots and other vegetables gave the same reaction.

Focal Infection: Its Broader Application in the Etiology of General Disease.—Dr. FRANK BILLINGS of Chicago read this paper. It was his opinion that focal infection was very frequently related to local and general disease. The focus of infection might be located anywhere in the body but the usual site was in the head in the form of alveolar abscess, tonsillar abscess, cholecystitis, appendicitis, submucous abscess anywhere, etc. A study of the tissues and exudates of the focus yielded various bacteria. Acute rheumatic fever was of undoubted focal origin. The removal of the focus of infection was demanded as a fundamental principle in the treatment of systemic diseases especially of the chronic type.

The Newer Bacteriology of Various Infections as Determined by Special Methods.—Dr. E. C. ROSENOW of Chicago read this paper in which he described methods for making cultures from excised tissues and from the blood and other fluids in which due regard was paid to the question of oxygen pressure, particularly in the primary culture, and he detailed very briefly the results obtained by their use in various infections.

Dr. W. S. Thayer of Baltimore said that these two papers were of great importance as there had been nothing in the last fifteen years that had so changed the aspect of the practice of medicine as the recognition of the influence of local foci of infection on systemic disease. Dr. Cabot called attention in his paper yesterday to the relation of local foci of infection, such as rheumatic infections, to mitral insufficiency or stenosis. The speaker emphasized the importance of recognizing the influence of infected tonsils on systemic disease and the importance of the complete removal of infected tonsils; an incomplete operation often left the patient in a worse condition than before.

Dr. A. C. Griffith of Kansas City called attention to the discovery of diptheroid bacilli in Hodgkin's disease and of their influence. He cited a case of glandular enlargement due to this organism which was improving rapidly under treatment with autogenous vaccines. The patient went to a Christian Scientist, and, on discontinuing treatment, became rapidly worse. He saw her later when she was dying. At autopsy the glands showed the changes typical of Hodgkin's disease.

Dr. Frank Smithies of Chicago said they had been observing the seasonal recurrence of gastrointestinal diseases; these being especially marked in the spring or autumn. There seemed to be a connection between these exacerbations of ulcer, gallbladder disease, etc., in connection with such infections as were generally styled grip. In the study of 1,500 cases of gastric and duodenal ulcers 60 per cent. of the cases gave a history of an antecedent appendicitis, or gall-bladder, pancreatic, or other infection, thus showing the importance of foci of infection in the etiology of gastric and duodenal ulcers.

Dr. E. Libman of New York discussed the relation of foci of infection to the different neuroses and indicated that many of the neuroses had some infection as a basis.

Dr. Harvey D. Wood of Fayetteville, Ark., stated that he had been observing the seasonal recurrences of pellagra; it recurred usually in the spring coincident with the appearance of the bedbug and they were about to fasten the responsibility for this disease upon this parasite.

Dr. James N. Anders of Philadelphia said that what they had learned in regard to the influence of these foci of infection made it important to make it a routine practice to examine the mouth of every patient more closely than was generally the custom. Sometimes the examination of the mouth might appear to be negative but one would find metastases from this source and an *x*-ray examination might reveal concealed foci of infection in the teeth.

Dr. Alfred Stengel of Philadelphia said that Dr. Rosenow, with a modesty as great as the brilliancy of his work, had said that they were not sure that the diphtheroid organism was the specific organism of Hodgkin's disease, but he thought they had established the specificity of this organism in Hodgkin's disease.

Dr. Frank Billings of Chicago, in closing, told of the cooperative work that was being done between the laboratory men and the clinicians in Chicago. He thought the autogenous vaccines might be helpful in raising the defences of the system when there was infection and told of some of their work in the endeavor to obtain a horse serum that could be used in combating these infections.

Dr. E. C. Rosenow of Chicago cited a case of rheumatic endocarditis and pericarditis which was the effect of an ingrown toe-nail and another in which they were the result of a crushing injury to the thumb. Enlargement of glands and lymph nodes was not the result of toxemia in the blood that selected particular glands, but was the result of infection. In discussing the relation of streptococci in the borders of ulcers in the stomach to acidity, Dr. Rosenow said there was reason to believe that the acid had a tendency to destroy the organisms, and the fact that an ulcer did not heal was due to other than mere mechanical ones. In the cardiac region of the stomach the cells were acid secreting and it seemed that ulcers in this portion of the stomach healed more readily. He thought the factor of infection explained the recurrences in duodenal ulcer.

The Dead Space and Alveolar Air in Emphysema and Bronchial Asthma.—Dr. C. F. Hoover of Cleveland, Ohio, said that both bronchial asthma and pulmonary emphysema caused enlargement of the lung. Spasm of a bronchus leading to one lobe of the lung would cause an increased volume of the lobe affected. Stenosis in the larynx would cause an increased volume of the entire lung. Emphysema and asthma might be severe without modifying the respiratory function of the lung. The source of distress in both emphysema and asthma lay in the ventilating function. The degree of emphysema could be measured by the carbon-dioxide concentration in the alveolar air. This was not true in bronchial asthma.

Dr. George N. Jack of Buffalo said that thoracic emphysema and its relationship to asthma was an interesting question. Clinically uncomplicated asthmatics over fifty years of age with long standing asthma and marked emphysema responded more readily to treatment than did younger subjects where asthma was just beginning. There were many reasons other than the establishment of emphysema why old asthmatics should respond more readily to treatment than did the younger subjects, one of which was that in early life the system was rich in lymphatics, while in advanced years all the lymphatic glands and tissues atrophied and some disappeared entirely. From the emphysema side there were also many reasons. A cough forcibly shot or squirted the blood through the vascular system which resulted in a sudden dilatation of the capillaries and with more or less shock to them. A series of frequent coughs or cough paroxysms as often seen in asthma and whooping cough resulted in such congestion as to nearly if not actually equal a blood capillary stasis in the lung air cells; the mucous membrane of the air tubes and also the brain. The blood and lymph capillary congestion and stasis of the lung air cells, bronchi, trachea, larynx, and brain resulting from the violent paroxysmal "wound up to run down" cough, especially as met with in blood debilitated subjects where the capillaries were poorly nourished, resulted in a variety of conditions that were distressing and alarming if not fatal. Clinically he had observed from a study of 618 cases of asthma that the old asthmatics with pronounced emphysema responded more quickly to treatment and got a more permanent result than did the cases where asthma had recently developed or before the establishment of emphysema.

The Late Manifestations of Inherited Syphilis with Special Reference to Arterial Disease.—Dr. Henry Farnum Stoll of Hartford, Conn., read this paper and offered the following conclusions:—1. They must accustom themselves to think of syphilis as a family disease. But rarely was their patient the only one infected. 2. Over half of the children born of syphilitic parents, who survived infancy, gave a positive luetin reaction. In nearly 90 per cent. of those with obvious ailments the Wassermann or luetin test was positive. 3. There was often nothing in the appearance to suggest lues and the symptoms were indefinite and often misleading. 4. Too much emphasis could not be placed upon the importance of a complete family history in every obscure case. 5. It seemed probable that syphilis might be transmitted to the third generation. 6. Some cases of neurasthenia were due to congenital lues and could be promptly cured by specific treatment. 7. Syphilis appeared to be an etiological factor in certain of the families prone to heart and arterial disease. 8. Hypertension in middle life might be due to congenital lues. 9. Both the Wassermann and luetin tests should be employed, as neither was infallible, the Wassermann being frequently negative in syphilis hereditaria tarda, the luetin occasionally so. 10. The examination of all venereal sores for spirochetes and their prompt treatment, controlled by the Wassermann and luetin tests, would ultimately make congenital syphilis a medical curiosity.

Dr. Robert N. Wilson of Philadelphia presented two interesting specimens, the heart of a child and the heart of an adult. He referred to what had been stated that in hereditary syphilis many of the infants showed none of the ear-marks of syphilis at all characteristic, hut one should always feel the arteries. These vessels would appear to be fibrous or hardened and the patients looked like little old men or little old women. Sometimes there was glandular enlargement. But the condition of the arteries was most characteristic in a syphilitic child. When no other apparent symptoms or signs were present the feel of the arteries would often point to the true condition. One heart presented was from a child four years of age who died from a ruptured aneurysm of the thoracic aorta and in the specimen was shown an aortic and mitral stenosis. The specimen of the heart from an adult patient was similar to what was described by Dr. Stoll in his paper. The patient was a young woman, an invalid with absolute absence of any signs of any rheu-

matic affection, without pain, tonsillitis, sore throat, arthritis, or anything that would lead one to suspect rheumatism. One parent was syphilitic. He got a weak positive Wassermann reaction. The heart showed a stenosed valve which he believed to be caused by syphilis but he did not believe that it was the result of a rheumatic or a streptococcic infection, but a syphilitic sclerosis.

Various Types of Lues: A Clinical and Laboratory Study—The Abelin Reaction; Direct Subdural Injections.—Dr. WILLIAM EGBERT ROBERTSON and Dr. J. V. KLAUDER of Philadelphia presented this communication. The present conception of syphilis was that in its earlier stages it was a septicemia with more or less involvement of the nervous structures and coverings from the beginning. In the course of time, for some unknown reason, special predilection was manifested for some particular organ or tissue and after a period of apparent latency which only serological study would reveal. In some instances the latency was so well concealed that only a provocative Wassermann would reveal it. After discussing the clinical types of lues, with special reference to sphincter paresis as a definite diagnostic sign, they spoke of the value of the Abelin reaction, especially as applied to subdural work, to determine the presence of arsenic in serum and urine. They were unable to obtain a reaction in the serum of blood removed in 90 minutes in any case.

A Study of the Arneth Formulæ.—Dr. GRAHAM E. HENSON of Jacksonville, Fla., read this paper. He said that in the Arneth classification the polynuclears were divided into five classes depending upon the number of nuclei contained within the cell. His work as well as others had been confined largely to tuberculosis. Dr. Henson gave many tables showing the count in many other diseases and said that up to the present his findings would lead him to think that in certain classes of cases the Arneth Index was of some prognostic value, enough at least to warrant a careful and intensive study of the blood picture in all septic and infectious diseases.

Salvarsan in the Treatment of Pernicious Anemia.—Dr. JAMES S. BROTHERHOOD of Clifton Springs, N. Y., read this paper. After reviewing the series of cases of pernicious anemia of Bramwell and Boggs treated with salvarsan, the author stated that he had had seven cases under observation, all of which had received salvarsan intravenously. Of these five were males and two females. All were over 40 years of age. The average hemoglobin on admission was 29 per cent., the lowest being 20 per cent. and the highest 60 per cent. The average red blood count on admission was 1,100,000. Intravenous injection of salvarsan in doses of 0.4 to 0.6 grams were given at intervals of two to three weeks, the largest number of injections given to any one patient being six over a period of four months. Four of these cases were at the present time doing well, with the blood in a satisfactory condition. No untoward symptoms had followed the injections though there was sometimes a slight headache or a little nausea. It was obvious from the writer's cases and from those reported in the literature that it was too early to draw any conclusions as to the possibility of obtaining permanent improvement or cure of pernicious anemia by salvarsan. In a disease characterized by chronicity and a tendency to relapse it seemed rather improbable that such a result would be achieved. Salvarsan in a single dose was of doubtful value. The results thus far obtained in the treatment of pernicious anemia by salvarsan were sufficiently encouraging to warrant an extended trial of the drug.

The Medical Application of Blood Transfusion by the Syringe-Cannula System Without Skin Incision.—Dr. E. LINDEMAN of New York presented this communication. He stated that a study of the change of the substances in the blood in disease suggested the possibility of modifying the blood of the donor to rectify these conditions and to make more potent the agencies at work in overcoming disease. It was not only important to know when and how to apply blood therapy but equally important to know when and why not to apply it. Blood transfusion therapy might be considered in aplastic anemia, but in this disease leucoblastic and erythroblastic activity became completely and permanently paralyzed and the introduction of fresh blood was utterly inadequate to favorably modify the course of the disease. In splenic anemia with hematemesis, if syphilis prevailed and the anemia was in excess of the blood lost, transfusion would be of little aid until the patient had received antisyphilitic treatment. In simple anemia of grave degree of unknown cause, striking benefit had been obtained by blood transfusion. In gastric ulcer with hemorrhage and anemia transfusion was indicated after cessation of the hemorrhage and before operation was recommended. In severe anemia secondary to hemorrhage transfusion was specific. In alcoholic cirrhosis of the liver with severe secondary anemia the results of transfusion were good. The author had had no success with transfusion in acute leucemias. In hemophilia transfusion was the measure of choice and should be performed during the active stage of bleeding. It was sometimes a prophylactic after all bleeding had ceased. This measure was sometimes applicable in postoperative cholecystotomy and after operations for sarcoma and carcinoma. In cases of malnutrition thus far the procedure had been of little value, but where anemia was associated the results in some cases were good. Repeated transfusions might check septic processes.

SECTION ON OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY.

Thursday, June 25—Third Day.

DR. E. GUSTAV ZINKE OF CINCINNATI IN THE CHAIR.

Election of Officers.—The following officers were elected: *Chairman*, Dr. Thomas C. Cullen, of Baltimore; *Vice-Chairman*, Dr. George B. Somers, of San Francisco; *Secretary*, Dr. Brooke M. Anspach of Philadelphia; *Delegate*, Dr. Chandler W. Barrett of Chicago; *Alternate*, Dr. Henry Schwarz of St. Louis.

The Present Status of Pyelography.—Drs. FLOYD E. KEENE and HENRY K. PANCOAST of Philadelphia wrote this paper, which was read by Dr. Floyd E. Keene. He said that the substance used for injecting the kidney was collargol. It gained entrance to the kidneys by way of the tubules. The literature on the subject showed that pain was the most prominent symptom following the injection, but he believed that this was caused by faulty technique. He thought that collargol properly injected produced no widespread lesions of the kidneys. The indiscriminate use of pyelography was condemned. Pyelography was used only in those cases where it was impossible to make a diagnosis by any of the usual methods. In giving the injection the gravity method was employed, and the strength of the solution used was 10 per cent. All dangerous symptoms were prevented if care was exercised and the cases properly selected.

Dr. W. F. BRAASCH of Rochester, Minn., said that pyelography was a valuable method of diagnosing conditions of the urinary tract. In a series of 2000 cases no serious results were observed. He believed that the silver iodide injections recommended by Kelly were good. In giving these injections a syringe was used. He thought that the ideal method was not as yet known.

Dr. HENRY D. FURNISS of New York thought that an ideal injection was one which was non-irritating and non-toxic. To avoid traumatism in administering the injection, the use of a soft rubber catheter was advocated.

Dr. ARTHUR E. HERTZLER of Kansas City, Mo., said the toxicity of silver was just being realized. He believed silver was active in 1-10,000 solutions. Silver infiltrated the leucocytes and was carried to all parts of the body.

Personal Experience with Exclusion of the Pylorus in the Treatment of Ulcer.—Dr. WILLARD BARTLETT of St. Louis presented this paper. He detailed a number of original methods which were undertaken in order to completely shut out the pyloric region without cutting the organ entirely across and closing the two ends blind. The results were shown by roentgenograms which were taken during life as well as by roentgenograms which were taken after the stomach was removed from the body. Histological examinations were made of the stomach wall on both sides of the newly formed septum as well as of the septum itself. Physiological investigations were undertaken with a view of ascertaining secretory and motor functional differences on the two sides of the septum. He reported a series of twenty cases and was convinced that the unilateral closure was the most satisfactory.

Dr. WILLIAM L. RODMAN of Philadelphia said that many methods had been devised to exclude the pylorus. The methods were not adequate and gave only temporary relief. He believed Dr. Bartlett's operation

was ingenious. He had never used the exclusion method. He advised complete extirpation of the ulcer bearing area, since, in his opinion, the best way to prevent gastric cancer was to operate in the ulcer stage.

Common Errors in Gall-Tract Surgery.—Dr. C. E. RUTH of Des Moines read this paper. He said that lateral incisions in gall-tract surgery were never justifiable as they offered no real operative advantage and often led to serious complications. Through a median incision it was possible to do any gall-tract work which was possible through the lateral bayonet-shaped or any other lateral incision. The median incision was not followed by hernia and was readily extended for dealing with any complication within the abdomen. Drainage of the gall-bladder was never undertaken through the operation wound and the fundus of the gall-bladder was never attached to the abdominal wall. The pancreas was examined in every case.

Dr. EDWARD MARTIN of Philadelphia said that the median incision was valuable in the lean subject but was of no advantage in fat patients. He believed hernia rarely folowed operation in this region. He thought secondary operations were made necessary by the failure of the operator to make a correct diagnosis at the first operation. He approved of a lateral incision through the right rectus muscles, by which means the entire surface of the liver was exposed.

Dr. D. N. EISENDRATH of Chicago said secondary operations were performed in those cases where the gall-bladder was removed and where the common duct was not opened. He was not in favor of the median incision because through this method the entire liver region was not exposed. He opened the common duct first, and then worked upward to the gall-bladder.

Dr. JOHN A. MCGLINN of Philadelphia said secondary operations were performed on the gall-tract because the pathology of the affection was not understood. He believed that the trouble was not limited to the ducts and the gall-bladder, but that the upper right quadrant of the liver was also involved. He maintained that it was a surgical disease from the beginning, and was benefited only by surgery.

Thrombosis and Emboli: Their Significances and Consequences in Abdominal and Pelvic Surgery.—Dr. ANGUS MCLEAN of Chicago presented this paper. He said thrombosis and embolism played an important role in raising the mortality of modern surgery. Embolism and thrombosis followed septic cases more frequently than aseptic cases. Emboli were more frequently found in the spleen, kidneys, and brain. Portions of a diseased heart valve or parts of tumors were carried into the circulation and deposited as emboli. The conditions favorable to thrombosis were alterations in the blood current, changes in the vessel walls and in the blood itself. The treatment was mainly prophylactic. The danger of embolism from thrombosis usually ceased at the end of three weeks, as by that time the clot had become adherent to the vessel wall.

Standardization of Surgery: The Attack on the Problem.—Dr. ROBERT L. DICKINSON of Brooklyn read this paper. Pending the working out of a comprehensive plan, he outlined the progress already accomplished in the direction of standards and coordination and pointed out the way an individual surgeon or service was enabled to put into effect certain of the advanced methods adopted in the management of industries and developed by the studies of elementary motions and economy of effort. He said that the assistants in hospitals were not rated. There was no standard. Hospital superintendents were organizing. In Philadelphia fifty-five of the hospitals were organized. He advocated a study of details, the organization of a planning department, and constant inspection by one delegated to this duty.

The Pathological Physiology of Uterine Bleeding.—Dr. EMIL NOVAK of Baltimore read this paper. He said an intelligent study of the subject presupposed an understanding of the mechanism of normal menstruation. He referred to the fundamental importance of internal secretions, especially that of the ovary, which was the medium through which the entire ductless chain exerted effect on the menstrual apparatus. The effect was essentially of a vasomotor nature. He believed the causes of uterine bleeding were fundamental, as when caused by disturbances of the internal secretions: nervous, when produced by reflex disturbances, and, anatomical, when associated with structural changes in the pelvic organs or blood vessels.

Physiological and Pathological Variations of the Generative Organs Causing Atypical Bleeding.—Dr. JOHN G. CLARK of Philadelphia read this paper. He said that two organs were essential for the production of the menstrual flow—the ovary and the uterus. The ovary was the exciting and the uterus the active factor in this process. It was necessary to recast our views concerning a typical bleeding along newer pathological lines. New growths which were constructive in character followed the natural physiological periods of hemorrhage. Destructive new growths, such as cancer, deviated entirely from this law, and caused hemorrhage at any time. He urged that cancer of the uterus be diagnosed early.

Radium Treatment of Uterine Hemorrhage.—Dr. HOWARD A. KELLY of Baltimore read this paper, which was based upon a study of thirty-nine cases, covering a period of two and one-half years. He said that radium was a new and efficient means of controlling many cases of uterine hemorrhage. It acted well in small and medium-sized fibroids. It was also efficient in menarchial bleeding. The artificial menopause was readily induced with radium. Radium was a mild remedy, and when applicable, was better than surgery. The method of using the radium consisted in, first, dilating and curetting the uterus. Then, from 50 to 500 milligrams of the radium elements were introduced into the cavity of the uterus, together with a filtrate of 1 milligram of platinum and 3 milligrams of rubber, and permitted to remain three hours. Among the number of patients treated, twenty-one had fibroids. In two of the cases of fibroids the tumors completely disappeared after treatment with radium. There were no serious results following the treatment in any case. The treatment was successful in 90 per cent. of the cases. The cases were not selected. The radium treatment had an advantage over *x*-ray therapy in that it exerted its influence directly on the uterus.

Roentgen Therapy in Uterine Hemorrhage.—Dr. GEORGE E. PFAHLER of Philadelphia read this paper. He said that the cases most suitable for treatment were those in women approaching the menopause. The best results were obtained after the age of forty years. Under forty years, good results were obtained, but the patients required correspondingly more treatment. With accurate, massive, filtered doses of the rays, good results were obtained in a reasonable time, without danger and with no great inconvenience. In the series of cases reported, the use of the tampon was unnecessary after the first or second treatment. The object of the treatment was to regulate the function of the ovaries. The treatment also decreased the size of the fibroids. In fibroid cases, a gradual menopause was produced. The treatment was contraindicated in those cases of fibroids which had undergone malignant degeneration.

Dr. JOHN A. MCGLINN of Philadelphia said it was impossible to eliminate surgery entirely in the treatment of fibroids of the uterus. The mortality in these cases when treated surgically was due to cardiac or renal disease which existed in the patients. A study of the reports on treatment of this condition by radium and the röntgen ray showed that but 5 per cent. of the tumors disappeared.

Fundamental Intrapelvic Perineorrhaphy.—Dr. ALBERT GOLDSPOHN of Chicago read this paper. He stated that all classical perineorrhaphies were more cosmetic than curative. The only efficient structures with which to rebuild the female pelvic diaphragm were the levator ani muscle and its pelvic fascia. These did not extend anteriorly nearer to the former site of the hymen than from 4 to 5 cm. They were found within the pelvis and required an infravaginal and intrapelvic wound extending from 7 to 8 cm. inward posteriorly, and laterally from the junction of the mucous membrane and the skin. Some operations were too superficial and did not deal with the levator ani. Only deeply buried absorbable sutures extending in transverse loops without any intervening tissues were able to approximate the important structures so as to secure their stable union.

Pelvic Varicosities: A Definite Symptom-Complex.—Dr. WILLIAM EDGAR DARNALL of Atlantic City read this paper. He said he had operated on ten cases during the past year. Pelvic varicosities were caused by frequent abortions, excessive intraabdominal pressure, wearing tight clothing, etc. This class of patients complained of dull, boring pains in the lower abdomen. These pains were aggravated on standing erect, and were most pronounced at the menstrual period.

Many of these cases were incorrectly diagnosed as neurasthenia. The diagnosis was made by exclusion. Medical treatment was only palliative. Surgery offered a positive cure.

SECTION ON DISEASES OF CHILDREN.

Wednesday, June 24—Second Day.

Refractory or So-called "Fast" Cases of Meningococcus Meningitis.—Dr. H. HEIMAN of New York presented this paper. He said he had not used the old term epidemic cerebrospinal meningitis, which might be due to the pneumococcus or streptococcus. Since the introduction of Flexner's antimeningitis serum in 1906 mortality had decreased from 75 per cent. to 25 per cent. A small percentage of cases, however, did not respond to serum. The endotoxins might be so virulent as to make the action of serum impossible. Bactericidal substances were insufficient to counteract the organism. Perhaps a sufficiently strong serum to counteract this type could not be made. These refractory cases ran a prolonged course with a high septic temperature. They generally ended fatally but sometimes there was retarded recovery. These cases were due to special strains of the meningococcus which were "fast" to ordinary serum. They might not respond to any but serum prepared from those particular cultures. Cases of fifty-eight days' or 112 days' duration still showed meningococci. These strains must be specially cultured in the laboratory and serum prepared. Another source of failure was in the unskilled use of serum. The mortality statistics were lowest when based upon the reports of the most competent workers.

Dr. LOWENBERG of Philadelphia said he wondered where statistics came from. He had seen many cases in a congested part of Philadelphia, but had gotten no results from the serum treatment. He might perhaps be an unskilled user of serum or the cases might all be refractory. He did not get serum from the Rockefeller Institute but from a good manufacturing chemist.

Dr. H. D. CHAPIN of New York said he had not had success with the gravity method of introducing serum.

Dr. DENNET of New York said they had been obliged to use a syringe for injection. They had difficulty with the gravity method.

Dr. ZAHORSKY of St. Louis said too large doses should not be used on account of giving a severe protein intoxication which diminished the resistance of the child. Two or three injections should be given and the body then allowed to rest.

Dr. MORSE of Boston said the meningococcus was not a single organism but a class. The type of organism had evidently changed in Boston. It used to respond to Flexner's serum, but now did better with the State Board of Health serum.

Urinary Analysis in the Diagnosis and Treatment of Diseases of Infancy and Childhood.—Dr. R. G. FREEMAN of New York gave this paper. He said that ordinary office examinations of urine did not always furnish sufficient information. Procuring urine in infants, especially females, was difficult. They urinated small quantities often. In pyelitis several specimens were necessary. Examinations should include estimation for specific gravity, acidity, albumin, glucose, acetone, diacetic acid, indican, phthalein, and microscopical examination of sediment. Albumin, unless found with nephritis, would most likely disappear. In children acetone might be detected in the breath. Acidosis occurred with cyclic vomiting and was best treated with alkalines. It also occurred in intestinal intoxication, and sometimes was associated with urticaria. Intertrigo occurred with high acidity in the urine. Cases of pyelitis were often neglected. A few leucocytes in the male baby, and many in the female, were suspicious. It should be promptly treated. It occurred more often in females than males. It occurred very likely from contamination with feces. A child could be trained to have a regular movement of the bowel so that contamination did not occur. With a number of leucocytes present an examination for bacteria should be made, and if they were present they should be grown on culture media.

Dr. SEDGWICK of Minneapolis found that in recurrent vomiting there was increased creatinin and creatin excretion and casts. Acidosis occurred with the withdrawal of carbohydrates and care should be taken not to mistake acidosis for the fundamental condition. That more frequent infections in females must take place through the urethra was not proven.

Dr. LENNING of New Haven said it was important to collect several specimens.

Dr. HELMHOLZ of Chicago said he agreed with the last speaker. In chronic cases one might get no pus for several days and then a gush of pus. An orthostatic albuminuria should also be distinctly recognized.

Dr. BUTTERWORTH of New Orleans said that acidosis might be present in almost any febrile condition. He thought pyelitis frequent in males as well as in females.

Dr. HEIMAN of New York said that in orthostatic albuminuria the first specimen on getting out of bed was negative. On rising to an angle of 45° albumin was found present. This was due to venous pressure. In toxic albuminuria the first specimen was positive for albumin.

Amebic Dysentery in Children.—Dr. R. L. DEBUYS of New Orleans presented this paper. He said the incidence was rare in children as they were less exposed to etiological factors, but it was more common than was usually believed. In the Charity Hospital in New Orleans there were four cases to every 3,000. It was more prevalent in the male on account of greater exposure. The sources were water and green vegetables. Amebic dysentery should be distinguished from bacillary dysentery which was more acute and toxic. Diagnosis was not difficult, and warm, liquid stools must be used to detect ameba. The symptoms were pus and blood in the stools, fever, prostration, anorexia, dry skin, frequent movements of the bowels; the blood picture was one of secondary anemia. A large number of cases should be studied before conclusions could be drawn. Treatment consisted of ipecac in form of pills. Emetin seemed to be the best form of treatment and complete rest for the bowel and for the individual was essential.

Dr. T. S. SOUTHWORTH of New York said that this was a disease of warm climates, but in these days when so many of our products came from the Southern States we should be on the lookout for cases. Emetin was no doubt of great help in this disease.

Dr. H. D. CHAPIN of New York said that every year one or two cases came under his observation. More careful search should be made for the ameba.

Dr. AMESSE of Denver said he believed that children had more or less of an age immunity to this disease, as Chinamen had a race immunity to typhoid and the negro to yellow fever. Children also had an age immunity to yellow fever. In emetin we had a drug to conquer this tropical disease.

Dr. BUTTERWORTH of New Orleans cited the case of a soldier who escaped death from dysentery in the Philippines, came back and married. His wife and four of the children contracted amebic dysentery. There was direct evidence of infection. Emetin was no doubt the best curative agent.

The Use of a Series of Vaccines in the Prophylaxis and Treatment of an Epidemic of Pertussis.—Dr. A. F. HESS of New York read this paper, reporting an epidemic of whooping cough in the wards of a large infant asylum. This gave an excellent opportunity to try vaccines, either preventive or curative in this disease. Four types of vaccine were used—the Bordet-Gengou, a Parke-Davis Bordet-Gengou vaccine, a Board of Health Bordet-Gengou vaccine, and autogenous vaccines isolated from the asylum cases. The children were all under the same conditions of living, feeding, and fresh air, and the same organism probably infected all of them. Of 75 unvaccinated cases 59 developed pertussis. Of 144 vaccinated cases 21 had pertussis. This would show some preventive power of the vaccine. When prevention failed the children did not have the disease more mildly, thus disproving a curative effect. The exposure to infection was the same in vaccinated and non-vaccinated. The results were not as good as in typhoid vaccine but were certainly of considerable help.

Dr. ZAHORSKY of St. Louis said results were better in private practice. Children in institutions had a low power of immunization.

Dr. MCCLEAVE of Berkeley, Cal., said that he had vaccinated well children as well as sick ones in an epidemic. The method was of value and should be used. He intended to determine the duration of the immunity.

Dr. HAMILL of Philadelphia said that the subject of vaccines should be carefully approached. Results were difficult of interpretation. The treatment was sometimes detrimental and sometimes gave alarming results.

Dr. MEADE of Middletown, Ct., said they had used a mixed pertussis and pneumococcus vaccine with remarkably good results.

Dr. Reimer of New York said that the earlier the vaccines were started the better were the results obtained.

Dr. Heiman of New York said that in bronchitis due to *B. influenzæ* children had a pseudo-pertussis cough. The distinction must be carefully made.

Examination of the Chest in Children.—Dr. R. M. Smith of Boston read a paper on the importance of determination of the presence of tuberculosis in children. In addition to the physical examination and the von Pirquet test, the temperature and history were important. The matter could not be left there as the determination of tuberculosis was of first interest. It was also necessary to distinguish between the mere presence of tuberculosis and the active stages of the disease. Of 100 cases nine were in active stages. Night sweats with children were an unessential sign. Of ten with night sweats none had active tuberculosis. Of sixty-five children with tuberculosis two were above average weight. This was merely a question of the feeding. The *x*-ray had been shown to be of marked value in aiding diagnosis; of fifty-two whose *x*-ray plates showed lesions all had signs in the lungs by auscultation, but twenty-one did not show signs on physical examination. The *x*-ray was an aid but could not take the place of careful physical examination. In cases with enlargement of the bronchial glands 100 cases showed thickening, in the *x*-ray plates, and seventy of these had the d'Espine sign. It would seem as if the d'Espine sign meant enlarged bronchial glands. In forty-one of these cases the von Pirquet test was also positive. Enlarged glands, however, did not necessarily mean tuberculosis. One case came to autopsy which had acute bronchitis and acute endocarditis. With a positive von Pirquet test in sixty-two cases fifty-six had also signs in the lungs and seven had active tuberculosis. The active cases should be distinguished and cases with old scars should not be treated for active tuberculosis.

Dr. Heiman of New York said there should be a bronchoscopic examination. Repeated attacks of bronchitis enlarged the glands.

Dr. Freeman of New York said that in miliary tuberculosis often there were only occasional râles. In tuberculous meningitis where there was very little sign in the chest, the *x*-ray showed extensive lesions; here the von Pirquet test was often negative.

Dr. Hamill of Philadelphia said it was possible to develop dullness over the bronchial glands by shifting the position of the child and of the muscles. The *x*-ray was misleading, unless in expert hands. Technicians of the better type were few and good interpreters fewer.

Dr. McLanahan of Omaha said the *x*-ray was misleading and did not take the place of careful physical examination. This was one of the best papers he had heard.

Dr. Chapin of New York added his testimony to that of Dr. Hamill. He had frequently found the *x*-ray misleading. In some cases of obscure late pneumonias it was of use. They gave few physical signs; the *x*-ray proved them superficial rather than central.

Dr. Zahorsky of St. Louis asked upon what Dr. Smith based his diagnosis of active tuberculosis.

Dr. Smith of Boston said he made a diagnosis of tuberculosis on marked loss of weight, obvious signs of illness and a positive von Pirquet, except in miliary tuberculosis.

The Use of Boiled Milk in Infant Feeding.—Dr. R. H. Dennett of New York in this paper said that it was frequently necessary to boil infants' food. In no single instance had he seen digestive disturbance follow from use of boiled milk. In changing from boiled milk to raw milk the stools frequently had curds and children frequently had indigestion. The prolonged use of boiled milk did not necessarily cause rickets, anemia, or malnutrition, but it might cause constipation. With the use of orange juice boiled milk did not cause scurvy.

Experience with "Whey-Modified" Milk in Infant Feeding.—Dr. J. S. Leopold of New York presented this subject in which he discussed the difficulty of always procuring breast milk. He advocated Schloss' "whey-modified" milk, a new milk preparation for infants resembling human milk in its modification of salts. Infants did not do as well on cows' milk because the percentage of salts in the two milks was different. In Schloss's milk the percentage of proteins, sugar, salts, and fat was the nearest approach to human milk. A small amount of flour was sometimes added for infants under three months of age. Young infants did very well on this milk preparation and showed good development. In the bringing up of institutional infants, which was usually difficult, this mixture answered very well. Those suffering from malnutrition and from enteritis made considerable gain on this food. Sometimes it could be given in conjunction with breast milk with good results. Schloss's milk was not indicated after six months of age.

Dr. Neff of Kansas City said he doubted if the heating of milk had any relation to the production of scurvy. Brennerman reported curing a case of scurvy with the use of boiled milk.

Dr. Royster of Norfolk, Va., said he had never hesitated to boil milk nor had he seen bad results from its use. He frequently used orange juice with boiled milk. He believed that Schloss's milk was a great help for institution babies.

Dr. Lowenberg of Philadelphia said his results with boiled milk were in accordance with those of Dr. Dennett; there was a good effect on the stools from boiled milk.

Dr. Douglas of Detroit said that for 15 years he had educated his patients to use boiled milk. He did not pay attention to scurvy. It was easily removed.

Dr. G. D. Scott of New York said he believed there was a change produced in milk by boiling. The whey modification seemed to be akin to the wine-whey of 15 years ago. In regard to scurvy it was, he thought, due to a poor condition of the milk. It was often delayed in the dairy. Scurvy could not be cured in a few days.

Dr. Zahorsky of St. Louis said he did not believe Schloss's milk was superior to a good top-milk mixture.

Dr. Graves of New York said he had experience in watching older men in practice and had seen scurvy develop under the hands of competent men in four cases. There was no doubt as to the serious suffering of the infants. Pasteurized milk might have been the cause. Orange juice could always be given with boiled milk.

Dr. Morse of Boston said that boiling of milk made casein digestion easier. In regard to the etiology of scurvy, the only safe statement to make was that no one knew anything about it.

Experiments with Swine Fat in Infant Feeding.—Dr. J. Zahorsky of St. Louis presented this paper. He said that the American practitioner had always been partial to the use of fat, but many young infants could not digest cows' milk unless the fat was withdrawn. Many fats had been tried, as olive oil, butter fat, cod liver oil, but these results were not as good as those given by swine fat which resembled the fat in human milk. Pure lard might be used and had been used in his experiments. He had proved that lard might be safely used. In institutional infants the lard fed babies looked better than the other babies and always were chosen for adoption instead of the others. Sometimes the infant refused the bottle, sometimes there was regurgitation, but usually the stools were yellow and there was no digestive disturbance. A 3 per cent. proportion of fat was used and was well tolerated.

The Absorption of Fat from the Intestinal Tract of the Actively Tuberculous Child.—Dr. F. W. Schultz of Minneapolis presented this communication. The tuberculous child needed a diet rich in fat. It was desirable to have as large a deposit of fat as possible in the organism, under any feeding conditions. It was equally desirable not to have an excess of fluid in the tissues. The former seemed to increase and the latter to decrease resistance to tuberculous infection. Experiments showed that animals fed with carbohydrates were less resistant to tuberculous infection and those fed with fat rich diet were very resistant to tubercle bacilli. The importance of fat to the tuberculous child brought up the question of fat tolerance. In peritoneal tuberculosis the blocking of the lymphatic channels markedly diminished fat absorption. In scrofulous cases the fat absorption in the stools was found diminished. The conclusion was that a diet with most fat and causing least retention of water was the most favorable to tuberculous children.

Dr. Talbot of Boston said that the problem was a mechanical one and a question of how much fat could be absorbed.

The Influence of Starch on Infant Digestion.—Dr. T. S. Southworth of New York read this paper. He said he was not arguing for excessive starch feeding. The reason for giving the starch was to render curds permeable by the gastric juice. Vegetable proteins supplemented the animal proteins of the milk. The stomach was, however, only the receiving house. Absorption took place mainly in the intestine. Peristalsis churned the food and mixed it with the secretions.

Disturbances arose from fermentation or abnormal cleavage which irritated the mucosa and interfered with absorption. The addition of starch in some form to feedings mixtures was widespread. In hospitals the stock formulæ included barley water as a diluent. Boiled starch apparently exerted a protective action against fat and might act as a curative agent in intestinal indigestion. Starch seemed unnecessary before the seventh month, but young infants could digest a moderate amount of boiled starch.

The Metabolism of Carbohydrates with Special Reference to Its Effects on the Absorption of Fat and Nitrogen and on the Retention of Salts.—By Dr. F. B. Talbot and Lewis W. Hall of Boston. Dr. Talbot read the paper, a study of carbohydrate metabolism in a baby in which the lactose, fat, protein, and ash balance were determined. The baby was admitted to the Massachusetts General Hospital suffering from digestive disturbance. After admission it increased in weight; at five months it weighed 9 pounds. Fat and protein were kept the same in the feeding, sugar was increased in successive periods. The child had one attack of diarrhea and was put back to former formula. It then lost weight. It got 115 calories per kilo of body weight. The urine never contained sugar. With increased amounts of sugar there was increased retention of protein. With increase of fat there was also a change of retention. The increased amount of sugar had no effect upon the absorption of fat or protein; they remained normal. There was no effect upon the absorption of ash. With the diarrhea fat absorption dropped from 90 to 75 per cent. Absorption of nitrogen also dropped. The acidity of the stools increased with the diarrhea. It was not determined how much sugar was lost, but taking fat alone the baby lost in the stools 15 calories per kilo per day.

Dr. Douglas of Detroit said there was an excess of sugar in many patent foods. In some cases this caused injury to the baby.

Dr. Morse of Boston asked Dr. Talbot if they were justified in concluding that variations in the percentage of sugar had no influence on the absorption of fat and nitrogen; also how much of the loss during the diarrhea was chemical and how much mechanical.

Dr. Zahorsky of St. Louis said that some sugars fermented more easily than others. Cane sugar and milk sugar were not easily fermented.

Dr. St. Clair of Philadelphia said that starch was very valuable in digestive disturbances.

Dr. McLanahan of Omaha said the mothers often objected to the expense of cooking cereals. He would like to know of a readily prepared "cooked starch."

Dr. Helmholz of Chicago asked Dr. Talbot whether a great deal of sugar could not have been contained in the organism and with it water, which after the diarrhea so reduced the weight of the infant.

Dr. Southworth stated that rapid peristalsis interfered with the absorption of fat and nitrogen.

Thursday, June 25—Third Day.

Blood Pressure in Normal Children.—Drs. C. F. Judson of Philadelphia and Dr. P. Nicholson of Ardmore, Pa., presented this paper, which was read by Dr. Nicholson. They dwelt upon the importance and value of accurate blood pressure estimation in children. Physiological factors influencing blood pressure in children were the relative instability of equilibrium of the vessels; lesser peripheral resistance; variations of blood pressure with height and weight of child; the influence of sex; the pressure being higher in the male; and the time of taking pressure, the pressure being higher later in the day. Of different methods palpation was the oldest; this, however, gave no diastolic pressure. The oscillatory method was more reliable but nervousness in the child often interfered with results. The newer modified Erlanger apparatus gave the most satisfactory results and comparison with other methods confirmed the accuracy of this. Observations showed that the variations of blood pressure in children were greatest between 10 and 14 years; the systolic pressure increased from 3 to 10 years and varied from 91 at 3 years to 105 at 14 years. The diastolic pressure remained level and pulse pressure increased in proportion. The most important point was the determination of pulse pressure, indicating peripheral resistance.

A Study of the Blood Pressure in Anemia in Infancy.—Drs. J. L. Morse and E. T. Wyman of Boston presented this communication. They said there were very few data in the literature of blood pressure in infancy and nothing as to blood pressure in anemia in infancy. The comparison of normally nourished children and anemic children had been taken in respect to blood pressure. Tests had been made on the arm wherever possible, otherwise on the thigh. The systolic pressure was noted when the sound was first heard; the diastolic when the sound changed from sharp to dull. In 62 per cent. of normal babies the average pressure was 90 mm. diastolic. Pressure was higher in males, and higher in second year than the first. In poorly nourished babies the systolic pressure was the same, the diastolic lower and pulse pressure higher. The pulse pressure was higher according to the degree of anemia, or disturbance of nutrition. Systolic pressure rose with increase of anemia. These cases did not warrant conclusions as to their cause.

Dr. Michael of Chicago said, in making observations on blood pressure, she had calculated the areas per square mm. over which the pressure circulated, had multiplied the circumference of the arm by the width of the cuff and had divided the height of the mercurial column by this sum. With this method there was found to be little result at 5, 6, and 7 years of age. Blood pressure seemed about the same in normal children and age influenced it but little.

Dr. Hill of Philadelphia said he used a 6-inch cuff, doubled. He thought the pulse pressure had more bearing than the systolic pressure.

Dr. L. F. Bishop of New York said the diastolic pressure threw more light on many cases than the systolic pressure; it was a great help in diagnosing aortic regurgitation; with a low diastolic pressure more blood was regurgitated.

Dr. Ritter of Chicago said that the blood pressure varied considerably as the patient sat or stood, more so in health than in disease.

Dr. Hamill of Philadelphia said he had found auscultation unsatisfactory. His results in systolic pressure corresponded with the results quoted.

Dr. Judson of New York said that he thought Dr. Michael's method of dividing the area into the quotient added one more difficulty to the technique.

Dr. Nicholson said in conclusion that Dr. Ward Crampton's work on blood pressure variations with reference to the posture of school children had been carefully worked out. He himself had not had time to go into this question.

Prognosis and Diagnosis of Congenital Cardiac Disease.—Dr. Charles Hunter Dunn of Boston in this paper dealt with special studies undertaken in Vienna in an obstetrical division of a large hospital. The study covered about forty cases. The diagnosis of these cases was difficult clinically. The text-books were misleading in treatment of the subject. His conclusions were often made in spite of the literature. Many statements made by men of high authority were not found to be justified. Several lesions together were often confused with a single lesion. In the cases studied diagnosis was confirmed at autopsy in forty; eight additional cases were found where the physical examination gave no hint of cardiac lesion, and in four cases a diagnosis was made and the autopsy showed a normal heart. Cases included open foramen ovale; pulmonary stenosis; deficient ventricular septum; patent ductus arteriosus; congenital malformation of pulmonary artery. Open foramen ovale by itself had little clinical significance. Pulmonary stenosis was the sole lesion in sixteen cases; all these babies died under three weeks and were all blue babies. Where they survived this was not the sole lesion. In all forty cases a systolic murmur was present. Enlargement was found to be an essential sign in pulmonary stenosis. Open ductus arteriosus was found to be a help when combined with pulmonary stenosis and not a hindrance to the circulation of blood from the right heart to the left. In these cases a murmur was always found to be transmitted to the neck. A case of murmur without cyanosis or enlargement was always open ductus arteriosus alone.

Dr. Schultz of Minneapolis said that no doubt pulmonary stenosis occurred in a large number of cases.

Dr. Helmholz of Chicago said this paper would be of great help in distinguishing the different lesions.

Dr. Zahorsky said that transposition of the vessel had not been mentioned. That might produce cyanosis. Open foramen ovale was a safety valve in congenital cardiac disease.

Dr. Bishop of New York said that many cases of congenital heart lesions survived to a good age and could do good work. He knew a man of 56, the president of a railroad, who for years had had a blood pressure of 320, the effort of the heart to compensate.

Dr. ALLEN HOLYOKE said he knew of cases where there had been two or three blue babies in a family.

Dr. SEDGWICK of Minneapolis said that pathologists gave a false impression to students as to the importance of an open foramen ovale.

Dr. MORSE of Boston said he knew of a boy with a very pronounced heart murmur. The boy was 16 years of age and as he was a very quarrelsome boy he had been allowed to learn boxing. He had never had any untoward symptoms from this.

Further Observations Concerning the Relation of Heat to Infant Mortality.—Dr. H. F. HELMHOLZ of Chicago presented this paper. He emphasized the need of very complete details daily as to feeding of the child, the passages of the bowels, records as to maximal and minimal temperatures, records as to humidity, and variations between room and outdoor temperatures. Observations extended over two months in 1913 during severe heat. No definite relation of high room temperature to gastrointestinal disturbances had been recorded. Most rooms were often above 85°, some above 90°. A room temperature of 90° could occur without hyperthermia in a child. Infants showed a remarkable power of adjusting themselves to high temperature. Where deaths occurred in periods of greatest heat it was always found to be owing to carelessness or ignorance of the mother. It was found that if properly cool clothing was used and proper care that infants could withstand much higher temperatures than generally supposed.

Dr. ROYSTER of Norfolk, Va., said that proper attention had not been given to humidity. With proper radiation children could stand much higher temperatures. Liefmann and Lindemann had no knowledge of the question of humidity. In Berlin it was considered high at 45 per cent.; here it was rarely under 85 per cent.

Dr. LEVY of Newark said that the number of persons in a room and the air currents passing through the room would also determine heat and radiation.

Dr. SMITH of Boston said that Dr. Royster's point should be emphasized. Humidity was a very large factor. In his experience with the floating hospital, days of high humidity always brought a number of admissions of exhausted babies.

Dr. DOUGLAS of Detroit said parents should be taught to put very light and scanty clothing on the child in hot weather.

Dr. ZAHORSKY said he was not convinced that heat produced diarrhea. With a temperature of 100° in St. Louis he had seen no diarrhea. Atrophic infants with low resistance succumbed to a heat wave and this increased the death rate.

Dr. BUTTERWORTH of New Orleans said they lost more infants in April than in hot weather. Sudden rises and falls of temperature were trying to infants. The immature nervous system was unable to adapt itself to sudden changes.

Dr. BURTON of Albuquerque, Mexico, said that with them cases of indigestion were very few during the summer. There was great difference between day and night temperature. The children were kept in the shade in the daytime.

Dr. ILLOWAY of New York said that heat alone was not the cause of mortality. Summer heat had a depressing effect on the nervous system and caused lowered resistance.

Dr. ELIAS of Asheville said that at an elevation of 3,000 feet in Asheville there was a lack of atmospheric moisture, but with a dry summer the flies were usually bad and caused many cases of diarrhea; these were more frequent in the country than in town.

Dr. MCCLEAVE of Berkeley, Cal., said that 90° with them was not an excessive temperature. Temperatures were often above 110°. Heat of itself seemed to have no effect. They had no summer diarrhea even with temperatures of 115°.

A Further Clinical Study of the Efficiency of Sodium Chloride in the Therapeutics of Bright's Disease.—Dr. H. LOWENBURG of Philadelphia read this paper. His results dealt with definite biochemical phenomena and confirmed the observations of Fischer in which all cases were relieved by the use of sodium chloride. Dr. Lowenburg's original observations were made before Fischer's work. In his experience edema might or might not occur with nephritis. Hypodermoclysis with warm saline solution in wasted individuals who had been dehydrated was helpful and curative. In intestinal intoxication the effect of acidosis was a dissolution of the gelatinous colloidal substances of kidney tissue. This resulted in albuminuria. The presence of neutral salts dissolved the acid. Rabbits had been cured of experimental nephritis by injections of sodium chloride. A salt-free diet might lead to albuminuria and nephritis, due to low salt content of the body. He had been able to confirm clinically that the output of urine was increased by the use of neutral salt.

Dr. SOUTHWORTH of New York said that the use of sodium chloride was opposite to the teachings he had heard on the subject. He understood, however, that in a recent case of typhoid fever with nephritis the introduction of saline solution by rectum had been helpful.

Dr. ZAHORSKY of St. Louis asked whether the use of hypodermoclysis was preferable to drinking plain water after giving potassium acetate with sodium.

Dr. NICHOLSON of Ardmore, Pa., said that introduction of saline solution into the bowel was better than its administration by mouth. It was absorbed by the rectum.

The Use and Abuse of the Tonsils.—This paper was presented by Dr. J. H. COMROE of York, Pa. He said that the tonsils had been accused of causing many pathological conditions. Many tonsils, however, should be saved that were condemned without hearing. Statistics showed that there had been 37,000 recommendations to parents to have the tonsils of children removed, by school inspectors. This wholesale condemnation of the tonsils should be reconsidered. The organ had not been proved valueless. It was the first line of defense against microorganisms. Many bacteria were taken up by the phagocytic cells. A passage of leucocytes occurred from the tonsil to the buccal cavity. In the healthy person the tonsil contained many leucocytes. The current of lymph from the tonsil served to wash away infecting organisms, and lymphatics drained the crypts of the tonsil. The removal of the tonsil was not always a simple matter and many deaths had resulted from it. The tonsils served a physiological rather than a biological function and should not be carelessly eradicated.

Dr. ZAHORSKY of St. Louis said that often the tonsils served for the production of immunity. After the removal of tonsils very many cases showed frequent bronchitis and bronchopneumonia.

Dr. SOUTHWORTH condemned the wholesale slaughter of the tonsils. Half the cases of tonsils sent by medical inspectors for removal should be sent back. The tonsils no doubt acted protectively by means of an internal secretion.

The Relation of Bovine Tuberculosis to Early Tuberculosis in Childhood.—Dr. T. C. MCCLEAVE of Berkeley, Cal., stated that tuberculosis was in origin a disease of early life. To prevent early tuberculous infection was the fundamental problem. A large proportion of cases in infancy were derived from tuberculous cattle. The importance of this fact demanded investigation. The British Royal Commission and the German Commission had found that in children tuberculosis of the meninges and of the lymph glands was often bovine in origin. Frazier had found 73 per cent. of cases under three years of age who had been fed on raw cows' milk. Pulmonary tuberculosis might later be caused by the carrying of tubercle bacilli by the lymph glands and blood stream and become active after many years. A transmutation from bovine to human tuberculosis might thus occur. It might be asked what become of the cases of early tuberculosis if bovine bacilli did not change in the adult cases. The supervision of dairy cattle was of the highest importance in this respect. Every year's report of inspection of cattle showed 20-30 per cent. of tuberculous cows. This was a serious menace in view of the possible transmission of germs to the baby. In view of the present primitive hygiene obtaining in most dairy farms the practice of pasteurization in the home seemed to be the only safeguard and should be universally advocated.

Dr. H. L. COIT of Newark said the importance of medical supervision of the milk supply should be emphasized. The percentage of tuberculous cows had been greatly diminished, but even certified milk was not always entirely reliable.

Dr. RITTER of Chicago said that the glandular form of tuberculosis might be called a secondary form and that pulmonary tuberculosis might be classed as a tertiary form. We had no special data as to transmutation. All the acid-fast bacilli were interrelated, but one could not be changed into another. Koch contended that bovine bacilli would never produce pulmonary tuberculosis.

Dr. LEVY of Newark asked why children with gland-

ular tuberculosis did not develop pulmonary tuberculosis. Did they develop a sort of immunity?

Dr. SMITH of Boston said that this question should receive more attention than it did. The only course that was satisfactory was not to give milk raw.

Dr. HELMHOLZ of Chicago said that in spite of milk commissions you could not be sure of certified milk. It should not be given raw.

Dr. DOUGLAS of Detroit said that it was not safe to assume that any milk was safe. All milk should be boiled.

Thoracic Complications of Rickets.—Drs. J. HOWLAND and E. A. PARK of Baltimore presented this paper, which was read by Dr. Park. It dealt with a severe form of rickets which increased the danger from the disease. In this form the thorax was especially affected. The disease might be mistaken for osteomalacia. The thorax lost its rigidity and no longer withstood the atmospheric pressure and the pull of the diaphragm. In these cases the thorax was smaller than the head; the chest was shaped like a wedge, the anterior part of the chest being the narrow end. Many fractures of the ribs might occur. The deformity of the chest resulted in diminution of capacity and reduction of the volume of the lungs. The deformity was greater on the right side than the left, as the heart protected the left side. With inspiration the deformity was increased and there was an actual decrease in the circumference of the thorax. With such a crippled thorax respirations became very rapid, sometimes 80 to 100. Any pulmonary infection became very dangerous. The lung became emphysematous in front and atelectatic in the posterior lobes. The volume of both lungs was much reduced. The heart in these cases became hypertrophied in the right ventricle. The weight of the heart was increased, being the weight of a normal child's heart, while the child itself was much under weight. Death was due to failure of respiration by mechanical causes. The *x*-ray pictures of such cases were characteristic.

Dr. OSTHEIMER of Philadelphia asked whether the fractures occurred at one time or continued to occur later.

Dr. HOWLAND of Baltimore said this was a very severe kind of rickets; milder cases showed no such deformity. Rickets might run on for years with remissions, and fractures might occur with an exacerbation.

Dr. SOUTHWICK of New York said that while these severer cases caused death, in other cases rickets was a contributing cause. These children very often died of pneumonia.

Dr. MCKEE of Philadelphia said that this paper was a distinct contribution to our knowledge of rickets. Aside from the question of etiology our knowledge of rickets was a closed chapter.

Dr. PARK said in regard to fractures, cases of fragilitas ossium showed multiple fractures of the extremities as well as of the ribs. Osteoporosis caused fractures of the long bones, but the condition was different from osteogenesis imperfecta.

Fragilitas Ossium.—Dr. MAURICE OSTHEIMER of Philadelphia read this paper in which he gave a detailed report of a case of a female child, of three years, of Russian Jewish parentage; breast-fed for one year; no previous illness except pertussis. The parents said she fractured her leg whenever she tried to stand up; at three years she fractured the humerus. The musculature was good; the head showed protuberance of parietal bones; the neck was short; thorax pigeon breasted; reflexes normal; the blood showed 3 per cent. eosinophiles; Wassermann and von Pirquet negative. She was taken to the Philadelphia Hospital on account of a gonorrheal vaginitis. The parents took her away from the hospital, after which she often fractured her legs. When last seen she could walk a little, but her appearance was anemic. Up to the age of four she had had nine fractures. The literature of these cases showed 193 cases in all. The term fragilitas ossium was used to include the two types of the disease, both the fetal type and that found after birth with imperfect bone formation in which fractures occurred until puberty or even adult life. The cases did not include osteomyelitis due to syphilis or tuberculosis. In this disease the layers of the periosteum were thickened; the marrow contained much connective tissue; the formation of normal osteoblasts was checked; there was increased absorption of bone trabeculæ and the bones thus became porous and extremely fragile.

(*To be concluded.*)

PRACTITIONERS' SOCIETY OF NEW YORK.

Two Hundred and Sixty-second Regular Meeting, Held April 3, 1914.

THE PRESIDENT, DR. JAMES, IN THE CHAIR.

Laboratory Aids in the Diagnosis of Acute Mastoid Disease.—Dr. BACON read this paper. (See page 1.)

Dr. DIXON said that he had begun the radiological studies of mastoid diseases with great misgivings because of the fact that there were no standard pictures of the mastoid process and from the nature of things could be none, as this structure varied in appearance in almost every individual, even the two processes in the same person being sometimes quite different. Of course the great distinction between the so-called pneumatic process, the cells of which are made up of large air spaces, and the sclerosed process was easily shown. Very fine differences had soon also been recognized in the pictures until he had gained confidence enough to be able to judge of the site and perhaps of the degree of inflammation from the pictures. At present Dr. Dixon had no hesitation in reporting upon the picture as indicating operative or non-operative condition in the great majority of cases. Of course, the first condition of such reports was the production of good pictures. He had succeeded by constant practice in producing pictures that showed the landmarks with fairly constant relation to each other. Very interesting were serial pictures or rather pictures taken at intervals. In several cases evidence from such pictures either confirmed the suspicion of operative condition or allayed the fear that suppuration was present. Dr. Dixon thought that it might be advisable to take a picture of the mastoid process after such infectious disease as scarlet fever or during any middle ear affection, so as to have a standard to judge by if any symptoms appeared at a later date. Dr. Dixon showed numerous plates to illustrate his remarks as well as some of the cases described by Dr. Bacon in his paper. Dr. Dixon thought that bacteriological examination of the discharge from the ear or of the pus obtained in mastoid operations was of great value, especially so far as prognosis was concerned. While mixed infection was frequently found in middle-ear material, still the predominating organism was fairly easily determined. Usually this organism was obtained in pure culture from the mastoid cells, the sigmoid sinus or from a brain abscess if this condition had developed. His experience showed that the infection most to be dreaded was that with *Streptococcus Capsulatus*. The initial symptoms in such cases were frequently very mild, but the tissues seemed to have very little resistance to the spread of the organism. Therefore if this organism was suspected or shown to be present, radical operations were in order.

Dr. MILLER said that he was glad to hear that bacteriological and *x*-ray studies might be counted upon to help clinical evidence in some conditions depending upon middle-ear disease and similar affections. He had lately observed a child that had showed some disquieting symptoms after a simple operation for adenoids. There seemed to be perfect recovery shortly after the operation, yet in the third week the child had become irritable and had developed some irregular fever. Of course middle ear infection was suspected, but there was very little evidence on examination. Finally the child showed some meningeal symptoms, yet lumbar punctures proved negative. When operation was finally performed abscess of the brain was discovered. The speaker was anxious to know how frequent was such almost total absence of symptoms as the infections progressed. To him this case had proved very disquieting indeed.

Dr. BACON thought that the case described might have belonged to those rare conditions where infection of the brain had taken place directly from the middle ear without the infection of any more closely related structures. He thought it of course probable that infection had occurred after the operation for adenoids, or rather that avenues for absorption of infective matter had been opened during the operation.

Dr. KNAPP said that he wondered whether an *x*-ray plate might not give some indication of the amount of drainage that might be expected to take place in an infected mastoid process and thus give some hint as to the prognosis to be expressed in any individual case.

Dr. BACON did not think that a plate could be ex-

pected to be useful in this direction. It would show the amount of air space and of solid bone, but it would give no indication of the drainage relations that existed or of any fine communications between the various cells. Dr. Bacon added that his paper attempted to show how useful both *x*-ray examinations and laboratory examinations have proved in the diagnosis and prognosis of mastoid disease. At the same time he would not like to leave the impression that these newer methods of examinations had superseded the earlier clinical evidence obtained from careful study and observations of the patients. The newer methods were to a great extent corroborative of the clinical findings and the results obtained by them should be looked upon in this light. At the same time there was occasionally a case where the evidence obtained by successive *x*-ray plates, for instance, might prove pathognomonic of some pathological state in the mastoid which was not giving sufficient clinical data at the time. Thus one of Dr. Dixon's cases showed the gradual and progressive development of an abscess in plates taken at several weeks' interval, and the operation performed largely on the strength of this evidence proved the correctness of the diagnosis made. Dr. Bacon said that various other plans had been devised of late to increase the exactness and the scope of clinical observation; thus a fairly useful mastoid transilluminator had been devised. As for himself he had been anxious for some time to make the judgment of tenderness on pressure on the mastoid more exact than had been possible when simple finger pressure was used. The latter must, of necessity differ in almost each instance it was applied, and, moreover, there was no way of recording the findings in a comparative way. He had therefore devised an instrument in which the pressure on the mastoid was applied by a fairly hard, ball-like instrument, the amount of pressure used being registered by means of a spring communicating with an indicator and scale. The instrument was still in a state of transition but had already proved itself very useful in the directions indicated.

Arteriosclerosis of the Pulmonary Arterial System with Dilatation of Pulmonary Artery and Hypertrophy and Dilatation of Heart.—Dr. L. A. CONNER showed this case. The patient, an Italian, male, aged 38, a cook, was admitted to the New York Hospital January 5, 1912. History of family and early life were negative. Had had typhoid ten years before admission. He was well thereafter until two years before admission when he had an attack of rheumatism (fever, fleeting involvement of joints, and sweats). Since this illness he had had palpitation much of the time. Had been able to work for two or three months then would have to go to bed with palpitation, dyspnea, and slight cough. During the past two years he had had five or six such attacks. He had used alcohol moderately. He denied all venereal disease. Physical examination showed a thin patient, of rather poor musculature, but skin and mucous membranes of good color. Head and neck were negative. Lungs showed good resonance throughout. Voice and breath sounds were apparently normal; there were a few râles at both bases behind. The liver extended from the fifth intercostal space to the costal margin. The spleen was normal. Abdomen was negative. Testicles were normal. Epitrochlear glands were slightly enlarged, other glands were of normal size. Reflexes were normal. Eye grounds were negative. Heart: the lungs were voluminous, making cardiac percussion very unsatisfactory. Relative dullness was made out from 3 c.m. to right to 9 c.m. to left of middle line. There was slight dullness in first and second intercostal spaces to left of sternum. Intercostal spaces were abnormally wide so that nipples were situated in third intercostal space. In the third intercostal space on the left side was a wide area of heaving impulse which seemed to correspond with broad cardiac apex. The point of maximum impulse was about 8 c.m. from midsternal line. Over the region of the apex immediately preceding the systolic impulse was seen a sudden quick lift which seemed to correspond to the systole. A systolic impulse was seen in the second intercostal space 6 c.m. to 8 c.m. to the left of the middle line. On palpation in the third left space there was a strong slow lifting systolic impulse and distinct shock at beginning of diastole. This diastole shock was felt even better in pulsating area in second space, to the left of the sternum. No cardiac impulse was felt behind the sternum; no thrill was felt anywhere. In the interspace over the region of the apex was heard a faint systolic sound which was followed by a faint systolic murmur, the latter in turn being followed by a very loud thumping second sound. Near the sternum in the third left space, and more distinctly in the second left space, a long diastolic murmur was heard immediately following the second sound. The direction of transmission of this diastolic murmur was downward along the left border of the sternum, rather than outward towards the apex. To the right of the sternum two very faint heart sounds were heard. Action, regular and slow. The arteries were thickened, the pulses were large and soft. Four weeks later apex beat was in the fourth intercostal space, rather nearer the sternum than on previous examination. The greatly accentuated second sound persisted in the second and third intercostal spaces with the loud diastolic murmur following. The first sound was prolonged and somewhat "interrupted," but there was no distinct systolic murmur. On admission his blood pressure readings were: Systolic, 105; diastolic, 85. Two weeks later systolic pressure in right arm was 115; diastolic pressure 85. Blood culture was negative after four days incubation. Wassermann reaction was faintly anticomplementary and apparently negative. Urine showed a faint trace of albumin and a few hyaline casts. The patient having been well aside from two short attacks of palpitation was permitted to go home February 9. Patient worked one and one-half days after leaving hospital, but the development of a severe dyspnea compelled him to stop work and go to bed. There was no edema, cough, or pain. On February 17 he was readmitted to the hospital. At this time he was cyanotic, lips and fingers being very blue, and he suffered from marked dyspnea. Heart sounds were full and clear, but an hour later rate became very rapid and sounds became embryonic in type. Gradually the heart action became slower and stronger and the physical signs then resembled those already described. Two days later patient complained of pain in the first and second intercostal spaces near sternum on coughing. On this day during an attack of coughing he became very cyanotic and dyspneic. Heart became very rapid and pulse imperceptible at the wrist. This condition improved after phlebotomy and the next day his general condition was better but heart action was weak. Three days later following a similar attack of cyanosis accompanied by a chill and temperature of 160° the patient died. For the last four days of life his temperature ranged between 103° and 106°. Leucocytes varied between 18,000 and 25,000. Differential count showed 75 per cent. polynuclear and 25 per cent. mononuclear. Blood culture remained sterile after four days' incubation. Autopsy performed by Dr. R. G. Stillman showed no scars or enlarged glands. The anterior borders of the tibiæ were normal. The diaphragm was situated at the level of the third rib on the right side and third interspace on the left. Spleen measured 17 cm. x 11 cm. Kidneys showed no gross abnormalities. Tongue showed no smooth atrophy. Heart and blood vessels: Heart was large, measuring 15 cm. in its longest diameter. The greater portion was made up of right ventricle. The tricuspid orifice admitted four fingers, the mitral orifice 2.5 fingers. The right auricle was very much enlarged, measuring 10 cm. in its longest dimension. The right ventricle was hypertrophied and dilated, the cavity being about three times its normal size and the wall being from 5 cm. to 21 cm. in thickness. The pectinate and papillary muscles were enormously hypertrophied, some of the latter being 6 mm. in diameter. The segments of the tricuspid valve appeared normal. The aorta presented a number of small irregular sclerotic patches equally distributed from its origin to the iliac arteries. Aortic valves were normal. The pulmonary artery was markedly dilated, measuring 8 cm. in circumference, 3 cm. above the point of origin. The right branch measured 6.7 cm. at the bifurcation and for 4.5 cm. beyond. The wall of the pulmonary artery was almost as thick as that of the aorta. One cm. from pulmonary valves there were present several small plaques of arteriosclerosis forming a ring around the vessel. One cm. beyond this the intima was wrinkled longitudinally and was atrophic in appearance, showing many plaques of arteriosclerosis varying in size from 2 mm. to 15 mm., occurring at irregular intervals. These plaques persisted into smaller subdivisions of artery, the wrinkled appearance, however, disappearing when vessels reached 4 mm. in diameter. The pulmonary valves were normal. Because of the systolic pulsation over the pulmonic area, the enormous accentuation of the second sound, the hypertrophy and dila-

tation of the right ventricle and the direction of propagation of the diastolic murmur it was evident during life that there must be marked obstructions somewhere in the pulmonary circulation which had caused dilatation of the pulmonary artery and a relative insufficiency of the pulmonic valves. The nature of the obstruction, however, was not suspected.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

PENNSYLVANIA STATE BOARD OF MEDICAL EXAMINERS.
December 2, 3, *and* 4, 1913.

(*Concluded from Vol.* 85, *p.* 1104.)

GYNECOLOGY AND OBSTETRICS, PHYSIOLOGICAL CHEMISTRY.

1. Given a pregnant woman, of seven months or more, stricken suddenly with severe hemorrhage, what would be your deductions? Outline the management of the case.

2. State pelvic measurements or other conditions that would warrant an interference with the natural progress of gestation or of labor: what procedure would you recommend in each condition noted?

3. Enumerate the conditions that must be considered in excessive or protracted bleeding in a non-pregnant woman: outline surgical operations or methods that may be required, with the reason for selecting each. (Omit details of operation.)

4. If at the third month, a primipara should engage you to care for her through the period of gestation and labor, give in detail your care of the case, including measurements and tests.

5. What injuries may result to the birth canal from labor? Give in detail the management of a case of normal labor, with a view of preventing such injuries.

6. What is the significance of sudden collapse and shock that might develop during labor? Outline your treatment for such a case. (Omit description of operation.)

7. What breast complications may follow confinement? Outline the care of the breast that would probably prevent such complications. If they should occur, how would you treat them?

8. Indicate the steps in the digestion and absorption of the food substances present in a ham sandwich.

9. Discuss the chemistry of intestinal fermentation and putrefaction.

10. How may blood be detected in the feces, and what is the significance of this finding?

SURGERY AND ANATOMY.

1. Enumerate the constitutional and local conditions that may cause delayed or non-union of bone after a fracture: State two surgical procedures for its correction.

2. Outline the methods of examination by which you would determine the existence of a fracture at the surgical neck of the humerus: what is the usual deformity in this fracture? What is the anatomical explanation?

3. Enumerate the early symptoms that are caused by a typhoid perforation. Outline a surgical operation for the same.

4. State the usual anatomical avenues by which infection reaches the mastoid process. Outline a surgical operation for mastoid abscess.

5. What anatomical structures may be involved in the extension of a bunion? Describe its surgical treatment.

6. Name the varieties of club-foot: outline a surgical operation for the correction of any one form, with the anatomical and mechanical reasons for employment of same.

7. In fracture of both bones at the forearm, the actions of what muscles should be specially considered? What character of splints should be applied?

8. Enumerate symptoms and conditions upon which might be based the diagnosis of a malignant growth of the breast: outline a suitable surgical operation, giving the surgical anatomy of parts.

9. What is the usual position of the fragments in fracture of the patella? what is the anatomical explanation? State, without details of technique, two methods of treatment.

10. Outline two methods of treating carbuncle—give reasons for employment of each.

PRACTICE AND MATERIA MEDICA AND THERAPEUTICS, HYGIENE, AND PREVENTIVE MEDICINE.

1. State the sanitary precautions to be observed in the treatment of scarlatina. What are its possible dangers? Give indications of three remedies that might be used in its treatment.

2. (*a*) Describe the technique of general anesthesia. (*b*) Give reasons for the choice of each one of three agents used for this purpose.

3. Give the management and treatment of a well-developed case of follicular tonsillitis.

4. Outline the most important factors in the treatment of a case of incipient tuberculosis.

5. Outline the therapeutic action of (*a*) santonin (cina, Homeopathic), (*b*) camphor, (*c*) cimicifuga, (*d*) aconite, (*e*) ergot.

6. Outline the general medical treatment in exophthalmic goiter. What symptoms, in your opinion, would indicate the need of surgical intervention?

7. Given a case of typhoid fever with hemorrhage, outline the management during the first period of the hemorrhage and post-hemorrhagic stage and state the therapeutic action of each drug used.

8. In the treatment of chronic interstitial nephritis, what dietetic and hygienic suggestions would you make? Name three drugs that might be employed in the treatment of this condition, with the precise reason for the employment of each.

9. What are the main objects accomplished by the scientific ventilation of a school building? What degree of temperature is most conducive to health and mental activity in such buildings.

10. What are the main dangers to be apprehended in raw milk as ordinarily found in the market?

ANSWERS.

GYNECOLOGY AND OBSTETRICS, PHYSIOLOGICAL CHEMISTRY.

1. *Severe ante partum hemorrhage* is most likely to be due to (1) accidental hemorrhage, due to premature separation of the placenta; (2) to placenta prævia.

The treatment is practically the same in each case, namely, to check the hemorrhage and promote delivery. In *accidental hemorrhage* the membranes should be ruptured and the vagina packed, or *accouchement forcé* performed; vaginal cesarean section has been employed. In *placenta prævia:* (1) Introduce one or two fingers within the os (the hand being in the vagina) and dissect the placenta from the uterine wall for about three inches from the os uteri in all directions, pushing it to one side if necessary. (2) Rupture the membranes, and if there is an unfavorable presentation turn the child and make the breech engage in the os; or, if the head presents forceps may be used if speedy delivery is necessary. The strength of the woman is then the main point to be cared for, and if in a reasonable time the uterus seems to be incompetent, the child may be delivered by art. In some cases of central placenta prævia, where rapid delivery is required, cesarean section may give good results for mother and child."

2. The following table (from King's *Obstetrics*) is a useful summary of the various indications:

WHEN CONJUGATE DIAMETER OF BRIM MEASURES	THE MODE OF DELIVERY AT TERM IS
Between 4 and 3½ inches.	By forceps.
Between 3½ and 2¾ inches.	By forceps, version, symphyseotomy, cesarean section, or craniotomy.
Between 2¾ and 2 inches.	Cesarean section, if child alive. Craniotomy, if child dead.
At 2 inches or less.	Cesarean section always. Craniotomy excluded, whether child dead or alive.

"As a matter of course, selection of the method of delivery must not depend solely upon the length of the conjugate diameter. Since we cannot during labor measure the pelvis exactly, and still less the child's head, the impossibility of mathematical rules for practice is painfully evident. Furthermore, no two sets of cases are exactly alike, and the experience of no two practitioners exactly similar; hence hardly any two authorities exactly agree with regard to the pelvic measurements determining the kind of operation to be

employed. In cases with the larger figures above mentioned, the operation called for will be comparatively easy; with the smaller measurements, more difficult. Among the host of other considerations upon which our selection must, in part, depend, may be mentioned: 1. The kind of contraction; whether (*a*) simple anteroposterior flattening, or (*b*) general contraction, or (*c*) both of these combined. 2. The site of contraction, whether at brim, cavity, or outlet. 3. The estimated size of the head and its degree of ossification. 4. Whether or not it be "arrested," or "impacted" (and at what point in the pelvis), or have passed through the os uteri. 5. The amount of dilatation of the os and the state of the membranes. 6. Retraction of uterus above the head with consequent vertical tension of vaginal wall. 7. Is the child dead or alive, and if the latter, will its life be jeopardized or lost by the proposed operation? 8. History of former labors (if any) and results of methods then employed. 9. The number of previous deliveries, as indicating present labor-power. 10. Imminent danger or actual occurrence of uterine rupture. 11. General condition of woman as regards her ability to survive the proposed operation. 12. The "presentation" and "position" of the child. 13. The existence of complications, such as hemorrhage, eclampsia, placenta prævia, prolapsed funis, etc. 14. The estimated knowledge, acquired skill, and native dexterity of the operator, together with (what is not often sufficiently considered) the kind of hand he happens to possess, whether small, soft, and pliable, or the reverse."—(King's *Obstetrics.*)

3. Excessive or protracted bleeding in a non-pregnant woman might suggest tumors (such as cancer and fibroma), menorrhagia, metrorrhagia infections, and displacements. The first procedure is to find the cause; fibroids require removal, or even a hysterectomy; cancer, if not too far advanced and if operable, needs a complete hysterectomy. Displacements require proper placing of the offending organs, such as hystereopexy or other suitable operation. Menorrhagia and metrorrhagia are often amenable to systemic or local treatment.

4. A primipara should be instructed fully in the hygiene of pregnancy, by which is meant the care which should be observed by the pregnant woman for the preservation of health and strength both of herself and of the fetus. The pregnant woman should take moderate exercise in the open air; in the last month massage may take the place of exercise. Daily bathing in tepid water, care of the teeth, regularity of the bowels, ample sleep in a well-ventilated room, plenty (but not too much) of simple, nourishing and easily digested food, at regular hours, clothing not too tight, especially about the abdomen and breast; attention to the nipples, regular examination of the urine, and the restriction of marital relations are the main points to which advice should be directed. In addition certain measurements are necessary; a pelvimeter will be required to make these measurements. The interspinal and intercristal diameters are measured, also the distance between the ischial tuberosities and the anteroposterior diameter, as well as the external conjugate. It is well to notice if the subpubic arch is narrowed; the diagonal conjugate is also estimated; from the latter the true conjugate can be obtained.

5. *Injuries which may result to the birth canal from labor* are: Lacerations of the cervix, vagina, and perineum, and (more rarely) rupture or inversion of the uterus.

Management of normal labor. During the first stage a rectal enema of soapsuds with turpentine (5 1) should be given, and when the os is dilated to the size of a silver dollar the patient should be placed in bed, lying upon the side toward which the fetal back looks. If the pain is severe, chloral hydrate (gr. 15) may be given every half hour for 3 doses.

During the second stage, examination should be made when necessary. In multiparas, the membranes may be ruptured with the finger or with some aseptic instrument. Care should be taken not to injure the child's scalp or the lower uterine segment. The pain may require the administration of chloroform or ether, but not to the extent of complete anesthesia. The expulsive force of the abdominal walls may be increased by directing the patient to pull upon a sheet firmly secured to the foot of the bed. Attempts may be made to prevent laceration of the perineum by making firm backward and upward pressure against the occiput during the pain; by restraining voluntary expulsive efforts during the pains, and by securing expulsion of the head between the pains. The head should be supported when born; the eyes should be cleansed with sterile water; and if the cord is coiled about the neck, it should be loosened or slipped over the head. Delay in delivery of the shoulders may be overcome by stimulating the uterus by friction through the abdominal wall or traction. The cord is ligated and cut when pulsation has ceased, and the child is placed by the mother's side with its face turned away from the maternal discharges.

6. Sudden collapse and shock during labor may be due to severe injury, such as rupture of the uterus, severe hemorrhage (external or internal); "the strain of labor in a weak woman, some of the accidents of parturition, or even forcible attempts to expel the placenta, may occasion shock after delivery. Cases of this sort have been reported from compression of the left ovary in attempts to expel the placenta by Credé's method, the womb being turned upon the cervix so that the left side looks forward, and the ovary is grasped between the thumb and the uterine wall, when the hand is placed on the fundus of the womb in the effort of expression."—(Hirst.) Treatment consists of heat applied externally, stimulation by hypodermic, sub-mammary infusion of saline solution, checking hemorrhage or removing other cause; laparotomy will be required in case of rupture of the uterus.

7. *Diseases of the breast liable to occur during the puerperium* are: Engorgement, inflammation, abscess, and cracked nipple. *Engorgement* is treated by giving the patient salines, limiting the amount of fluid ingested, and compressing the breasts with a binder. *Inflammation* is treated by resting the part; supporting it, applying a hot boracic acid fomentation; nursing from the affected breast should be stopped at once. *Abscess* is treated by making an incision radiating from the nipple, and drainage, thorough antiseptic and aseptic precautions must be observed; the breast should be put at rest for a couple of days; saline cathartics may be necessary; also supportive measures. *Cracked nipples* require to be kept clean and dry; they may be protected by a nipple shield while the infant is nursing; an application of tannic acid or nitrate of silver may be used.

Prophylactic measures consist in not touching the breasts (by doctor or nurse or patient) without thoroughly clean hands; by washing and drying the nipple before and after nursing, and by proper attention to hygienic conditions before labor, and the nipple and breasts being preserved from pressure.

8. A *ham sandwich* may be supposed to consist of ham, bread, and butter. Ham consists of protein, water, and fat; bread consists of carbohydrate and water, with a little protein and fat; butter consists of fat, with a little water. The proteins are digested in the stomach by the pepsin of the gastric juice, and in the small intestine by the trypsin of the pancreatic juice. The fat is digested in the small intestine by the steapsin of the pancreatic juice, and by the bile; the carbohydrate is digested slightly in the mouth by the ptyalin of the saliva, but mainly in the small intestine by the amylopsin of the pancreatic juice. The products of digestion find their way into the blood by two routes: (1) By the blood-vessels of the gastrointestinal tract, which unite to form the portal vein, and (2) by the lymph vessels of the small intestine, which converge to empty into the thoracic duct. The water, inorganic salts, proteids, and sugar go by way of the portal vein to the ascending vena cava; the fats go by way of the thoracic duct to the junction of the left subclavian and internal jugular veins. The *process by which it is accomplished* is partly physical (osmosis and filtration), and is also due in part to selective action.

9. "Owing to the favorable conditions in the intestine for fermentative and putrefactive processes—*e.g.* heat, moisture, oxygen, and the presence of various microorgansims—the food, when consumed in excessive quantity or when acted on by defective secretions, undergoes a series of decomposition changes which are attended by the production of gases and various chemical compounds. Dextrose and maltose are partially reduced to lactic acid; this to butyric acid, carbon dioxide and hydrogen. Fats are reduced to glycerol and fatty acids, the glycerol, according to the organisms present, yields succinic acid, carbon dioxide, and hydrogen. The proteids under the prolonged action of the pancreatic juice are decomposed, with the production of leucin and tyrosin. These crystalline compounds are in turn reduced to simpler forms. The former yields valerianic acid, ammonia, and carbon dioxide; the latter gives rise to indol, which is the antecedent of indican, found in the urine. Skatol, another derivative of the proteid

molecule, due to bacterial action, gives the characteristic odor to the feces."—Brubaker's *Physiology.*)

10. *Chemical examination of the feces for blood.* "The detection of traces of blood in the feces from 'occult bleeding' from gastric or intestinal ulcers is often a matter of importance. For two days before carrying out the test the diet must be free from meat, or any other constituent which may contain hemoglobin. The test is then carried out as follows: A portion of the feces about the size of a walnut is rubbed up with 5 c.c. of water, if the stool is liquid it should be well stirred up and 5 c.c. measured out. The 5 c.c. so obtained is placed in a dry test-tube, and one-third of its volume of glacial acetic acid added; the tube is then closed with a rubber stopper and well shaken. Next pour on 6 to 8 c.c. of ether and invert the tube slowly several times, then let the ether rise to the top and pour it off in two portions. To one add ten drops of fresh tincture of guaiacum and twenty of ozonic ether or old oil of turpentine. A blue color shows that blood was present. To the other add a few drops of freshly prepared tincture of aloin and some ozonic ether or turpentine as before. A red color indicates blood. The tinctures used must be fresh. The guaiac tincture is made by adding a knife point of guaiacum resin to 3 c.c. of absolute alcohol; the aloin tincture by adding a similar quantity of aloin to 3 c.c. of 60-70 per cent. alcohol. The aloin tincture should have a yellow color." —(Hutchinson and Rainy's *Clinical Methods.*)

SURGERY AND ANATOMY.

1. *Delayed union, or non-union, in fracture is caused by:* Ill health, want of approximation of the end of the bone, want of blood supply in the bone, defective innervation of the bone, disease of the bone, lack of rest, and immobility.

Treatment: "When delayed union exists, seek and remove cause, treating constitutionally if required, and thoroughly immobilizing the parts by plaster. Orthopedic splints may be of value. Use of the limb while splinted, percussion over the fracture, and rubbing the fragments together, thus in each case producing irritation, have all been recommended. Blistering the skin with iodine or firing it has been employed. If the case be very long delayed, forcibly separate the fragments and put up in plaster as a fresh break. If these means fail, irritate by subcutaneous drilling or scraping, or, better, by laying open the parts and then drilling and scraping at many places."—(Da Costa.)

2. In fracture of the surgical neck of the humerus, there can generally be obtained a history of direct violence; a depression will be seen below the shoulder, the outline of the latter being normal. A well-marked crepitus can generally be obtained on rotation: the limb is shortened; the upper end of the lower fragment may be felt in the axilla. The upper fragment is adducted and rotated outwards by the short rotator muscles; the lower fragment is drawn upwards by the biceps, triceps, deltoid, and coracobrachialis; the lower fragment is also drawn inward by the pectoralis major, teres major, and latissimus dorsi.

3. PERFORATION OF TYPHOID ULCER. *Symptoms:* "When perforation occurs, violent pain develops. As a rule, there are tenderness, rapid pulse, costal respiration, abdominal rigidity, vomiting, and shock. Usually there is temporary reaction from shock, the subnormal temperature giving way to a normal or to an elevated temperature. The vomiting in some cases becomes stercoraceous. There is constipation and sometimes dullness on percussing the flanks. The face is Hippocratic. The patient may die of the preliminary shock or may react and die subsequently of blood-poisoning." *Treatment:* "Death is practically certain without operation. Operation should be done at once, proper means being adopted to combat shock. In many cases a general anesthetic should not be given, but a local anesthetic should be employed. The incision should be made in the right iliac region and the colon should be first located and then the end of the ileum. By locating the colon we obtain a fixed point from which to begin our search for perforations, and by opening the abdomen in the right iliac region we come down at once onto the perforated gut in the vast majority of cases. When a perforation is found, it should be inverted with two layers of Halsted sutures. It is not wise to excise the ulcer. If the bowel is very badly damaged, resection can be considered, but it is usually wiser to make a temporary artificial anus. After finding a perforation and closing it, examine to see if there are others. Close every perforation, and if a point is found where the thinning of the bowel-wall indicates that perforation is liable to occur, protect this point by inverting the area of ulceration by sutures. Clean the peritoneum by flushing with hot salt solution. Leave the wound open, insert strands of iodoform gauze and establish tubular suprapubic drainage. Elevate the patient a little in bed and employ continuous proctoclysis of salt solution." (Da Costa's *Surgery.*)

4. Infection generally reaches the mastoid process from the middle ear, spreading by way of the attic and antrum; it can also be carried through the circulation. *Surgical operation* for mastoid abscess is by an incision in the long axis of the mastoid, and opening of the mastoid antrum within the limit of Macewen's suprameatal triangle; by opening in this triangle there is no chance of wounding the lateral sinus.

5. Bunion is enlargement of the bursa over the metatarsophalangeal joint of the great toe. This joint can become involved, if the bunion extends. The treatment consists in resection of the joint to cure the deformity and also the bunion.

6. *Varieties of club-foot:* (1) *Talipes varus*, in which the inner edge of the foot is drawn up, the anterior two-thirds is twisted inwards, and the outer edge rests on the ground. (2) *Talipes valgus*, in which the outer edge of the foot is drawn upwards, and the inner side of the foot and ankle rest on the ground. This condition is the reverse of *talipes varus.* (3) *Talipes equinus*, in which the heel is raised and cannot be brought to the ground, and the patient walks on the toes and on the distal ends of the metatarsal bones. (4) *Talipes calcaneus*, in which the toes are raised and the heel depressed, so that the patient walks on the latter. This condition is the reverse of *talipes equinus.* Combinations of these also occur, and *talipes equino-varus* in which the heel is drawn up and the anterior half of the foot is drawn inwards and also inverted; the inner border of the foot is shortened; secondary contraction of plantar fascia, ligaments and muscles may follow. *Talipes equino-varus* may be treated in the early stages by fixing the foot in good position by a series of plaster-of-Paris casings, or by using a malleable metal splint. Tenotomy of tendons which hinder reduction in some cases is necessary, with the subsequent application of plasters. If the ligaments on the inner side of the ankle hinder reduction, they should be divided. In the neglected cases, where the patient has been walking on the outer side of the foot, *tarsectomy* is necessary. A wedge of bone, with its base outwards, is removed by a chisel or saw, irrespective of the joints, from the tarsus in front of the peroneal groove on the cuboid. The foot can then be brought into good position, and maintained so by plaster of Paris. (*Aids to Surgery.*)

7. In fracture of both bones of the forearm, the action of the following muscles must be specially considered: Biceps, brachialis anticus, pronator radii teres, pronator quadratus, and the long flexor and extensor muscles of the forearm. The splint should be inflexible, wider than the limb, and long enough to include the hand.

8. The presence of a tumor, dimpling of the skin, retraction of the nipple, with cachexia, enlarged lymphatic glands in axilla or above or below the clavicle, and microscopical examination of an excised piece of the tumor all aid in the diagnosis of malignant growth of the breast. *Treatment* should be early and thorough. However small the tumor may be, the entire breast and its corresponding lymphatic area, as high as the apex of the axilla, should be removed; for, once infection of the lymphatic spaces has occurred, the whole lymphatic area must be looked upon as infected. Successful operations depend upon a knowledge of the *lymphatics* and *extent* of the breast. The lymphatics begin in plexuses around the acini, which converge to vessels running along with the ducts and end in a subareolar plexus. From this three or four main lymphatic trunks run to the axillary glands. In addition, lymphatics run along the suspensory ligaments to the skin all over the prominence of the breast from the interacinous plexuses. Also vessels leave the deep part of the breast to join lymphatic plexuses in the pectoral fascia. The plexuses in the fascia run to the axilla, and also communicate with those in the pectoralis major. Lymphatic vessels pass into the mediastinum, and also communicate with those of the opposite breast and axilla. The extent of the breast is much greater than the prominence would lead one to believe. It extends

almost to the clavicle, just to the edge of the sternum, down to the seventh rib, and out to the mid-axillary line. The points, then, in operating are that the whole breast, the skin over the prominence, the pectoralis major muscle (except the clavicular portion), the fat, fascia, lymphatic vessels and glands of the axilla, must be removed, and in one piece, for if cut across at any part there is danger of strewing cancer cells on the wound and so infecting it with growth. Removal or division of the pectoralis minor facilitates the cleaning of the axilla. (*Aids to Surgery.*)

9. In fracture of the patella the fragments are generally widely separated; the lower fragment remains in place, being held by the ligamentum patellæ; the upper fragment is drawn up by the quadriceps extensor muscle. *Treatment* consists in: (1) The subcutaneous method, in which a wire is passed above and below the patella, and twisted. (2) Extending the leg on the thigh, applying a long posterior splint, and with bandages and adhesive plaster or Malgaigne's hooks keeping the fragments in apposition.

10. *Two methods of treating carbuncle:* (1) Two free incisions are made through the sloughing mass, at right angles to each other. This should only be done on young and robust patients, as the hemorrhage is profuse. (2) The slough is thoroughly scraped away, carbolic acid is applied to the surface, and antiseptic dressings are applied. Supportive treatment is always indicated.

PRACTICE AND MATERIA MEDICA AND THERAPEUTICS, HYGIENE, AND PREVENTIVE MEDICINE.

1. In *scarlatina*, the patient should be isolated, and not allowed to mingle with other people until the disease is over, and there is no discharge from eyes or nose. All toys, fomites, etc., must be burnt. The rooms occupied by the patient must be thoroughly disinfected. The doctor, nurse, and attendant must take care not to spread the contagion. *Dangers* are: Ear troubles, nephritis, bronchopneumonia, endocarditis, pericarditis, arthritis. *Three remedies*: (1) Sponging or baths to reduce the fever; (2) inunction with some oily antiseptic, to prevent dissemination of the desquamated epithelium: (3) Dobell's solution, or some similar preparation as an antiseptic wash for nose, throat, and mouth.

2. The technique of general anesthesia differs with the anesthetic used. In every case the patient should be examined and prepared beforehand. The details of administration may be found in every text-book. As a rule, ether should be used; chloroform is particularly available in labor; and nitrous oxide is of great use in brief operations, and where complete muscular relaxation is not necessary.

3. In follicular tonsillitis the patient should be in bed; calomel (followed by a saline) should be given to open his bowels; sodium salicylate, gr. x-xv, q. 3 h. may be given; hot fomentations externally are of service; potassium chlorate may be used as a gargle or sucked, in the form of tablets. Antiseptic sprays have been used; if an abscess forms it should be opened. Tonics, and nourishing food are indicated during convalescence.

4. *Incipient tuberculosis* demands outdoor life as far as possible, fresh air, well ventilated rooms; avoidance of fatigue; a daily sponge bath followed by rubbing; sun bath if possible; passive exercise; nutritious food with as much fat as can be assimilated, milk, eggs, etc.; extra meals, so that there is no long interval between meals; if possible, the patient should live in a suitable climate. The chief medicinal agents are cod liver oil, iron, creosote, strychnine, and arsenic. Tuberculin has been recommended, but it requires care and skill in its administration.

5. *Santonin* is a vermifuge for round worms. *Camphor* is an anodyne; is used in flatulence, diarrhea, hysteria, delirium tremens, for night sweats of phthisis, coryza, and bronchitis. *Cimicifuga* is said to be a stimulant; it has been used in cases of chorea. *Aconite* is used for fevers, some inflammatory conditions, in high arterial tension, in nervous palpitation of the heart, and congestive dysmenorrhea; also externally for neuralgia, pruritis, herpes, chilblains, etc. *Ergot* is used to promote uterine contractions during third stage of labor; fibroids, menorrhagia, postpartum hemorrhage. Some forms of amenorrhea and dysmenorrhea, dysentery, arterial hemorrhage, congestive headache, laxity of sphincters, of bladder or rectum, hemorrhoids, aneurysm, diabetes, urinary incontinence, direct paralysis of the sphincter vesicæ, atonic spermatorrhea.

6. *Exophthalmic goiter* requires rest, both physical and mental; plenty of fresh air, and nutritious but easily digested food; applications of ice, digitalis, belladonna, bromides, iodides, iodine, electricity, and thyroid extract have all been recommended. *Surgical treatment* is indicated when there are signs of local pressure and in cases which do not show signs of improvement under medical treatment in from four to six months.

7. The patient must be in bed, isolated, with abundance of fresh air and sunlight, care must be taken to prevent bedsores, the mouth and throat must be kept clean, the diet must be suitable (milk, eggs, light soups, cornstarch, etc.), plenty of water; cool sponging or bathing; medicines are only to be given when clearly indicated; hemorrhage is best treated by withholding all food for ten or twelve hours, keeping the patient absolutely at rest, and by the administration of morphine; turpentine, also lead and opium pills have been recommended. The morphine checks peristalsis; the turpentine is styptic, the lead is also styptic. In severe hemorrhage, operation is indicated.

8. In *chronic interstitial nephritis*, the patient "must be cautioned not to expose himself to the inclemencies of the weather, to avoid all excessive muscular exercise and all mental worry; he must have his bowels open at least once daily (alkaline mineral waters, saline cathartics, occasional blue mass pill, etc.); and he must favor the action of the skin so as to relieve the subnormal cardiovascular-renal system; warm or hot baths are serviceable, but they are contraindicated if they cause unpleasant throbbings (increasing blood pressure). The diet is of the utmost importance, the duration of life probably depending more upon discretion in eating and drinking than upon any other factor. In many cases an exclusive milk diet for a time (four to six weeks) is desirable; and it may be repeated from time to time. In general the diet should be sufficiently varied to be attractive, it should be free from irritating qualities and readily assimilable, and the nitrogenous constituents should be relatively reduced. The meat allowance should not exceed 100 grams daily; a diet of ample fuel value should be constructed by adding a sufficiency of fats and carbohydrates; an excess of meat is said to favor the development of uremia; red and white meats are of equal value, and may be allowed in accordance with the patient's desires. As a rule, alcohol should be prohibited, although in some cases a little of the lighter wines appears to do no harm. In many cases the foregoing produces not only amelioration of the symptoms, but perhaps also arrest of the lesions: if so, other measures are not required." (Kelly's *Practice of Medicine.*)

Drugs are not of much value. (1) *Nitroglycerin* lowers arterial tension; (2) *iron* may be of benefit in pronounced anemia; (3) *aconite* may help when nitroglycerine fails.

9. *Ventilation of a school building* is intended to remove the impure air, to introduce pure air, and to prevent the accumulation of impurities due to respiration, perspiration, and combustion. About 65° F., is a good temperature for a school building.

10. The *main dangers to be apprehended in raw milk as ordinarily found in the market*: The milk may come from a diseased cow, it may be contaminated with dirt or other foreign matter, it may be diluted with clean or dirty water, it may be skimmed or otherwise sophisticated, it may contain disease germs, it may be kept in dirty containers, it may be exposed to high temperatures, it may be exposed to contamination by flies, etc.

Incurvate Little Fingers in an Afro-Aryan Child.—F. G. Crookshank reports the case of a female aged three years who had been under treatment for rickets somewhat irregularly during the past fifteen months. When first seen the incurvation of both little fingers were marked. This morphological character, although most often spoken of in connection with mongolism, was really, as had been noted by Keith and others, to be seen in the young of every primitive human race, and of all anthropoids. Its relation to mongolism is therefore general and not peculiar. The patient was the offspring of a male African negro and a female Cingalese, and was therefore without any trace of racial mongolism. A year ago her eyes most resembled those of a negro baby. They are now full, like those of the Cingalese and some other "Aryans."—*Proceedings of the Royal Society of Medicine.*

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Original Articles.

THE TREATMENT OF DISEASES OF VEGETABLE PARASITIC ORIGIN BY DEEP MUSCULAR INJECTIONS OF MERCURY.*

BY BARTON LISLE WRIGHT,

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IN 1905 I first began the use of mercury in the treatment of tuberculosis, but it was not until 1907 that I had an opportunity to try out its value extensively. From then until 1910, when I was detached from the U. S. Naval Hospital for Tuberculosis, Las Animas, Colorado, to take my turn at sea, I published several reports of my results, some of which I will report later in this paper.

In 1910, while serving on board the *U. S. S. Nebraska*, I became intensely interested in Ehrlich's theory: That for every parasitic organism there is a chemical affinity, which if found and injected into the infected host, would destroy the infecting organisms, and therefore cure the specific disease.

His first successful experimental demonstration of this now well-known and recognized fact was made in connection with trypanosomiasis in mice by the injection of trypan red. After some experimental work he found that he could with great uniformity destroy all of the infecting organisms and absolutely cure the disease with one injection.

These experiments not only proved the correctness of his theory but developed two most important facts: (1) To produce the immediate curative effect the dosage of the initial injection must be extremely large; (2) Small and frequently repeated doses are not productive of rapid results, and when continued uninterruptedly unduly long, render the infecting organisms immune to their chemical affinity.

From my results in the treatment of tuberculosis with mercury, I was convinced that this metal was the chemical affinity of the tubercle bacillus. Granting this, why should it not bear the same relationship to the entire group of the vegetable parasites? After long consideration I was convinced that this must be the fact and developed my theory as follows:

For every vegetable parasite mercury is the chemical affinity, and when properly injected into the infected host will cure the specific disease. This is represented by a chemical formula as follows: (Vegetable antigen + Hg) + antibody + complement = complement fixation (cure).

I now believe that mercury has a dual parasitotropic action: First—primary or direct, in which the Hg by affinity unites with the organism and, without antibody, binds complement. Represented by formula as follows: Vegetable antigen + Hg + complement = complement fixation (immediate cure).

Total destruction of all the infecting parasites or of their virulency with immediate cure takes place. I am led to believe that this action is limited to the first few days after the onset of the acute infectious diseases, the period of time during which it will take place seeming to differ in each disease; in some it will be found to extend to the sixth day, in others probably only during the first or possibly the second day.

This is due, I believe, to changes in the organisms acquired by the prolongation of their existence in their new environment, by which they gradually lose most if not all of their affinity for mercury. I have never seen this action take place in a subacute or chronic infection.

Second:—Secondary or indirect, for the reasons noted above, the affinity of the organisms for Hg having been partially or completely nullified, instead of uniting with them, Hg stimulates the rapid production of specific antibody.†

This secondary action takes place in two stages and may be represented by chemical formulæ as follows:

First stage: Vegetable antigen + Hg = stimulated specific antibody production. Second stage: Vegetable antigen + antibody + complement = complement fixation (rapid cure). These reactions take place in the late stages of acute, and throughout the course of subacute and chronic infections, producing as a rule marked beneficial, with rapid but not immediate curative effects.

It is probable that both the direct and indirect actions of mercury in these infections occur in every case injected; under certain conditions one or the other predominating, the other taking a subsidiary part in the cure.

It is obvious that, in addition to the large dosage required, rapid absorption is equally necessary; therefore, one of the soluble salts of mercury is absolutely indicated.

In my work I have selected mercuric succinimide because I believe that a larger dose of this salt can be injected than of any of the others, and at the same time its parasitotropic action is many times greater than its organotropic advantages, which from experience I do not think the other soluble salts possess to an equal extent.

Mercuric succinimide gr. 1.8 = metallic Hg gr. 0.909.

In general, from what I have previously said, it is obvious that in the early days of an acute infectious disease the maximum dosage is solely in-

*Read before the New Hampshire Medical Society, May 13, 1914, and the Maine Medical Society, Portland, Me., June 11, 1914.

†At least two investigators have reported during the past two years, that when mercury is introduced into an infected animal specific antibody is rapidly produced.

dicated, while in the late days of these diseases, or in subacute or chronic infections smaller and more numerous injections are to be used.

During the early days of an average acute infection in an average adult male, the initial dose of mercuric succinimide should be gr. 9 5; if at the end of twenty-four or thirty-six hours there has been no improvement, or if, following improvement, there has been a return of symptoms, a second injection of from gr. 5 5 to gr. 6 5 should be given, providing symptoms of mercurialism have not followed the first injection. In the more virulent and quickly fatal of the acute infections, such as meningitis, whatsoever its etiology, the initial dose should be gr. ii.

In chronic infections (late days of acute and in subacute infections) in the average adult male the initial dose should be gr. 5 5 to gr. 7 5.

Succeeding injections should then be given with from two to four day intervals, in such dosage as will not produce mercurialism, until ten or twelve injections have been given, providing the symptoms have not disappeared in the mean time. When ten or twelve injections have been given, the treatment should be interrupted for from two to five weeks, in order that the mercury may be eliminated and that the organisms may not become immune to its action through its constant presence in their environment.

In some of the more persistently chronic infections the interval of time between injections should be from four to eight days.

In females the dosage should average from gr. 1 5 to gr. 2 5 less than in males.

Should symptoms of mercurialism appear at any time during the course of treatment the injections should be stopped at once and appropriate corrective measures applied, the injections being resumed if necessary upon the disappearance of these symptoms.

During this treatment the oral cavity and the teeth must have the utmost attention and be kept perfectly clean at all times, and the bowels moved freely daily.

Surgical asepsis must be carefully observed in every particular relating to syringe, needles, solution, and skin at site of injection.

The solution should be made of the strength of mercuric succinimide gr. 1 5 in sterile, distilled water ℥j iv. Inject deeply in gluteal muscles.

The only contraindication to this method that I know of is serious organic lesions of the kidneys.

With the foregoing in view, I invite your attention to the following cases:

Tuberculosis (Thirty-five cases).—Between 1907 and 1910, at the United States Naval Hospital, Las Animas, Col., I treated thirty-five officers with this disease. They were not selected cases of incipient character, but ranged from moderately advanced to far advanced; one was a case of acute pneumonic phthisis that two months previously had been originally diagnosed typhoid fever. In addition to the lung involvement, two patients had tuberculosis of the knee-joint, one of the knee-joint and lower third of the femur, and one had tuberculous ulceration of the larynx.

I discharged from the hospital nineteen of these cases, or 54.2 per cent., as apparently cured, including the two knee-joint cases, and the case of laryngeal involvement.

Since then but five of these patients have relapsed, one of whom has died. Of the sixteen not apparently cured, in ten the disease has been arrested, and the men are leading a fairly normal existence in various parts of the United States.

Among these the knee-femur case may be specially mentioned. When I operated on this patient in 1909 I removed the inner half of the lower third of the right femur, and this bone was in such bad condition that my colleagues and assistants urged me to amputate at the hip. This patient is now living in New York City with a sound limb, though a stiff knee-joint.

It is also of interest to note that in the case which began as an acute pneumonic phthisis, reaching me with a large cavity in the upper left lobe, the patient is now married and living in the State of New York.

Two of these patients showed no change, two I have lost track of, and two died while not under my care.

Lobar Pneumonia (Nine cases)[1].—Of these eight were immediate cures following one injection; the crisis usually began in about seven hours after the injection, in several within an hour or so after injection. In one the injection was given on the first day of the disease, in two on the second, and in six on the third day. The case that was not immediately cured received three injections, the fever falling by lysis on the fifth day, the involved area never completely undergoing resolution, and the evening temperature reaching 100° to 99° for the following two weeks, when a diagnosis of tuberculosis was made and the patient transferred from the ship to hospital. The following are fair examples of the eight cases of immediate cures.

W—— S. A., 27 years of age. Admitted on board the U. S. S. *Southery* by P. A. Surgeon L. H. Wheeler, U. S. N., at 9.00 A. M., December 3, 1913. Chill—followed by cough, severe pain in apex of right lung and extreme nervous symptoms. Temperature 101.5°, pulse 90, respiration 20. Diagnosis undetermined—lobar pneumonia suspected. 3.00 P. M., all symptoms increased, temperature 104°, pulse 126, respirations 40, transferred to hospital. December 4, 9.00 A. M., condition about the same, excepting that nervous symptoms had increased, and respirations were 68. Physical signs of consolidation of right apex. Surgeon F. M. Bogan, U. S. N., injected gr. 8/5 mercuric succinimide. Following this rapid crisis took place. Convalescence established which proved uneventful. (See chart No. 1.) Chart 2 represents similar results in a boy seven years old.

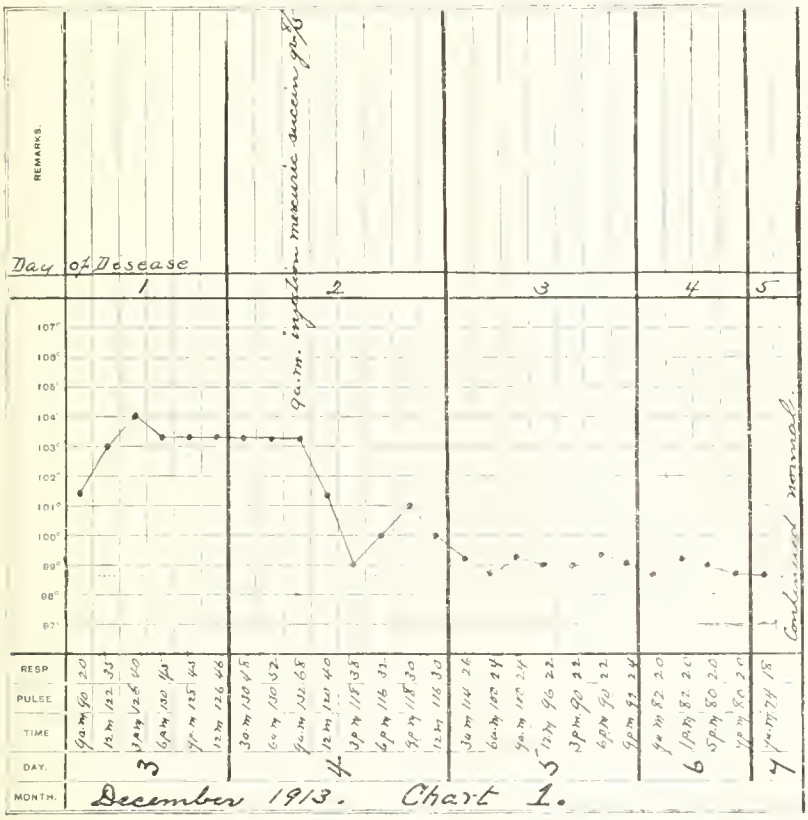
It seems probable in cases of pneumonia complicated by preexisting pulmonary disease, more particularly tuberculosis or syphilis, whether active or latent, that the direct immediate curative action of mercury will not take place; therefore when such immediate cure does not follow the initial injection in the early days of the infection, the possibility of such complications should be considered.

Lobular Pneumonia.—Six cases of this disease have been treated, in all of which an immediate cure was obtained. In one, the action was somewhat delayed, due in this instance to infection of both middle ears, the latter condition not, however, progressing to suppuration; this in itself was gratifying, showing the value of mercury in preventing or at least aborting a complication that usually persists for some length of time.

B——— W. W. Disease began rather suddenly on June 13, 1913. Slight chill at 8.00 A. M., followed by severe cough; at 8.00 P.M., temperature 101.2°, pulse 118, respirations 48. June 14, 8.00 A.M., about the same, expectoration free and characteristic, the entire area of both lungs presented the physical signs of lobular pneumonia. 10.20 A.M., Surgeon Bogan injected

mercuric succinimide gr. 7.5. Crisis began at 8.00 P.M., complete at 8.00 A.M., June 15. Convalescence uneventful. (See chart No. 3.)

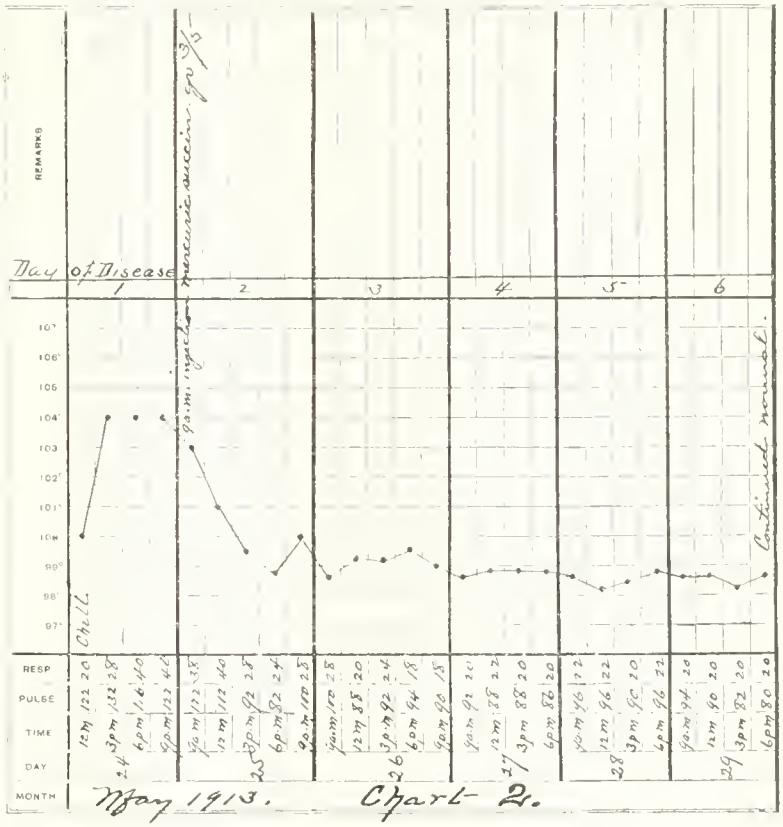
G——— J. Male. Age 4 years. First saw patient at 10.00 P.M., January 31, 1914. Cough developed the day before. Upper right lobe presented numerous subcrepitant rales, temperature 103.6°, pulse 132, respirations 36. Early lobar pneumonia suspected. Magnesium sulphate prescribed. By the following morning all symptoms had practically subsided and remained so during the day. February 2 all symptoms increased. 1.30 P.M., chill. P. A. Surgeon Wheeler and myself saw the case together at 2.00 P.M., diagnosis of lobular pneumonia made. 2.20 P.M., injected mercuric succinimide gr. 2 5. At 6.00 P.M., right middle-ear became involved. Patient extremely restless, and crying from severe pain in this part. Hot water bag locally. February 3, 6.00 A.M., apparently much worse, severe pain in right lung. Temperature 104.2°, pulse 130, respirations 48. Castor oil 15 c.c., administered. Improvement began by 9.00 A.M., and continued. February 4, all pneumonic symptoms disappeared, convalescence apparently established. 3.00 P. M. pain in right ear returned, asociated with rise of temperature, which rapidly subsided. February 5, without symptoms until midnight when severe pain developed in left ear. February 6, rise of temperature due to left ear involvement. February 7, no symptoms. February 8, up and about. February 11, cured. Visits discontinued. (See chart No. 4.)



Typhoid Fever (Five cases).—In this disease I am under the impression that the sixth day is the limit of time during which the primary or direct parasitotropic action of mercury may be expected to take place. Therefore, up to and including this day the initial injection should be gr. 9 5 in average adult males, with a second injection of gr. 5 5 or gr. 6 5 in twenty-four hours if required. From the sixth to the tenth day the initial injection may be gr. 9 5, but the second injection must not be given until seventy-two or ninety-six hours have elapsed. After the tenth day the initial injection in an average adult male must not be more than gr. 5 5, and succeeding injections not repeated more often than every seventy-two hours, the dose gradually decreasing at the same time.

The first case of this disease treated and reported was injected with mercuric succinimide gr. 7/5 on the seventh day of the disease, the temperature then being 103 ; by the following morning it was practically normal, but shot up to 102° during the day, when a second injection was given; a third and fourth injection resulted in normal evening temperature and the patient was out of bed and around the ship before the temperature would have reached normal in the usually treated case. In another week he went to his home on ten days' leave, and upon his return he presented himself with a large abscess in right lumbar region. Was transferred to hospital at Boston, Mass., where he was found to be suffering from "typhoid spine"; had he been injected earlier in the disease I think this complication would have been avoided.

The second case was admitted 7.00 P. M., March 25, 1912; stated that he had not felt well for a week or ten days. Complaint: headache, profound malaise, and constipation. Temperature 103.6°, pulse 95, respirations 20. Oleum ricini 30 c.c. Large movement of bowels 8.00 P.M. March 26. No change. Urine shows

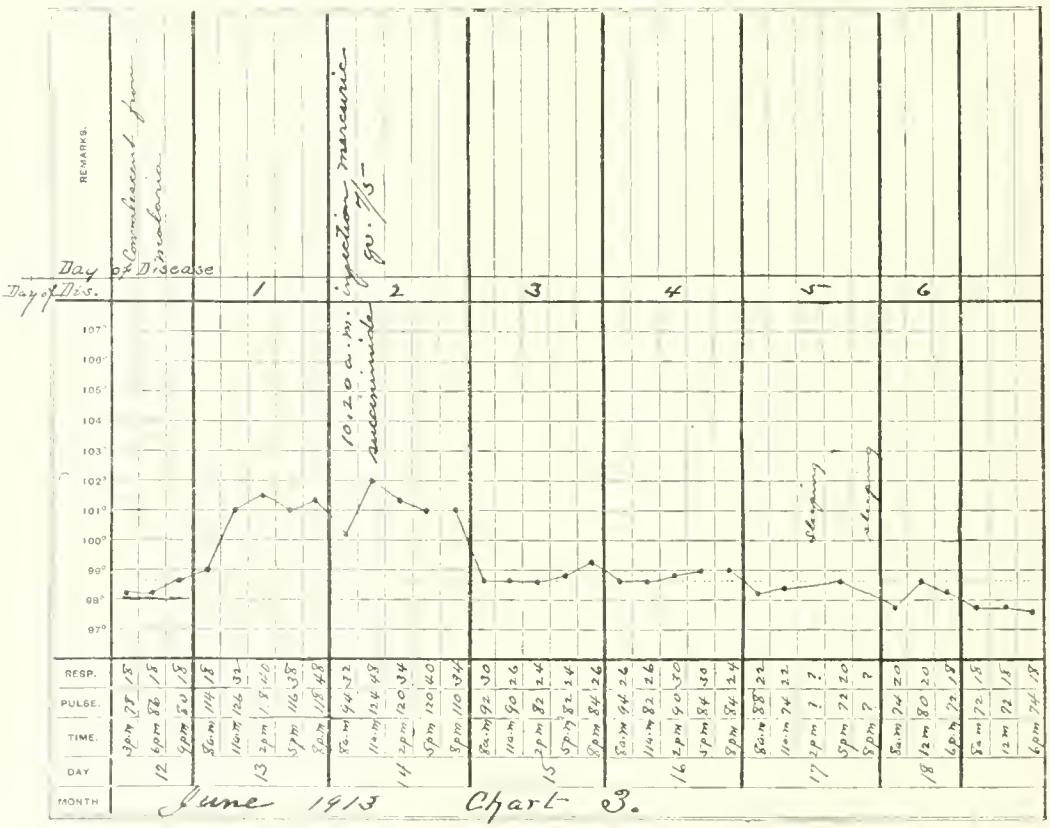


motile bacilli in large numbers. 10.00 A.M., temperature 104°, pulse 88, respirations 20. 4.00 P.M., injection mercuric succinimide gm. 0.11 (gr. 17/10), immediate improvement. 10.00 P.M. temperature 102°, patient felt much better. March 27, marked improvement. 8.00 A.M., temperature 100°, pulse 80, respirations 20. Termination by crisis. (See chart No. 5.) From this time on convalescence uneventful, discharged to duty March 31, 1912, having been under treatment just seven days.

Paratyphoid (1 case).—Hospital apprentice reported to me at 7.00 P.M., one evening in November, 1912, saying that he had been feeling badly for a few days and had kept a chart of his morning and evening temperatures, thinking he had tuberculosis. The chart showed the typical rising curve of typhoid, and that evening had reached 102° (4th day). He was placed in bed on liquid diet under observation. The following morning miscroscopic examination of urine showed numerous motile bacilli. Culture made and sent to the laboratory of U. S. Naval Medical School, Washington, D. C., for identification. That evening temperature reached 103°, and he was given gr. 9/5 of mercuric succinimide by injection. Following morning temperature was normal, but went to 102° in the afternoon when second injection gr. 6/5 was given. The following morning temperature was normal and remained so, and in three or four days he was returned to duty at his request. Some days later the laboratory reported the culture to be one of the Gartner group, none of which excepting *B. paratyphoid* B. would have produced the clinical symptoms of typhoid.

Cerebrospinal Meningitis (1 case).—In December, 1912, I was transferred to the Naval Hospital, Norfolk, Va., for treatment. Several weeks before they had received a case of cerebrospinal meningitis; the clinical symptoms and laboratory findings confirmed the diagnosis. Lumbar puncture with drainage and the introduction of antimeningococcic (Flexner's) serum was instituted at once and continued; the patient died during the sixth week of the disease.

About the middle of December his former room-mate was admitted to the medical ward, about 4.00 P.M., diagnosis undetermined, health record stating that he had been taken sick suddenly the day previous, with moderate temperature and delirium. On admission the patient was delirious, and presented all the classical symptoms of cerebrospinal meningitis; this diagnosis (etiology not determined) was made. Mercuric succinimide, gr. ii, was injected at 4.20 P.M., and the patient was transferred to the contagious wards. A telegram sent to Philadelphia for Flexner's serum. At 7.00 P.M., lumbar puncture was done and 90 c.c. of extremely cloudy cerebrospinal fluid under great pressure withdrawn. This contained a large amount of pus, a high percentage of albumin, and was positive for the *Diplococcus intracellularis*. The following morning the temperature was 99°, blood pressure 187, the delirium had disappeared and the patient recognized the fact that he was in hospital. 10.00 A.M., lumbar puncture was done, the spinal fluid was almost clear, almost free from pus cells, with a faint trace of albumin. In spite of the very marked improvement the medical officer in charge of the case felt that he must administer serum, which was done, at the same time gr. 8/5 of mercuric succinimide was injected into the gluteal muscles; rapid improvement took place. The following morning he was still further improved; a second dose of serum was injected into the canal after drainage, and gr. 5/5 mercuric succinimide injected into gluteal muscles. The following day his condition was nearly normal, lumbar puncture and drainage was done. The next day (fourth since admission) patient normal, convalescence established. Mercuric succinimide gr. 4/5 injected. Following this convalescence was uneventful, resulting in complete recovery in every respect.



Erysipelas (Two cases).—First case on fourth day had upper half of face, including nose and ears, involved, temperature 106°, profound toxemia, delirium. Injections gr. 8/5, 7/5, 5/5 on successive days. After first injection delirium disappeared, maximum daily temperature did not go above 103°. Reaching port, patient was transferred to hospital.

Second case on the first day; nose involved, temperature 102.5°, injection gr. 17/10 at 10:00 A. M., following morning normal, all symptoms disappeared. Cured and to duty in forty-eight hours.

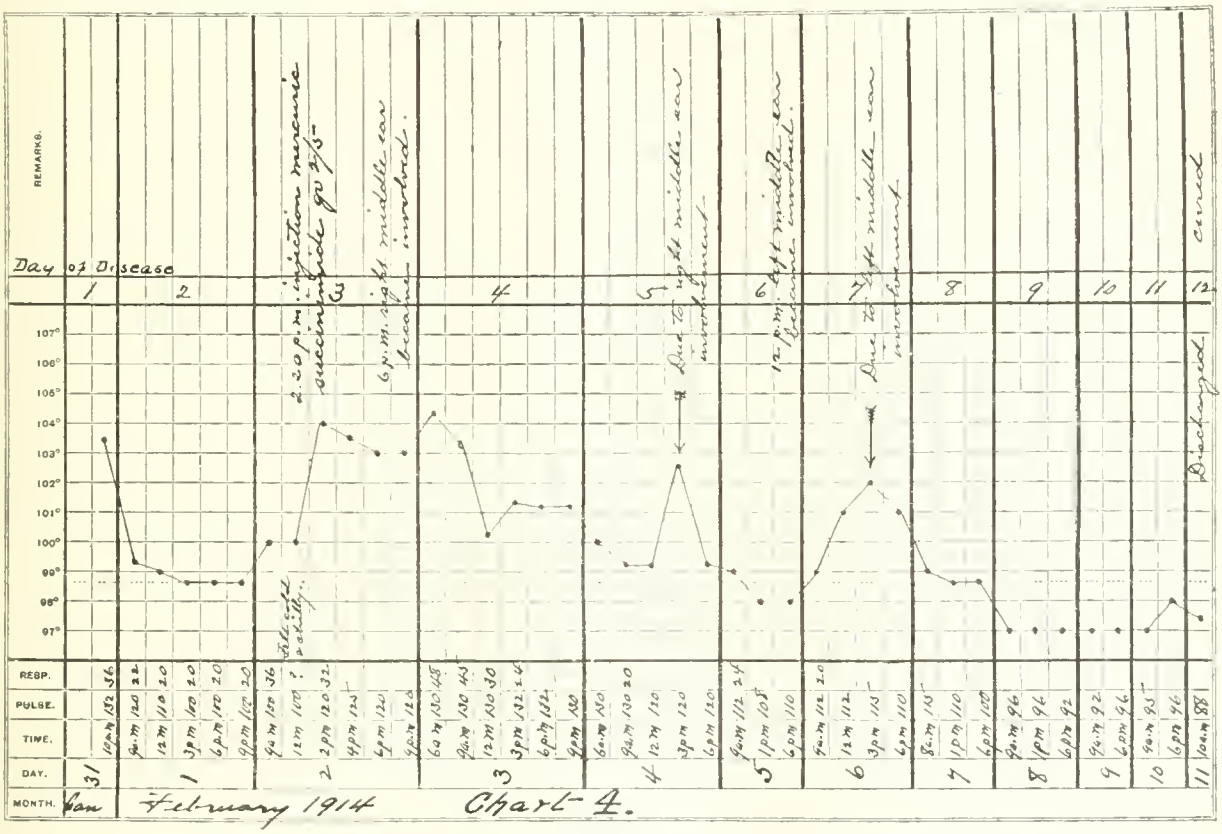
Infectious Arthritis (Thirty-nine cases).—*Acute Rheumatic Fever* (Eight cases).—In this particular infection where the normal alkalinity of the blood is known to be reduced, I have found it advantageous to correct this by giving fairly large doses of

potassium or sodium citrate or sodium bicarbonate either the day before or on the day of the injection.

The following cases are examples of the results that may be expected.

In the first case the patient was admitted to Naval Hospital, Portsmouth, N. H., September 8, 1913, from the U. S. S. *Hannibal*, as with acute rheumatic fever. A Wassermann proved negative and the diagnosis was confirmed. All previous treatment discontinued. Injection mercuric succinimide gr. 7/5. At this time both shoulders, both ankles, and the joints of left hand involved. Immediate improvement followed the injection. September 11, injection gr. 5/5; September 15, pain about disappeared, injection gr. 4/5; September 16, practically well. A few more injections were given as precautionary measures. The heart did not become involved and the patient returned to his ship and duty perfectly well.

In the second case the patient was a boy, aged 9 years; I first saw the patient on March 5, 1914, which was about the twenty-second day of the disease, and confirmed a diagnosis of acute rheumatic fever, complicated by a severe endocarditis. Examination of the lungs was negative. Previous treatment aspirin, for which I substituted methyl salicylate and sodium bicarbonate, the family not being willing at the time for me to inject. On March 8 developed severe cough. March 9, morning, upper right lobe presented harsh respirations and subcrepitant rales. 10.30 A.M., injection mercuric succinimide gr. 3/5, 3.00 P.M., physical signs of consolidation entire upper right lobe posteriorly (confirmed by my colleague P. A. Surgeon L. H. Wheeler, U. S. N.). Some time after 6.00 P.M., crisis began and was complete by 4.00 A.M. (See chart No. 6.) All pain practically ceased also. March 14 injection of mercuric succinimide gr. 2/5, following which temperature became normal and has continued so.



Chronic Articular Rheumatism.—Seven cases. The following case is an average example:

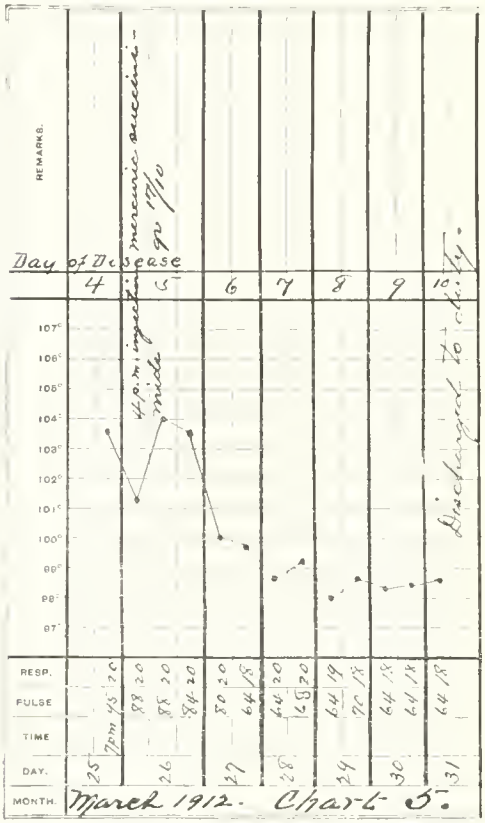
Mrs. ———, age 52, two adult children and one minor child. Perfect health until March, 1911, when she developed a severe attack of acute rheumatic fever, confined to bed until following June, since which time she has been a confirmed sufferer from chronic articular rheumatism. Came under my observation April 7, 1913. The heart, lungs, and abdominal viscera were apparently normal. Urine normal. Both knee joints, ankles, and the joints of both hands were considerably swollen, and extremely tender and painful. The lower limbs were edematous, and the abdominal cavity contained some fluid. The bladder was extremely irritable and painful. She was given the following injections of mercuric succinimide: April 11, gr. 5/5; 13, gr. 7/10; 16, gr. 3 5; 20, gr. 7/10. All symptoms disappeared by April 24, and she remained apparently well until May 12, when the bladder symptoms returned. Injections resumed as follows: May 13, gr. 9/10; 16, gr. 7/10; 20, gr. 7/10. Since this date she has remained perfectly well, has resumed her social duties and pleasures, eats freely of an unrestricted diet and is normal in every respect.

Gonorrheal Arthritis.—Twenty-four cases. The following case is an average example.

Disease first treated at the Marine Recruiting office, Topeka, Kans., March 7, 1911, since which time he has been practically under continuous treatment, and has had several negative Wassermann tests. From Topeka, he was sent to the Post-Graduate Hospital, Kansas City, Mo., transferred to the Naval Hospital, Philadelphia, Pa., where he remained 59 days, being discharged June 14, "condition improved." Did duty at the Marine Barracks, Philadelphia and New York, up to January 24, 1913, during which time he was receiving treatment. Admitted to the sick list on board the U. S. S. *Southery*, Portsmouth, N. H., February 1, 1913. Transferred to hospital, Portsmouth, N. H., March 4, 1913, as "not improved."

U. S. Naval Hospital, Portsmouth, N. H., March 4, 1913; patient walked with great difficulty. The action of the heart was very rapid and irregular. Salol gr. xx, *t.i.d.* March 25, no improvement. April 7, rapid pulse continued (150 9.00 A.M.), no relief from pain. May 3, 1913, Surgeon F. M. Bogan requested the writer to ask for a survey on this man, with the view of having him discharged from the service, or in lieu of that to see the patient in consultation and suggest a line of treatment. Patient was bent forward at the hips, unable to extend the trunk into a vertical position. The right knee, considerably swollen, flexed, and fixed at an angle of 60°, was extremely tender and painful. The left knee and both ankles were involved, the bladder was extremely

irritable. Temperature 100 , pulse 120, respirations 24. Weight 149 lbs. (normal 165). Injections of succinimide of mercury as follows: May 5, gr. 7/5; May 7, gr. 6/5; May 8, mercurialism; 11, improved, temperature 98°, pulse 82, injection gr. 9 10; May 15,



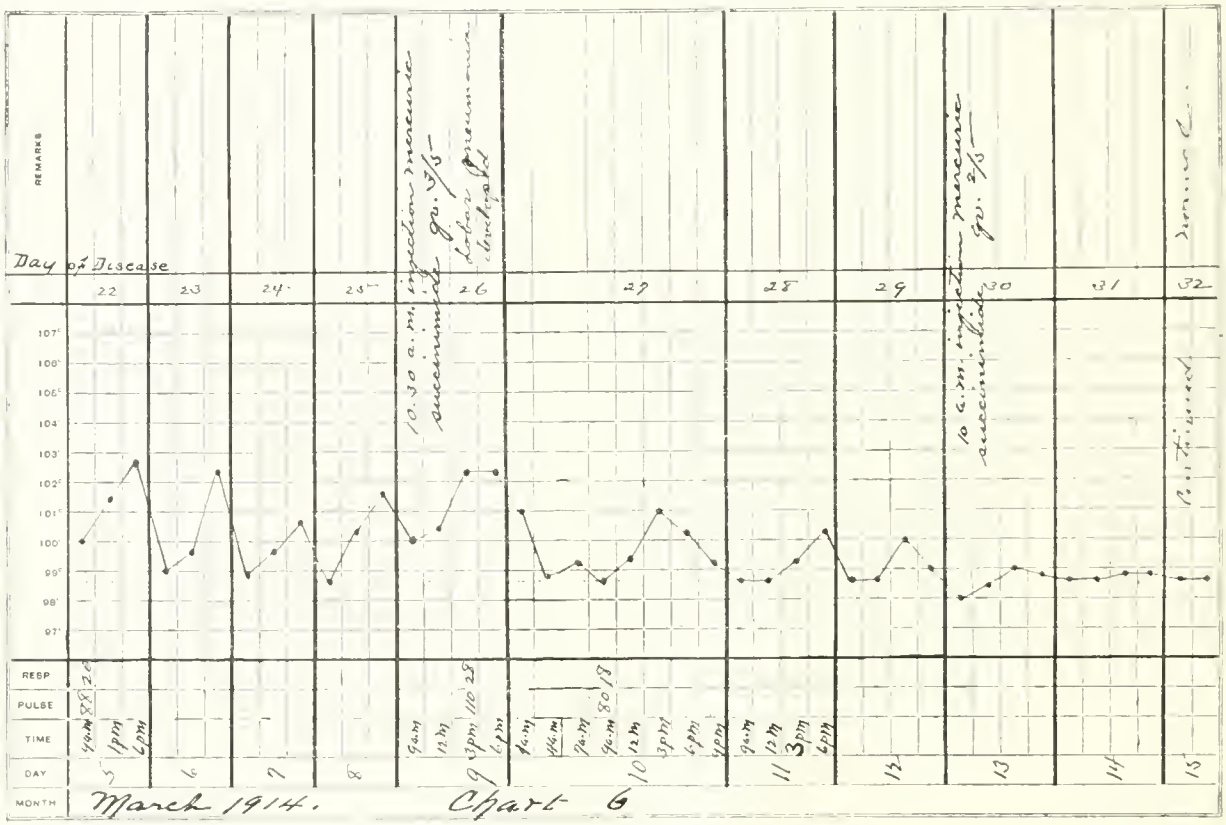
marked improvement, all pain practically disappeared; the swelling of the right knee had disappeared, there was perfect motion in the joint; he was able to stand perfectly erect and walked with great ease, injection gr. 4/5; May 20, injection gr. 3/5. For the first time in two years he felt perfectly well, there was no limitation of motion in any joint, temperature and pulse were normal, weight 163 pounds. Since this date he has remained perfectly well. Lack of time prevents further details.

In addition to the above there have been treated by my method 15 cases of acute tonsillitis, all immediate cures; 5 cases of epidemic catarrh, cures; 1 case acute cystitis (staphylococcic), immediate cure; 3 cases chronic cystitis (gonococcic), 2 to 3 injections (rapid cure); 10 cases furunculosis, 2 to 3 injections; 32 cases of colon bacillus infection, rapid cures; 1 case acute pleurisy, immediate cure; 2 cases lymphangitis, immediate cure; 4 cases cellulitis, 2 immediate and 2 rapid cures; 1 case of mumps, right parotid swollen and painful, left parotid painful, injected first day gr. 9 5, immediate cure; Vincent's angina, 1 case, rapid cure.

In addition to these cases, several independent foreign investigators claim and report the most excellent results from the use of mercury in the treatment of diseases of vegetable parasitic origin.

In October, 1912, Doctor Charles Souligoux, surgeon on the staff of the Hospital of Paris, Paris, France, reported to the Surgical Society of France 144 cases of puerperal septicemia treated by deep muscular injections of gr. 1 6 of mercuric cyanide daily, with but three deaths. This report was published in detail by his assistant, Doctor Giru, in the *Archives de Chirurgie* of November 25, 1912.

In the course of his practice in Kiev, Doctor P. Krohl[6] noticed that women who were undergoing a mercury treatment or who had recently finished one had a completely normal puerperium after a normal delivery or an abortion, in spite of the fact that they lived under the most unfavorable hygienic conditions. *"Moreover I noticed that syphilitic patients during and after a mercury treatment had a peculiar power of resistance to infection of every kind. Not only did they not take the ordinary infectious diseases, but in cholera epidemics they seemed immune to that infection."*



With this in view he started experimental work with seventy-eight rabbits, and an extremely virulent culture of streptococci. Dividing the rabbits into four groups—the first group of controls injected with streptococci but not mercury; the second group before infection with the streptococci had immunizing injections of benzoate of mercury; the third group received injections of mercury at the same time as injections of streptoccoci; the fourth group did not receive injections of mercury until after the appearance of the symptoms of sepsis at various stages of its developments.

The animals of the first group all died of general septicemia, and in their blood large quantities of streptococci were found. The results obtained in the remaining three groups led Krohl to the following conclusions: "Giving a series of injections of benzoate of mercury in small doses (1.5 mg. to kilogram of body weight) renders the organism for a time, the duration of which is not accurately determined, not susceptible to infection with streptococci. A smaller number of injections in larger doses gives the same result. *The giving of small doses of mercury before the beginning of the disease, or the injection of large doses in the early stages of the disease, prevents the development of general septicemia.* Too small and too late injections of mercury do not help the organism in its struggle with infection, and the sickness ends in death from general septicemia." Upon these grounds he resolved to use benzoate of mercury in his practice, and reports a number of cases, the following being an example:

"N.——K. 29 years old. Three days after her second delivery had a chill, temperature 102.6°, pulse 128, skin dry. Patient restless, very thirsty. Thoracic organs normal; mammary glands also; abdomen not sensitive. Uterus well contracted. Discharge normal and in sufficient quantity. No external injuries of the genital organs. Intestines empty. On the first day injection gr. 1/6 hydr. benz., in the gluteus. Second day temperature 102.7°, pulse 120, injection repeated. Third day temperature 100.9°, pulse 112, injection repeated. Fourth day, temperature and pulse normal."

Krohl states: "I have observed a great number of such cases and they all showed the same favorable results, with the exception of those in which the injections were given too late."

During the past year Siemerling has reported excellent results in the treatment of meningitis by inunctions of mercury as recommended by Quincke.

On page 259 of the March (1914) number of *Progressive Medicine* Ruhräh cites the excellent results obtained by Carlo, Singer, Maragliano, and others in the treatment of rheumatism by the "Baccelli method," which consists in the intravenous injections of bichloride of mercury.

Conclusions.—I believe that my results, coupled with those of the distinguished foreign observers above mentioned and of my colleagues in the Naval Medical Corps, mentioned in this paper, demonstrate the superlative value of mercury in the treatment of the infection cited, and make it strongly probable that its action in the case of all diseases of vegetable parasitic origin would be equally and as promptly curative.

The secret of success is the administration of the largest dose possible, at the earliest moment possible after the onset of the disease.

REFERENCES.

1. Three of these cases were reported by P. A. Surgeon Lawrence M. Schmidt, U. S. N., in the *U. S. Naval Medical Bulletin*, for July, 1913, page 471.

2. MEDICAL RECORD, December 2, 1911. "The Treatment of Tuberculosis and Other Diseases of Vegetable Parasitic Origin by Deep Muscular Injections of Mercury."

3. Two cases reported by P. A. Surgeon Schmidt, one complicated by lobar pneumonia, and both by acute endocarditis; one case by P. A. Surgeon T. W. Reed, U. S. N., and one case by P. A. Surgeon Wm. Chambers.

4. Eleven cases reported by P. A. Surgeon William Chambers, U. S. N., and one by P. A. Surgeon Reed.

5. MEDICAL RECORD, February 22, 1913. "The Treatment of Diseases of Vegetable Parasitic Origin by Deep Injections of Mercury."

6. *Berliner klinische Wochenschrift*, October 20, 1913. "The Immunization of the Blood against Septic Disease."

7. *Il Policlinico*, Sesione Practico, October 5, 1913, page 1448. "The Treatment of Rheumatism by Baccelli's Method."

SOME RADIUM THERAPEUTICS.*

BY JOSEPH B. BISSELL, M.D.,

NEW YORK.

So much has been written recently, in the public prints as well as in the medical journals, concerning radium and its therapeutic uses that a few moments spent in reporting experience with this substance may be of interest.

Radium is a metallic element closely allied to barium. As is well known it was isolated some years ago in the laboratory of Madame Curie, in Paris. It has a very high atomic weight and possesses the property of radioactivity. When isolated it is most difficult to keep pure as it reacts with air, forming the oxide, the nitrate, and the carbonate. It is a metal which is exceedingly reactive and on account of its activity is only to be obtained in the form of its salts, the bromide, the chloride, the sulphate, and the carbonate. The first two are soluble in water while the sulphate and the carbonate are insoluble. These salts are all strongly reactive, and their activity depends upon the content of the radium element in each.

The most important property of radium is its radioactivity. It is upon this quality its therapeutic effect depends. This radioactive energy is utilized in various ways. Radium may be employed locally, usually in the form of a sulphate with an admixture of barium, mesothorium, or both, or it may be administered by mouth in solution as the chloride, or the bromide salt, or by its inhalation, the so-called emanation method, as well as by intravenous injection. These methods have given definite physiological effects, and the therapeutic results from them have been demonstrated. Radium is also applied in other ways. Radium pads, radium applicators, radium earth poultices, radium ointments, and radium baths, have been used with good results. To the general public the application of radium means its use in a sealed tube for the destruction of malignant growths or cancer.

The action of radium depends upon its property of spontaneously emitting radiations. These radiations are capable of passing through opaque substances. This is accomplished by means of spontaneous atomic disintegration. Radioactivity is characteristic of all the radioactive elements. It is a spontaneous disintegration of the atoms, and during this transmutation rays are shot out. The

*Read before the Orange Mountain Medical Society at Orange, N. J., March 20, 1914.

rays which are utilized in therapeutic use are the alpha, the beta, and the gamma rays. Each of these is more penetrating than the other in the order given. These rays shoot out with terrific velocity from the disintegrating atoms. The alpha and beta rays are minute particles of matter electrically charged, with comparatively feeble penetrating powers. The gamma rays resemble in many respects physically the *x*-rays. They have a high penetrating power.

Each of these three groups of rays, and their subdivisions have therapeutic value, but the gamma rays, or some of the gamma rays, are much more useful surgically. The gamma rays are capable of quite deep penetration and they require as much as ten centimeters thickness of lead to absorb them completely. The alpha rays, on the other hand, may be completely cut off by a very weak, intervening substance, such as a sheet of ordinary notepaper.

In spite of their softness, however, these rays will produce inflammation and necrosis of the skin if it is exposed sufficiently long to the effects of the unscreened radium. The beta rays may be cut off by a screen 25 millimeters thick of aluminum or 5 millimeters thick of lead.

Screening is what is known as the prevention of certain rays reaching the object by interposing a opaque substance between it and the radium. These substances differ for the different rays: for instance, rubber tissue may screen off the alpha rays, while lead or platinum is used for the gamma rays. Lead of considerable thickness may be used to shut off the more penetrating of the gamma rays. Radium salts are placed first in a sealed glass container, this in turn is placed for safety in a tube made of lead and silver or lead and platinum, with very thick walls. The greater the quantity of radium the thicker must be the walls of this tube in order to cut off the gamma rays and thus prevent injury to the person handling the tube as well as to the subject of its application. There is a wide variation in susceptibility to the effects of radium of the various normal tissues of the body. The eye and the nervous tissues have comparatively slight sensitiveness. Other parts, like the ovary, are affected very easily. As a rule pathological tissues are more sensitive than normal ones. New growths differ considerably as to their degree of resistance.

Epitheliomata require larger doses than some other morphological tissues. The nearer the surface of the body new growths are, whether benign or malignant, the easier can they be destroyed. Growths of the mucous membrane of the mouth require large doses and are quite difficult to cure. The effect of radium extends only to the depth the rays reach, therefore the larger the mass to be attacked the larger must be the quantity of radium used and the more extensive and continuous its application. Cross-raying consists in dividing the radium into portions and placing one each on opposing sides of the tissues to be affected. If possible a tube of radium is placed in the tumor mass. The results of treatment may be complicated by an erythema or even a severe burning or by extensive edema. This is usually due to inefficient screening or to too long an application where a large dose was imperative. As a rule this burning or edema does no harm aside from the discomfort and the long period of time required to relieve it. The passage of the soft beta and alpha rays through the screen have appeared occasionally to increase the rapidity of the growth of the cancer. The longer the application of the radium the greater the possibility of these undesirable reactions.

Many factors enter into the problem of the successful use of radium. The technique of filtration, the length of time of the application, the amount of salt necessary to be used, as well as its form and shape, the location and position, the susceptibility of the tissue involved, its pathology, the varying degrees of resistance of the different normal and abnormal tissue cells, as well as other chemical and physiological and biological facts must be understood before the therapeutic value of this element can be determined. Until experience has given us more knowledge, reports of the results of treatment must continue to be unsatisfactory in many cases; not because radium is not capable of doing the things we expect, but because as yet we do not know how to make proper use of it.

In Europe and in England knowledge of the therapeutic value of radium is greater because of the greater experience and the greater length of time it has been in use there, as well as the larger quantity of material of which these countries have had the benefit. The amount of literature published on the subject in England, France, Germany, and Italy is quite extensive. The Austrian government has ordered the producers of radium to double their output this year in order that its therapeutic advantages may be thus increased.

Not content with using what radium could be obtained in Europe, the various laboratories and hospitals on the other side have imported comparatively large quantities of the metal from this country. Aside from the radium itself the effects of the radium products have been made use of and carefully studied in other diseases than that of cancer in many of the clinics and hospitals of Europe.

Dominici radiated small joints affected with gonorrheal rheumatism with 5 to 10 milligrams and with poorly acting salt. Reports of results have been secured with one milligram in granuloma and trachoma. A scrofulous gland was reported to have been cured with one milligram, the tube being embedded 23 days. Deafness was treated with from 1 to 2 milligrams, uterine hemorrhage was stopped with 4 to 10 milligrams, goiter with 10 milligrams, sarcoma with 20 milligrams, fibroids with 27 milligrams. In internal medicine no less an authority than von Noorden recommends its use in many pathological conditions.

For the purpose of the injection radium in the form of the bromide is dissolved in saline solution. This is enclosed in a glass ampule put up aseptically in the laboratory. Each ampule contains 50 micrograms of the salt, but if desired 25 micrograms or 100 micrograms can be easily put up in this glass container.

In cases where radium is prescribed by mouth the dose is 1 microgram of radium bromide in solution. Each dose is put up in a separate bottle. It is taken three times a day before meals. A special glass or straw tube comes with each bottle. In some cases bath water was also used, and where the joint pain was very severe radium pads were applied. In every patient with arthritis efforts were made to ascertain the cause of the joint infection, and if possible to remove it. Blood pictures were taken before and after treatment. The blood pressure and the coagulation time of the blood were taken before and after each injection. Accurate observation of symptoms and functions

were noted before, during, and after treatment, in order if possible to draw definite conclusions as to the value of radium therapy.

Case I.—Mrs. S., widow, 57 years old. This patient had suffered for the past 15 or 20 years from various forms of gout or rheumatic affections of the joints and muscles. The preceding winter had been a particularly painful one for her. All the usual antirheumatic remedies, such as aspirin, salicylates, etc., had been tried upon her with indifferent results. No cause could be ascertained for these attacks, unless it was due to heredity. February 12, during an attack of pain with swelling and tenderness at the right ankle joint, after trying the usual remedies without relief, she was put on radium drinking water, three doses a day, and treatment was kept up for several weeks. Relief from the pain was distinct and immediate, and within 24 hours after beginning the treatment she was able to walk about without distress and without limping. There was no local treatment, and no other joints were affected, although usually the disease migrated from one joint to another and she had been quite miserable for a long time in all her previous attacks.

Case II.—Mrs. S. B., 46 years old, dressmaker. September 16, 1913—Multiple rheumatoid arthritis of three years' standing; patient confined to her bed for the preceding two years; principal joints affected were the knees, ankles, wrist, elbow, and shoulders as well as the carpometacarpal and tarsometatarsal and phalangeal articulations. No fever, pulse normal, but severe pain continually present, aggravated by any attempt of flexion of the joints. No history of cause of infection obtainable, but the patient had bad teeth, many of them being broken off, and the roots were decayed and tender. She had also Riggs' disease of the gums; *x*-ray plates showed disease of the roots of several of the teeth and small abscess points in the sockets. Patient had been treated for rheumatism by various remedial measures, a series of injections of pituitrin as well as pneumococcus vaccines, both of which proved nonbeneficial. Under anesthesia patient had adhesions of both knees broken up thoroughly, and the legs put in plaster. The result was a much worse condition of pain and swelling than before the operation. Patient had a blood pressure of 142 to 158. Red blood cells averaged about 3,800,000; white cells 6,250; polynuclear cells 84 per cent. Coagulation time about 10 minutes; hemoglobin 72 per cent. Patient is unable to use her hands and fingers without pain. The other joints are also very painful. The pain is so severe that at night her sleep is broken. Her appetite is poor. She is losing in weight, and her mental condition is depreciating.

On December 21, 50 micrograms of radium bromide solution were injected into the basilic vein of arm. Two weeks later this injection was repeated. Again two weeks after this 100 micrograms were injected as above. Two succeeding injections two weeks apart of 50 micrograms each completed her treatment to date, March 16. Thus a total of 300 micrograms of radium were injected into the blood with the following results: Within a few hours after the first injection the patient was able to use her hands and fingers without pain. Pain in the other joints slowly disappeared. She gained in weight, and she has acquired a varied amount of improvement in all the joints and muscles. This was most marked in the fingers, hands, and wrists. She is now able to use her fingers in her avocation as dressmaker, sewing, threading needles, tying knots, etc. Her shoulder joints, which were apparently fixed, are now movable in all directions without pain. The joints of the feet, ankles, and knees have shown the least amount of improvement in motion. Pain and tenderness, however, are markedly less. The patient, for the first time in many months, is able to be out of bed in a rolling chair. Her appetite has improved, and naturally her general health is very much better. Swelling is still present in many of these joints as well as considerable deformity. She felt sleepy after each injection.

The blood picture shows startling differences. The red blood cells were increased to 4,500,000 immediately after the first injection, and have remained at about that average. The white cells have slightly increased, averaging about 6,800. The polynuclear cells have decreased, ageraging about 78 per cent. Lymphocytes have markedly increased. Coagulation time was lessened to an average of three minutes. Hemoglobin is increased to 90 per cent. Blood pressure now runs from 136 to 132 and is at times down to 98.

During the treatment the patient's mouth and gum condition was also cared for carefully. The roots and decayed teeth were extracted and the Riggs' disease was treated, until at present her mouth condition is fairly normal as far as any inflammatory process is concerned.

Case III.—M. F., male, 31 years old. Rheumatoid arthritis of six years' standing. All his joints are involved, especially the knees. He had marked trismus of the jaws and was unable to swallow any food except fluid because of inability to masticate. The vertebral joints were all more or less fixed, every joint was painful on motion and more or less tender to touch. The patient was troubled with frequent and painful urination. He had to lie almost continually on his back, his head propped slightly on pillows. He was a typical picture of misery and suffering. Blood count before the first injection showed red blood cells 4,328,000, white cells 8,000; polynuclear 87 per cent.; hemoglobin 90 per cent; coagulation time 12 minutes; blood pressure 114. This was on February 20. On February 24, 50 micrograms of radium bromide were injected into the median basilic vein. There was no reaction following this injection. The following day the blood count was: red blood cells 4,888,000; white cells 9,200; polynuclear 81 per cent.; hemoglobin 90 per cent.; coagulation time 11 minutes; blood pressure 104. The trismus was markedly less; pain about the joints much less marked; mobility freer; sleep much improved; urination interval lengthened, and voiding much less painful. March 19, again 50 micrograms of radium injected into the same vein. On the following day all the symptoms above mentioned were greatly improved. Appetite was much better and sleep almost normal. In the first twelve hours after this injection a slight reaction occurred; slight chill, temporary increase of pain in the knees, and a headache, all of which passed off in a few hours. On the second day after this injection the blood count was: red blood cells 6,104,000; white cells 10,000; polynuclear 50 per cent.; hemoglobin 100 per cent; coagulation time 9 minutes; blood pressure 110. The patient's improvement at the end of three weeks after the second injection continued. The most striking evidences of the result of the radium were relief from pain, ability to sleep, and improvement in appetite. A great change was noticeable in the motion about the jaw joints. Before the injection the patient could separate the upper and lower jaws only about enough to insert the handle of a teaspoon flat. Now he is able to take food into the mouth and chew it. Also he is able to protrude his tongue so that observation can be made of it. This patient is taking radium drinking water containing one microgram of radium bromide three times a day, and it is expected that the improvement will continue after further intravenous injections. The etiology in this case is unknown.

Case IV.—A. W., aged 32; multiple rheumatoid arthritis, principally affecting the knee and shoulder joints. He has a history of bad tonsils, which were removed several months ago. He is unable to work at his trade as a mechanic because of pain and tenderness in these joints not responding to medical treatment. These attacks have been coming on for two years, each one worse than the last. February 10, the day before his first injection, the blood picture was: red blood cells 3,870,000; white cells 7,200; polynuclear 78 per cent.; hemoglobin 80 per cent.; coagulation time 10 minutes; blood pressure 155. He had two injections, two weeks apart, beginning February 11. He had immediate improvement in his blood picture, in coagulation time, and in blood pressure, the latter dropping on the second day to 125. On March 11, four weeks after the first injection, the blood picture was as follows: red cells 5,200,000; white cells 6,800; polynuclear 68 per cent.; hemoglobin 100 per cent; coagulation time 5 minutes; blood pressure 120; joints much improved; tenderness less; motion good. Patient is able to walk about, and has been discharged from the hospital to go back to work within the last few days. Following the injection he complained of sleepiness.

Case V.—Mrs. E. H., aged 41; postoperative arthritis of right knee. This patient was operated on in the usual manner for fracture of the patella October 5, 1913. She did rather badly after the operation, having a good deal of pain in the knee, swelling and edema of the foot and leg. Slight infection of the skin wound was found on removal of sutures, with well-marked involvement of the structures of the knee joint. Under careful treatment the acute symptoms disappeared

without suppuration taking place, but the joint remained swollen, tender, and painful for a number of weeks. X-ray picture showed at the end of two months the patella fragments united and some evidences of osteitis in the middle of the fibula as well as marked thickness of the cartilaginous structure. On March 1, 1914, the patient was still in bed with a posterior moulded splint supporting her right knee joint, well marked edema of the foot and leg, great tenderness and pain on motion of the joint, and considerable swelling and redness over the contour of the right knee. On March 8 the blood picture showed: red blood cells 4,800,000; white cells 12,000; polynuclear 55 per cent.; hemoglobin 80 per cent.; coagulation time 7 minutes; blood pressure 100. The usual injection of radium bromide was made on March 9. The second day after the red blood cells were 5,176,000; white cells 11,800; polynuclear 62 per cent.; hemoglobin 80 per cent; coagulation time 6 minutes; blood pressure 98. Pain was markedly alleviated. There was slight increase in the mobility of the joint, and at the end of the fourth day reduction in the swelling over the knee itself was quite noticeable. The patient's general condition was markedly improved, probably due to better sleep. March 16 the injection was repeated and on March 19 all the above improvement was retained and increased. The red cells were now 5,600,000; white cells 7,800; polynuclear 77 per cent.; hemoglobin 85 per cent.; coagulation time 3½ minutes; blood pressure 92.

Case VI.—Mrs. M. F., aged 40; arthritis of left hand and wrist. Patient had several attacks of rheumatism in various joints at different times preceding her admission to the hospital; had also a history of endometritis four years previous. Present illness began October 31, 1913, with chill, fever, pain, and swelling in various joints, all of which cleared up under medical treatment except the left wrist and hand. At present, February 28, all the fingers and thumbs are stiff and painful, wrist joint swollen and tender, and motion almost restricted because of the pain. In January a gonorrheal fixation test was positive. Various and persistent methods had failed to produce any improvement, and the patient was turned over with a diagnosis of gonorrheal rheumatism. Patient was given 50 micrograms of radium intravenously on March 5 and also on March 16. Before the first injection the picture was: red blood cells 5,392,000; white cells 18,000; polynuclear 66 per cent.; hemoglobin 90 per cent.; coagulation time 8 minutes; blood pressure 115. After the second injection the red blood cells were 5,800,000; white cells 10,000; polynuclear 48 per cent.; hemoglobin 100 per cent.; coagulation time 6 minutes. The blood pressure dropped to 98, afterward ascended to 100, and remained at that point. Of the symptoms, pain was alleviated within the first 24 hours; swelling on March 18 much reduced; movement in the fingers and at the wrist joints markedly increased. Patient's appetite and general condition improved and she is able to make use of her hand to the extent of picking up objects, sewing, rolling bandages, buttoning and unbuttoning her clothes without pain. She was able to sleep much better after the injections.

Case VII.—H. B., male, 50 years old; with a history of arteriosclerosis and nephritis, with a high blood pressure of 230. He was given 50 micrograms of radium bromide with the object of seeing the effect upon his blood pressure. His only reaction was a slight headache. His blood pressure at the end of four hours was 210; at the end of eight hours it was 190. The following day it was reduced to 160, where it remained for about a week, when he died of his nephritis. This man was hopeless when I first saw him. He was waterlogged with ascites and suffering from alcoholism. The radium was given to him simply to see the effect upon his very high pressure.

Two cases of arteriosclerosis at Bellevue also received one injection each in order to study its effect upon blood pressure. One was a heavy beer drinker with contracted kidney, whose pressure was reduced from 156 to 140 in the first 24 hours. The blood pressure of the other was reduced from 160 to 140 in the same length of time by the injection of 50 micrograms.

No reaction was noticed following the injections except in one case a severe headache the next day, and in another case slight chill, fever and increase of pain about the joints for two hours. No local reaction was noticed in any of the intravenous injections. Most of the writers on the intravenous use of radium record an increase of pain and swelling about the affected joints, but with the one exception mentioned above it did not occur in my cases.

In the literature of radium treatment a reaction is considered to be rather a good sign and improves the prognosis.

From a study of these nine patients the following facts concerning radium therapy may be assumed: Radium injected into the veins relieves pain; it improves the blood picture in anemic and cachectic patients; it causes absorption of deposits around chronically infected joints; it reduces high blood pressure, lessens the coagulation time, and has a certain definite effect as a hypnotic.

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COW'S MILK, RAW AND HEATED.*

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The production and distribution of milk engage the attention of no small part of our population. The use of milk is general and not limited to any class or locality, and it is regarded as a necessity by almost every family. Milk is responsible for more sickness and deaths than perhaps all other foods combined. It is perhaps used to a greater extent in this than any other country, about 16 per cent. of the average dietary in the United States consisting of milk and milk products. The question of sanitary milk to the American people is therefore an especially pertinent one.

The dairy cow fills a unique place under the conditions of our present civilization, since her living body is the source of milk, the most important of all human foods. Containing, as it does, all of the essentials of a perfect ration, it is capable of almost universal use. Owing to its facility of ingestion and comparative ease of digestion, it not only constitutes an important article of diet for the sick and convalescent, but is even of greater importance as a substitute for mother's milk in infant feeding. Considering the fact that those most dependent upon this food, the sick and convalescent, infants and children, constitute that part of the community suffering the greatest injury from the use of a food impaired in its nutritive content, one can readily realize the essential importance of insuring the community a supply of pure, wholesome milk. For these reasons our best endeavors are challenged in the consideration of sanitary milk and its relation to the public health.

Classification of Milk.—In general there are two great classes of milk, raw and heated. The term raw milk is used to indicate milk in its natural state, not subjected to treatment. By heated milk we understand milk which has been subjected to different degrees of temperature, including pasteurized and sterilized or boiled milk.

Bacterial Content.—In taking up for study raw milk, it is interesting to note the bacterial content, organisms concerned and modes of contamination.

Milk delivered in cities contains a vast number of organisms. We know that milk, freshly drawn from the udder of the cow, even when the most careful precautions are taken against contamination, always contains bacteria, varying of course

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with different animals, but usually so small in numbers that it is unimportant. As a culture medium, milk deserves a high rank, and when it is kept under improper conditions it is easily understood how bacteria can multiply. Statistics show that during the summer of 1906 the general milk supply of Washington averaged over twenty-two millions bacteria to each cubic centimeter. Such enormous numbers mean but little, for we know that disease is due to agencies and conditions other than merely the presence of large numbers of bacteria. On making comparisons, it will be found that few substances contain such myriads of germ-life as are often found in milk. According to Russell, it will almost always be observed that milk, when it is consumed, is richer in bacteria by far than the sewage of our large cities, a fluid popularly and rightly supposed to teem with germ life. The number of organisms in milk is not so important, as are the kind and nature of the bacterial products. With cleanliness and the liberal use of ice, the total number can be kept down, thereby affording a mode of protection against the harmful species and their toxic products. When the bacterial content is kept low, the milk will contain proportionately few or no dangerous varieties. Owing to the fact that most of the specific pathogenic bacteria which sometimes contaminate milk grow best at or about body temperature and not at all at low temperatures, the necessity for keeping milk at a low temperature becomes apparent.

Age of the milk is an important factor in influencing bacterial growth, but clean milk may contain more bacteria when it has been several hours in a warm place, than dirty milk when fresh or even after two or three days, providing it has been kept at a low temperature. It is not within the scope of this paper to discuss the various organisms found in contaminated milk or the modes of contamination, but it may be stated that certain diseases such as tuberculosis, diphtheria, typhoid fever, septic sore throat, and many intestinal disorders are definitely proven to be borne by raw milk. Among the common sources of infection are ill health and lack of cleanliness among dairy employees, unclean utensils, air and dust of stables, and a contaminated water supply for the dairy. Again milk may become contaminated while still in the udder, through infection present in the cow.

Heated Milk.—Under the general class, heated milk, we will consider milk which has been subjected to artificial heat. This class includes what is generally known as pasteurized and sterilized milks. The term "pasteurized" milk is misleading and confusing, being often construed to mean a superior quality of milk. It really means heated milk and is not necessarily synonymous with "clean milk," "good milk" or "pure milk." Rosenau suggests the discontinuance of the term "pasteurized milk," and in its stead the term "heated milk," stating the degree of heat, length of exposure to the heat, and date. Pasteurized milk as defined by the New York milk committee is milk that is heated to a temperature not less than 140° F., for not less than twenty minutes, or not over 155° F. for not less than five minutes, with rapid cooling immediately to 50° F. or below, and at which temperature it is to be kept until used. Sterilized milk is milk that has been heated at the temperature of boiling water or higher, for a length of time sufficient to kill all organisms present.

Effects of Heating.—Changes produced in milk by the application of heat depend upon the degree of heat and length of exposure. When exposed to a temperature of 140° F. for a short time it is not appreciably affected, either physically, chemically, or biologically, whereas when boiled marked changes are produced. As the result of boiling, certain changes occur in the taste and odor of milk, coagulation occurs at high temperatures, and it becomes discolored. There is a partial disarrangement of the normal emulsion and a coalescence of some of the fat globules, causing an increase in the viscosity of the liquid in which it is emulsified. Owing to this condition the cream does not rise well. Chemically, milk consists chiefly of water and, in additon, fat, lactose, several proteins, mineral salts, and certain dissolved gases. Heating to high temperatures causes a film or pellicle to form on the surface, consisting of fatty and protein matter. A precipitation of calcium salts takes place, thereby rendering the milk very acid.

Biologically, another change brought about in milk by the action of heat above certain temperatures is the destruction of enzymes, which are normally present in fresh milk. In reaching conclusions as to the temperature at which milk should be heated and the time of exposure to such heat, we are guided by two dominant factors, viz., (1) the thermal death points of pathogenic bacteria, and (2) the ferments in milk. To eliminate danger, the first must be killed, and at the same time the second must not be materially affected. It has been abundantly shown by investigation that most of the ferments in milk can withstand a temperature of 140° F. for some time without material injury, while the tubercle bacillus and other specific micro-organisms found in milk are rendered harmless by heating to 140° F. for twenty minutes. So far as bacterial toxins are concerned, little is known. It is known, however, that they are readily affected by heat, certain ones being rendered almost inert at ordinary temperatures. Let it be granted that heat-resisting poisons are present in milk, we will also have to grant the raw product quite as toxic and probably more so. By its destructive action upon the contained bacteria, heat may prevent the further production of such substances. Although it is admitted that milk possesses a germicidal property and that such property is destroyed by heat, it is not considered a serious objection to the heating of milk, for the reason that this property is exhibited by milk only during the first few hours after it is drawn.

Relative Nutritive Values of Raw and Heated Milk.—There is some difference of opinion as to the effect of heat upon the nutritive and digestive qualities of milk. In answer to one of the chief objections to the use of heated milk, that the heating "devitalizes" it, authorities state that heating milk to 140° F. for twenty minutes does not seriously affect the enzymes; and that if it be granted that milk contains "life," it has lost the last vestige of it after twenty-four to forty-eight hours, especially when kept under such conditions that it contains myriads of bacteria. In the boiling of milk, proteins are considerably altered, coagulation of certain albuminoid constituents takes place, thereby rendering them more difficult of digestion. It is stated that there is quite a loss of utility in the milk as the result of heating at high temperatures, and further, that it has been observed by many medical practitioners that there is a very distinctly lowered vitality among infants

fed on boiled milk, the processes of absorption being delayed, and the quantity of milk required for the nourishment of the child being greater. It is generally agreed that the digestibility of the milk diminishes with cooking. But among authorities consulted, the prevailing view is that when milk is properly heated, there is little or no prejudicial influence exerted in this respect.

Nutritional Disturbances.—Heated milk has been accused of possessing the great disadvantage of inducing scurvy and rickets. That highly heated milk is a contributive factor in the etiology of scurvy is generally believed, but that low-temperature heating, as is now recommended, ever in itself induces scurvy is not conclusively proven. Although there have been cases of this disease reported by observers as due to heated milk, comparative observations upon large numbers of infants, under like conditions show that they flourish quite as well upon properly heated milk as upon raw milk.

In Germany and France, where artificial feeding of infants with heated milk is most popular, thousands of children have been raised on heated milk, without the production of the disease. At all events the danger involved from the use of properly heated milk, with respect to the production of scurvy is so small in comparison with the advantages to be derived in other ways, that it may be disregarded.

Rickets is the result of defective alimentation and improper hygiene, and cannot be laid at the door of heated milk.

Acute Disorders of the Gastrointestinal Tract.—It is a well-established fact that the large majority of infantile deaths is caused by gastrointestinal disorders, resulting as it does in from one-third to one-half of all infant deaths under one year of age.

Investigation of infant mortality statistics reveals the significant fact that 75 to 85 per cent. of all infants who die of these diseases are artificially fed, and further that the vast majority of cases and deaths occur during the heated term. That this high mortality is unnecessary and may be greatly reduced by proper control of the milk supply is generally believed. While the factors involved are numerous, either primarily or secondarily, they depend upon the activity of microorganisms.

That it is best to use pure, fresh milk in artificially feeding an infant, all are agreed, but when the fact is considered that thousands of infants in our large cities are dependent upon the milk of a cow many miles away, a difficulty not readily overcome confronts us. Bad milk, heated or unheated, is unfit for infant feeding, but if infants must depend upon dirty, stale, bacteria-laden milk, it would be much better if properly heated, especially in the summer months, in spite of its alleged disadvantages. Freeman believes that the adoption of heated milk is by far the most important agent in reducing infant mortality from summer diarrhea. Park and Holt after observing groups of infants in the tenement houses and institutions of New York City, for periods of about three months in the summers of two years, concluded that those infants who received milk previously heated did on the average much better in warm weather than those who received milk raw. They state further that the difference was so quickly manifest and so marked that there could be no mistaking the meaning of the results.

Summary.—In making a comparative study of cow's milk, the intention of the writer is to point out and correlate from the vast amount of literature published in the past few years, facts of interest to the practitioner, in the consideration of sanitary milk in its relation to the public health, and the relative merits of raw and heated milk in infant feeding. That there are two sides to the question of heating milk, may be judged from the fact that conclusions of those who have given the matter careful consideration are diametrically opposed. Infants should receive breast milk, but when this is not possible, they should have the best cow's milk that can be obtained.

Whether such milk is to be heated or used in the raw state will vary with circumstances. In obtaining a general milk supply which is clean, fresh, and safe there is involved not only an expensive system of inspection and surveillance from the farm to the consumer, but there is required an intelligence and a high degree of technical skill on the part of the producer and all others handling the milk. Of an inspection so thorough and constant as to prevent milk occasionally becoming contaminated with the organisms of infectious disease, we can hardly conceive.

One of the chief objections to heating milk is that it promotes carelessness and discourages efforts to produce clean milk; that it will cause the producers and those who handle it to believe that it is unnecessary to be so particular. It is not proposed that the heating of milk shall take the place of inspection and improvements in dairy methods. Much has been said concerning the relation of scurvy and rickets to heated milk. This is still a disputed question, but, quoting Rosenau, "the evidence seems clear that these two diseases bear no relation whatever to the proper heating of milk."

The curd produced by rennin coagulation in heated milk is softer, less tough, and more flocculent than that produced in raw milk. This is believed to be an advantage favoring the digestibility of heated milk. Heated milk is said to be constipating. This is because it contains fewer bacteria than raw milk, and is therefore less irritating. While the danger of tuberculous infection through milk from diseased cows may be largely eliminated by the compulsory application of the tuberculin test, this expedient does not safeguard against possible tuberculous infection when handled by persons suffering with tuberculosis, or when kept amid surroundings frequented by tuberculous patients. Nor does it protect it from the organisms of typhoid fever, diphtheria, and other infectious diseases introduced into milk by a carrier, or through contamination in other ways in its handling from time of milking to time of consumption.

No less an authority than Theobald Smith expressed the opinion a few years ago that pasteurization was the inevitable outcome of the future. The heating must be done intelligently and be properly supervised. After heating, the milk is just as liable to serious contamination as before, if not more so, and therefore must be carefully guarded and kept cool. When all is said, it will be found that the objections raised to the proper heating of milk seem to be either theoretical or such as may be readily overcome. The writer feels no hesitancy in taking the view that the only practicable solution of the problem of obtaining milk in its least objectionable state at the present time appears to be proper heating. Theoretically, it should not be necessary; practically, we find it forced upon us.

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911 SIXTEENTH STREET.

THE PHARYNGEAL TONSIL IN THE ADULT.

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THAT part of the lymphatic infiltration of the mucous membrane at the entrance to the gastrointestinal and respiratory tracts which is situated at the roof of the pharynx—the pharyngeal tonsil—is greatest at the midline of the pharyngeal vault and differs from the faucial tonsil in that it has no definite limits but spreads out laterally to a greater or less extent. Some of its outlying parts may reach as far as the fossæ of Rosenmüller or spread into the openings of the Eustachian tubes. In these situations they become of special pathological significance.

The first signs of a pharyngeal tonsil can be detected in the later months of fetal life as small depressions in the mucous membrane, which later deepen and lengthen to form the crypts and become surrounded by the lymphatic cells. The greatest development of the organ is seen in the early years of childhood. After the fifteenth year there is retrogression of greater or lesser degree and in some old people no trace of the organ can be found.

Schwabach[1] has described the appearance of the pharyngeal tonsil in great detail. There are a series of anteroposterior grooves on the surface, which extend into the depths of the organ. There is a transverse anterior comb of adenoid tissue. The grooves are confluent posteriorly and some times anteriorly. There are also, usually, transverse grooves, less prominent than the sagittal ones, which go to form the anterior comb of tissue. When retrogression begins these grooves all become shallower and disappear. Often small cysts are formed. The median groove, being the deepest, is the last to disappear and cyst formation there is most common. The cyst formed from the median groove has been erroneously identified by a number of observers with the embryonic pharyngeal bursa first described in 1840 by F. J. C. Mayer.[2] Tornwaldt[3] showed the true nature of this almost constant structure. The infection of this pseudobursa and its distention with pus is the condition which bears his name—Tornwaldt's disease.

The term "adenoid vegetation" used to describe the hypertrophied or diseased pharyngeal tonsil is an unfortunate one, unless we will remember that it is not a peculiar sort of new growth of lymphatic origin, but an organ present in all, hypertrophied in most and diseased in a great many.

The pharyngeal tonsil is considered by most practitioners as a condition confined exclusively to childhood. That this is true in the greater number of instances is not to be gainsaid, but there are a sufficient number of chronic and subacute diseases of the upper air passages which can be laid directly at the door of the hypertrophied or diseased pharyngeal tonsil and the primary and significant cause of which goes unrecognized. These are the patients who have their turbinates removed, their nasal septa straightened, their ears politzerized for years, and their hypertrophic, and later when the nasal cavities have become lined throughout with scar tissue their atrophic rhinitis treated without relief. Should they finally escape infection of one or more of the nasal accessory sinuses they are to be considered as among the more fortunate of their class.

The symptoms of hypertrophied pharyngeal tonsils can be divided into two general categories—those referable to the presence of the growth such as mouth breathing with its accompanying local and constitutional changes, and catarrhal conditions of the nose, pharynx, and ears, and the anatomical changes resulting therefrom; and further, the secondary symptoms, such as swelling of the lymph glands of the neck.

Gradenigo[4] goes into the matter of mouth breathing and its effects at some length. In the question under consideration this phase does not concern us greatly, inasmuch as the effects of mouth breathing and the changes induced take place in the earlier years and by the time the patient reaches adult life the removal of a hypertrophied tonsil will not restore him to a normal condition.

Among the most important of the permanent local changes resulting from mouth breathing and which follow the patient into adult life, even after nasal breathing has been re-established by the removal of the hypertrophied tonsil or its retrogressive shrinking, are a high arched palate with its narrow alveolar arch, and crowding and faulty alignment of the teeth. There is always, in these patients, more tendency to caries than when the teeth have sufficient room and wider interstices where chemical changes between the saliva and food débris can be prevented.

Again, the high arched palate of this type is usually accompanied by a deviation of the nasal septum and a narrowing of the entire cavity of the nose. Robert, cited by Gradenigo[4] says that the smallness of the nasal cavity as a whole is due to the fact that the nose, in children who are mouth breathers, is not used and that, therefore, there is nothing making for the development of this portion of the breathing apparatus. This smallness persists after the bones have become calcified; in other words—an atrophy of disuse.

There is, however, a group of cases, and the number is not small, in which the etiological factor is a diseased pharyngeal tonsil and in which the symptoms are due to the mild degree of chronic inflammation of the contiguous mucous membrane of the nasopharynx and nose with hypertrophic changes in the mucous membrane and increase of secretion. This may result in hypertrophy of both the middle and lower turbinate bodies to any degree of severity.

Many of these cases give no history of "adenoids" in childhood and show none of the stigmata one would expect to find in chronic mouth breathers. They are the patients, whose pharyngeal tonsils, never very large, have left the choanæ free and did not interfere with respiration. The tonsils do not retrogress but persist into adult life with open crypts as unconsidered sources of infection. These patients are benefited and their symptoms ameliorated by the removal of their pharyngeal tonsils. Even when there are hypertrophied turbinates and septal spurs the removal of the diseased pharyngeal tonsils and the abatement of the chronic rhinitis causes a shrinking of the mucous membrane and

gives the patient sufficient space for normal nasal respiration.

The posterior pharyngeal wall in these cases is studded with small masses of lymphatic tissue giving it a granular appearance. To this condition the name granular pharyngitis has been given. Certain cases of pharyngitis sicca in which there is no involvement of the nasal accessory sinuses are relieved by ablation of the pharyngeal tonsil.

The relationship between the hypertrophied and diseased pharyngeal tonsil and the ears has been carefully studied by a host of competent observers. The rapid amelioration of the discharge and the final closure of the perforation in chronic purulent otorrhea of childhood following the removal of the pharyngeal tonsil is a familiar occurrence. When the inflammatory process extends into the Eustachian tube and middle ear there is a gradual diminution in the acuteness of hearing which may end in complete deafness.

In each act of swallowing air is forced through the Eustachian tube into the tympanum to maintain equal pressure on both sides of the drum membrane. With the swelling of the mucous membranes of the Eustachian tube this becomes progressively more difficult of accomplishment and less and less air is sent through at each charge. The air pressure within the tympanum is lowered and the drum head forced inward.

In these early cases when there is simply mechanical obstruction, the hearing can be restored to a degree by insufflation of air after the manner of Politzer or better by the gradual distention of the lumen of the tube by means of woven silk bougies. Later when permanent changes have taken place in the living membrane of the tympanum with the formation of adhesions between the vesicles and the tympanic walls and the possible involvement of the bony walls themselves the hearing is permanently injured. Gradenigo[4] says that he has found catarrhal otitis much oftener accompanied by hyperplasia of the pharyngeal tonsil than purulent otitis.

The orifice of the lacrymal duct opens under the inferior turbinate in a position where, apparently, inflammatory processes in the nose can affect the outflow of tears and produce a stricture similar to that of the eustachian tube under like circumstances. The condition of the nose is an important factor in the treatment of obstructions in the lacrymal canal. At the present time, when the intranasal operation for lacrymal duct obstruction is coming into favor the presence or absence of intranasal inflammation may determine the success of the procedure.

The diagnosis of hypertrophied or diseased pharyngeal tonsils in the adult presents no difficulties if one will but look for them. The classical picture of childhood is, of course, not present. If a patient with symptoms of some chronic catarrhal process of the nose, nasopharynx, or ears has a large or a diseased pharyngeal tonsil one can say with a fair degree of probability that the presence of this pharyngeal tonsil bears an etiological relation to the inflammatory process and its removal will result in a cure or in relief of the symptoms.

There has been little in recent literature covering the effect of hypertrophy in disease of the pharyngeal tonsil on the adult. Barstow[5] in 1905 reported fifty-seven cases of persons between the ages of twenty and forty-two on whom adenectomy was done with favorable results. There was improvement in all and complete relief in most. Of these thirty-six were throat lesions, chronic pharyngitis in most instances, and twenty-four were ear cases. In a number of cases with enlarged turbinates there was complete relief after adenectomy.

During the past few months the writer has performed adenectomy on a number of adult patients with favorable results. Of these six cases will prove of special interest. Five of the patients were women. The youngest was eighteen, two were twenty, one twenty-three, one twenty-six, and one thirty-two. Two had hypertrophied lower turbinates with thick, congested mucous membrane, two had enlarged middle turbinates with deviated septa and septal spurs, one had a chronic catarrhal otitis with stricture of the Eustachian tube, and one had a chronic purulent otorrhea.

The two patients with enlarged lower turbinates were very promptly improved by operation. They no longer complained of feeling of fullness in the nose. Their profuse secretion of nasal mucus became less, and the turbinates appeared smaller and less congested.

Of the two deviated septa, one was improved. The other patient had a marked deviation with large bony ridges. Both middle and inferior turbinates were hypertrophied, the mucous membrane was thick and red and there was a profuse discharge of clear, watery mucus. After adenectomy the congestion became less and the amount of discharge diminished, but there was little relief from the feeling of fullness and the obstruction to respiration.

The chronic purulent otorrhea was of about eight years standing and had been treated from time to time without results. The patient was an underdeveloped girl of eighteen. She had been backward at school and her family described her as "dull." She was a chronic mouth breather. During the six months following the removal of a large diseased pharyngeal tonsil the girl developed in a remarkable manner. Before operation she had had the physique of a child of fourteen. She grew taller, gained in weight and became as any other girl of her years, in appearance. The ear discharge diminished but did not entirely disappear. It still had the odor of an infection coming from the oral cavity. The outer attic wall was removed together with the ossicles and the Eustachian tube curetted. This was not successful and after some weeks the tube was found to be still patent. A second curettage had a more satisfactory outcome. The discharge became less and lost its foul odor, and at this time the patient remains under treatment with only a slight amount of discharge, which is slowly diminishing.

The other ear case in this series a chronic catarrhal otitis media with Eustachian catarrh, also of eight years' duration, was in a woman of thirty-two. For seven years it had gone untreated. Then she had been treated for almost a year by repeated politzerization, without relief. Portions of her turbinates had been removed, also without improvement. After adenectomy her hearing, under politzerization, improved slightly, but after a time went back. There was more improvement after dilatation of her Eustachian tube and during treatment of her chronic pharyngeal catarrah, but the patient passed from observation before anything definite could be determined. These results coincide with those of Barstow.

As a result of careful observation in this class of

cases the writer offers the following conclusions:

1. The pharyngeal tonsil persists into adult life, sometimes entirely unchanged, anatomically.

2. It acts in those cases as the causative or, at any rate, as an important contributory factor in some of the stubborn chronic conditions of the nose, pharynx, and ears of early adult life.

3. It should be the duty of the rhinologist to determine, as part of his routine examination, whether or not a diseased tonsil of this kind is present and whether its removal will not save the patient from more radical operative interference or obviate a long course of more or less painful treatment.

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616 MADISON AVENUE.

A CASE OF AURICULAR FLUTTER OCCURRING DURING RHEUMATIC ENDOCARDITIS.

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M. D., female, aged 35, unmarried, entered the hospital with the history of many attacks of acute articular rheumatism and of having had "heart trouble" for many years. She frequently complained of dyspnea and palpitation. Her present illness began with chills, fever, and swelling and redness of both knees. Her physician stated that the pulse had always been regular during this illness. The patient looked wan and anemic; she was dyspneic; there was a productive cough, but the sputum contained no tubercle bacilli. Physical examination revealed the signs of general bronchitis and of a double pneumonia at both bases posteriorly. There was a strong heaving precordial impulse accompanied by a palpable systolic thrill. The apex beat was most marked in the sixth interspace, fifteen centimeters from the midsternal line; on percussion the right border was ten centimeters from the same line at the fourth interspace. On auscultation there was a loud rough systolic murmur heard best at the apex and a softer murmur occupying the entire diastole. The diagnosis of a double mitral lesion was made. From the configuration of the left cardiac border to percussion and the presence of pericardial friction sounds, the probable diagnosis of pericarditis with effusion was also made. The temperature ranged between 101° tnd 103°. For two days the pulse remained regular, the rate between 110 and 120. There then occurred a sudden drop of the ventricular rate to 40 per minute; from that time till death, three days later, it varied between 30 and 55. At the high rate it was sometimes regular for a minute or two, then the rhythm was suddenly interrupted by much slower beats. A distant rumble occupied the entire longer diastolic pauses. From the inception of the slow rhythm, there was an enormous dilatation of the jugular veins, so that the sides of the neck literally swelled with the frequent and vigorous venous pulsations. There were no convulsions. The dyspnea, fever, cough, and slow pulse continued until death occurred. A blood culture taken a few days before death remained sterile. An autopsy could not be obtained.

Polygraphic Tracings.—For comparison a normal tracing is shown in Fig. 1; *R* represents the radial pulse; in the jugular tracing are seen the sequential waves *a-c-v*, in which *a* represents the auricular, *c* the carotid, and *v* the ventricular filling wave. Fig. 2 (*a*, *b*, *c*) and Fig. 3 (*a*, *b*, *c*) were obtained on different days, the lettered sections are continuous. Their characteristic feature is the regular, rapid auricular rhythm, representing auricular activity at rates of 210 and 245 per minute. Regular auricular rhythm at such rates is called auricular flutter. Many of the auricular beats are not answered by ventricular contractions, an evidence of heart block. In some parts of the tracing, for example, in Fig. 2 (*c*), there is for a time a rhythmic ventricular response to every fourth auricular beat, an evidence of partial heart block with a 4:1 rhythm. Apparent partial block is also seen in Fig. 3 (*b*), at I, but the other beats show complete block, though there is no marked difference of ventricular rate in the immediately preceding or succeeding contractions. The radial rate varied from 25 to 50 per minute in different parts of the tracing. Lewis[3] states that auricular flutter is usually accompanied by partial heart block and that an irregular radial pulse, when present, is due to varying ratios of ventricular response to the auricular beats. He has proved this by measuring the arythmic groups of radial beats which, when added, are found to be exact multiples of the auricular contractions. Such ratios are not found in our tracings, so that unless sudden, irregular interruptions of the normal *a-c* conduction time is assumed—an extremely improbable anomaly—the heart block must be regarded as of two types, complete and incomplete. Of interest in the radial tracings is the fact that, except in that part of Fig. 2 (*c*) which follows the extrasystole *v'*,

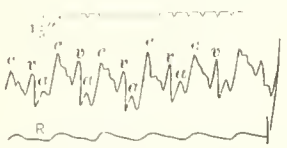

FIG. 1. Normal Polygraphic Tracing. *r* = radial beats, *a-c-v* = rhythmic jugular waves. The time marked in all tracings indicates 1 5 second.

the slow beats are lower in amplitude than the more rapid ones. This represents weakened ventricular contractility as compared with the latter, and may be due to the fact that the lengthened diastole and consequent extreme ventricular filling has imposed upon the diseased left ventricle a task which it cannot properly perform.

Discussion.—Up to October, 1913, thirty cases of auricular flutter had been reported.[2] Mackenzie[1] reports thirty others. Two have been reported in American literature.[4] Lewis[3] has described definite electrocardiographic characteristics of this condition. These and the comparative frequency of auricular flutter entitle it to be classed as a clinical entity. Most of the cases have occurred in elderly individuals with severe cardiac lesions. Mackenzie believes that the underlying pathological condition is probably an auricular fibrosis producing local irritation, though it may also be due to acute cardiac infection, an example of which he gives (p. 435). Ritchie[5] describes the autopsy of a man, thirty-seven years old, who suffered from endocarditis and decompensation and who developed auricular flutter for one day, ten days before death; the ventricular rate was 160, the auricular, 320 per minute. The pathological findings were slight, diffuse, inflammatory myocarditis with slight invalvement of both nodes, the *a-v* bundle and its branches, endocarditis of the mitral and tricuspid valves and acute pericarditis implicating the sino-auricular node. Gibson[6] reports a case in whom auricular flutter was

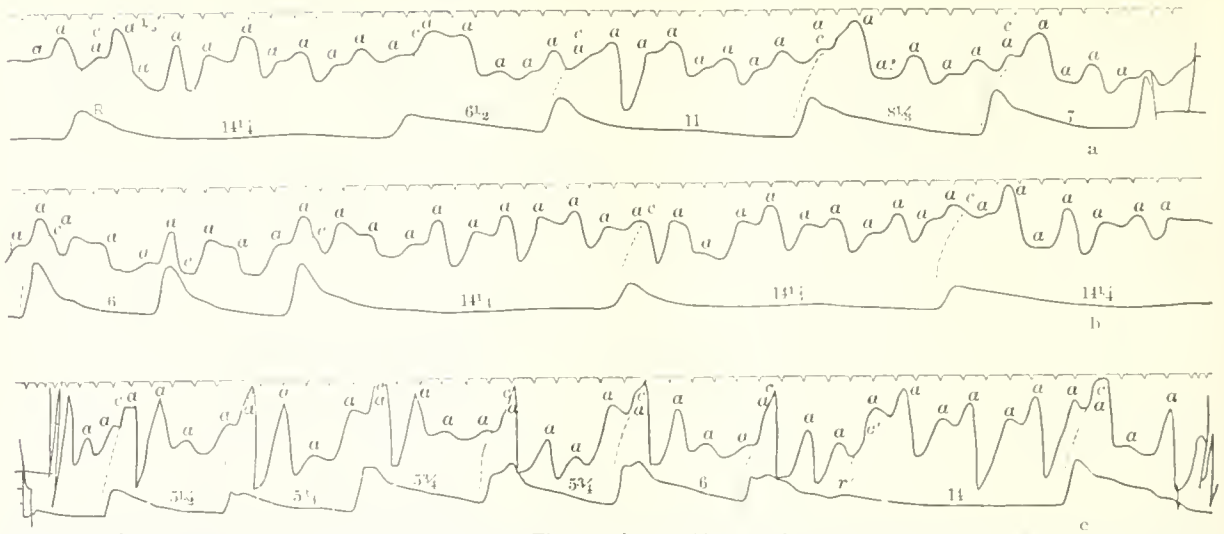

Fig. 2. *a, b, c* are sections of continuous tracings. The regular rapid auricular rate is shown by the *a* waves, a few of which are deformed by the respiration. *R* = radial pulse, *r'* = extrasystoles. The incidence of the carotid wave (*c*) in the jugular tracing is indicated by the dotted lines. The numbers on the radial curves show the lengths of the radial beats in fifth seconds. The auricular rate is 210 per minute. Block is complete in Fig. *a*, *a* and *b*; it is partial in part of Fig. 2, *c*.

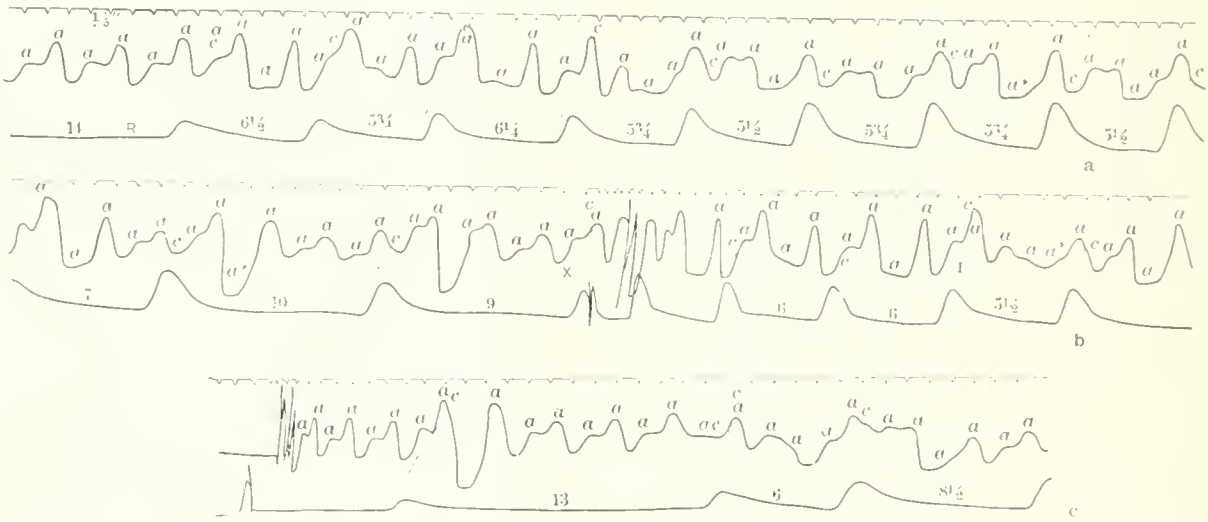

Fig. 3. *a, b, c* letters indicate same as Fig. 2. The auricular rate is 245 per minute.

found upon one occasion; the postmortem showed increase of fibrous tissue, and cellular infiltration of the *a-v* bundle. In our case, the rheumatism, pneumonia, endocarditis, and pericarditis were probably evidences of a rheumatic reinfection. The inception of the auricular flutter was not accompanied by inferential symptoms of a cardiac infarct, there was no sudden or sharp angina, no increased dyspnea; and it is quite problematical whether such an accident would cause rapid, regular, auricular activity. The history and clinical course of the case make it probable that the flutter was the result of a terminal infection involving all cardiac structures—pericardium, myocardium, and endocardium, and was not confined alone to the specific cardiac structures—the sinoauricular node and the auricular ventricular connections.

Summary.—A case of auricular flutter with varying periods of complete and incomplete block is described. It occurred in the course of a severe recurrence of a rheumatic endocarditis and appeared to be the result of a terminal infection involving all the cardiac structures.

I am indebted to Dr. J. Kaufmann, Visiting Physician to the German Hospital, for permission to report this case.

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1275 Madison Avenue.

MODIFIED AND CONSERVATIVE RADICAL MASTOID OPERATIONS FOR TOLERANCE OF PROSTHESES IN CASES OF DIMINISHED HEARING AFTER MIDDLE-EAR SUPPURATION.

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Among cases of residual deafness, following middle-ear suppuration, including both those cases that have undergone any form of operation and those that have undergone none, there is a large number in which the hearing is very considerably increased by the use of suitable prostheses. Among these last, there are some cases in which the ears,

although they may be quiet and dry, and have no suppuration, begin to suppurate as soon as a prosthesis is applied. This class of ear is characterized by the presence of crevices harboring desquamated epithelial, cicatricial folds, trabeculæ, and ossicular remnants about the middle ear and mastoid antrum.

In these cases we have found that a modified radical mastoid operation or a so-called conservative radical mastoid operation is indicated. The intention in these operations is twofold: first, the hearing mechanism is to be preserved in as good condition as it is previous to the operation; and second, the middle ear and accessory cavities are to be cleaned so that the middle ear will heal in a smooth, readily epidermatized, clean cavity and will consequently tolerate a prosthesis.

The technique used in these operations is adapted of course to the condition present. In the conservative radical mastoid operation the auricle is deflected forward, together with the membranous canal, in the way preferred for the radical mastoid operation. The posterior and superior walls of the osseous meatus are removed, exposing the attic, the antrum, and the middle ear precisely as in the radical mastoid operation.

The middle ear is carefully freed from obstructions, such as remnants of the major ossicles, cicatricial bands, or walls of trabeculæ. Care is taken not to remove the dermoid covering of any structure that is not also to be removed; that is, unnecessary denudation of the middle ear should be avoided. After the middle ear has been carefully freed of the unnecessary contents, the membranous canal and concha are treated plastically, to insure an enlargement of the external meatus, in proportion to the enlarged osseous meatus. The modified radical operation follows the same technic as the preceding except that the major ossicles may be retained in position. After these operations the ear usually heals rapidly and gives very satisfactory results in hearing by the tolerance of a prosthesis. The following case illustrates the practical value of these operations:

A woman, 33 years of age, was dependent for all her hearing on a chronic suppurating ear. Without a prosthesis the Politzer acoumeter was heard at 7 inches; with the prosthesis in position, the acoumeter was heard at 25 inches.

The suppuration ceased soon after the cleansing treatment was commenced. The Politzer acoumeter was then heard at 6 inches without the prosthesis and at 23 inches with the prosthesis. Soon, after a continuous use of the prosthesis, the suppuration recurred, but was easily controlled. This procedure was repeated several times and always with the same result. It was then decided that a modified radical mastoid operation would be performed on the ear in order to preserve what hearing remained, and, at the same time, make the ear tolerant of a prosthesis.

The condition of the middle ear was as follows: the membrana tympani had largely disappeared and the remnants of the ossicles were bound in a cicatrix in the posterior region of the tympanic cavity. Since the hearing was very satisfactory with a prosthesis in position, it was decided not to risk any impairment of the hearing by interfering with the contents of the tympanic cavity. The antrum was opened widely into the tympanic space and canal, and this was sufficient to assure cleanliness enough to allow the continuous use of the prosthesis.

The operation followed the technique of the ordinary radical mastoid operation, as far as the management of the membranous and osseous meatus was concerned. Nothing in the tympanic cavity was removed and great care was exercised not to disturb the remnants of the malleus and stapes, which was all that remained of the ossicular chain.

The wound healed by first intention and in a few days the ear and canal were dry and desquamating. Two years after the operation the Politzer acoumeter was heard at 15 inches without the prosthesis, and at 96 inches with the prosthesis in position.

In a second case, similar to the previous one, it was thought best to remove the remnant of the major ossicles, and therefore a conservative radical mastoid operation was performed. In this case, the operation included the removal of the remnants of the malleus and incus and part of the head and crura of the stapes. The results were quickly obtained and were as satisfactory as in the first case.

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MENTAL AND NERVOUS MANIFESTATIONS OF PELLAGRA.

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The prominent part played by the nervous system in the symptomatology of pellagra is well known; the acute neurasthenic symptoms which characterize the outbreak as well as the various psychoses met with at other stages are familiar to all. Pellagra, however, follows no set copy and the symptoms which occur in the course of the disease are so varied, so inconstant, that unless one be on the lookout for them they may quite readily escape detection. To one unfamiliar with the disease the symptoms are but shifting sands; but he who has learned to recognize the many-colored picture of pellagra sees a warning in the most wanton of symptoms. And while it is true that in the earlier stages the patient is comparatively free from symptoms between attacks, these become more numerous and more constant as the disease progresses so that the clinical picture may resemble that of a severe neurasthenia. With the psychoses I shall not deal, my paper being based on a study of pellagrins who have applied for treatment on account of digestive disturbances, dermatitis, or "nervousness." While the protean character of pellagra is almost a by-word, the variegated patterns exhibited would surprise the most imaginative. For, while the symptoms—and pellagra is literally *blessed* with symptoms—are conveniently grouped under the headings "skin," "nervous," "digestive," etc., the disease is not cast in any one mould; it seldom "breeds true," as the biologists say, and it is essential to learn to recognize the various disguises which it at times assumes.

One dare not, of course, make a diagnosis on a stray symptom but when a series of apparently unrelated complaints are deliberated upon, there is discovered a symptom-complex which spells pellagra. In considering the nervous symptoms of this disease I have thought it best, where possible, to let the pellagrin speak for himself, presenting his case in the graphic and often inimitable speech of the mountains. Evidence thus submitted has a distinctive flavor, a touch of reality not otherwise obtainable.

Sensory symptoms are extremely common and make up the bulk of the pellagrin's complaint. *Pain* of some sort is usually the major grievance. Most patients have had at some time a pain, or an ache,

or a "misery," or a "hurting," for which they sought relief. The most usual location of the pain is in the back. This may be dull in character, or of transient duration, it may vary greatly in intensity from day to day: it is quite often so severe and so constant that it makes life miserable. In a fair number of cases the pains are referred to the hips, or to the hips and thighs. The complaint is made that the "joints tingle." Pain in the legs and in the feet I consider a valuable diagnostic hint. The pain in the feet is sometimes described as numbness, very often, however, the pain is of a burning character, worse at night, and so severe that it interferes with sleep. One woman said that it was the most annoying of all her symptoms, if she "could just get shet of that" she wouldn't care what happened. It was associated with paresthesia on the top of the head, a spot on the scalp that "might be hot, might be cold." One old man said his heels felt "as if in hot ashes." Sleep was well-nigh impossible. The pains and paresthesiæ in the legs include formication, a sense of constriction, and a "drawing of the leg," cramp-like in character. The latter is by far the most severe and, like the burning pain, is worse at night, preventing sleep and increasing exhaustion. These cramps, or "drawings," or "jerkings," when present, always loom large among the pellagrin's complaints.

A word must be said about pains in other parts of the body though I have not found them as frequent a source of complaint as those located in the back, feet, and legs. Cramps, however, may take place in the muscles of the arms, in the abdomen as well; while flitting pains in various parts of the body are extremely common. Quite often they are located by the patient between the shoulders or under the shoulder-blades and are described as burning, tingling, and "hot and cold spots." Various other paresthesiæ, seemingly erratic in their locations, are met with. One very nervous woman's word picture of her sensations was "a jarring of the joints"; and her elbows felt "as if they were in a pan of water." General soreness I have noted in only a few instances.

Headache, not usually considered as a prominent symptom, I have found pretty frequently, more especially in the early pellagrous career. It does not seem to be a very annoying symptom and may not be elicited unless the direct question is put. Other sensations referred to the head and usually described as noises, are quite common; such are: "a throbbing in the ears" and "a roaring and a ringing." "My head sings," said one, in the expressive idiom of the mountains. A sense of lightness in the head varying from that which makes the patient "feel foolish" to a more marked and persistent vertigo, is a common associate of the noises referred to; in one case fainting-spells occurred in which the patient became "dead as a hammer."

The list of sensory symptoms might be almost indefinitely extended; I have attempted only a selection of the most common ones. When considering the occasional symptom one wonders whether it be due to pellagra or to some other cause, thus, aching eyeballs I have noted in but one case, deafness in two, both of which were old men.

Before leaving the subject of the sensory symptoms it should be noted that frequently *stiffness* rather than pain is complained of—stiffness of the muscles of the back and of the lower extremities, so that stooping over is performed with difficulty, rising and sitting down are laborious, and the gait is awkward, rigid. With this stiffness there is actual weakness of the muscles of the back and of the lower extremities; as the pellagrin says: "My strength is good in the arms and shoulders but my legs give in." General lassitude and physical weakness, as well as contractures of the leg muscles all contribute to make the gait slow and inelastic. Contractures of the toes, and of the little and ring-fingers are sometimes seen.

A tremor, made worse by exertion, is not infrequent. "As soon as I do anything I get all in a quiver" was the comment of one pellagrin, while another in equally good Appalachian said that he could not do "ary a lick of work without getting all a-tremble in a few minutes."

It need hardly be said that insomnia is one of the most distressing symptoms of pellagra. All degrees of sleeplessness are met with. "I sleep after midnight" one hears from those who suffer with it in its attenuated form. "I toss all night" is the complaint in the severe cases. Sleeplessness, in some, seems to be a part of the general neurasthenic condition, while others are unable to sleep on account of the burning pains in the feet, the cramps in the legs and other parts of the body. A sense of vertigo on closing the eyes is experienced by some. "I have to open my eyes at night because things tremble—like I'd had too much to drink," confided one. This sensation lasts several hours.

Adding to the exhausted condition of the patient as it does, the importance of the symptom, insomnia, cannot be overestimated. I might say with regard to the reflexes that I have not derived much information from the knee-jerks. Usually increased during an attack, I have found them quite variable—increased, normal, decreased—in the interim, so that as a diagnostic sign they are not reliable.

Having considered the "nervous" signs of pellagra and turning now to the "mental" aspect of the disease (although the demarcation is one of convenience only), we note such a host of symptoms that in this brief paper it is possible to allude to a few only, of the more common. It is not necessary here to consider the mental symptoms of the attack as they are so well known; the lassitude, depression and anxiety are short-lived, and with the recession of the attack what might be called the "acute neurasthenia" gives way to the usual psychic condition. And, in many cases there may be no mental symptoms discernible between attacks. After several attacks, and with the advance of the disease, we shall commonly find symptoms if we seek them. While the convenient, the abused, and the all-inclusive term "neurasthenia" might be made to cover the symptoms about to be enumerated, their scope and variety would seem to warrant further particularization.

Thinking, feeling and doing are all affected and it may be convenient to consider the symptoms as related to the receptive, emotional, and purposive aspects of the mind.

With the progress of the disease the pellagrin takes less and less interest in his surroundings: he is unresponsive to the usual stimuli, he may not answer when spoken to. This unconcern is often shown in the facial expression which is so set as to amount almost to an entire absence of expression. One woman of rather better than average mental endowment noted that during the last few months she seldom *thought*—she was content sim-

ply to "set and stare." Inattention is due in part at least to the mental preoccupation of the pellagrin; the strange sensations which he wonders at and seeks to interpret direct his attention inward and he becomes morbid, self-centered and indifferent to his environment. Some give unfeeling, monosyllabic replies to all questions, others, conscious of being "not right in the head" give with great detail their various impressions. Owing to introspection it takes some time for sensations to break in upon the pellagrous mind so that thought processes are delayed and memory much impaired. Things, events don't seem real,—but "as if there were a veil over the mind."

Turning to the emotional aspect of the mind we note a great instability as the disease progresses. The pellagrin is irritable, lacks patience, self-control. One woman remarked that she cried without the slightest reason. Another said: "The least thing gets me in an uproar." Still another, in the patois of these purlieus: "Hit seems like I'd go plumb crazy if I was confined to set still for ten minutes." The unaccustomed sensations, at first a source of surprise and wonder, soon lead to anxiety, to apprehensiveness; the pellagrin worries over trifles and the consciousness of this unwisdom increases his mental embarrassment. The emotional state is apt to be mercurial in its instability; up one day, down the next. At times a curious mixture of anxiety and indifference may be noted: the patient analyzes his mental processes in a neutral, dispassionate manner, as if belonging to another person. Fear and hope are often strangely blended; the pellagrin attempts to offset his "queerness" by keeping "in good heart", and the fortitude exhibited by these sufferers in spite of their mental and physical ills, is most remarkable. Fear, however, conquers sooner or later, or gives way to despair, which is reflected in the apathetic manner and the sad, set face so often noted.

We have next to consider the mental state in its bearings on the will, the conduct of the pellagrin. It need hardly be said that activity—mental and physical—becomes hampered; the pellagrin has to "stand and study a bit" before doing some usual, every-day act. As he takes in little, he gives out little. His endurance becomes affected and a ready fatigability still further cripples his activities. One patient noted early in the course of the disease that he could not write a letter without making a dozen mistakes. Muscular weakness adds to the physical inactivity: ordinary movements are performed slowly and with difficulty.

The changes in the mind keep pace with those in the muscles. There is real mental torpor: the will-to-do is soft-pedalled and ambition languishes. The general air of apathy, of lack of spontaneity, the aged face, with wrinkled brow and expressionless features, the lifeless monotone of the voice, are all evidence that psychic processes have reached a low ebb.

Such, then, are a few of the nervous symptoms of pellagra which pass before us in motley procession. I have preferred to review them thus briefly rather than to attempt to define a particular type, or types of cases. I do not wish to intimate that the symptoms described are all present at any one time or in any given case, for to do so were misleading; it is the multiplicity of symptoms, and their banditti-like appearance and disappearance which contribute to the make-up of that kaleidoscopic pattern of disease that we call pellagra. While the individual sympton may be with difficulty ascribed its proper cause, the complex of insomnia, vertigo, stiff back and burning feet is almost too characteristic to leave one in doubt; and (especially if associated with other symptoms such as loss of weight, pyrosis, or diarrhea), should enable one to arrive at a proper solution, or to go as far as one may dare, go without the absolute evidence of the symmetrical dermatitis.

THE PHYSIOLOGY OF ABDERHALDEN'S TEST AND ITS VALUE IN THE DETERMINATION OF PREGNANCY, WITH A TABLE OF NINETY CASES.*

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Professor Schmorl of Dresden, in 1893, reported the existence of chorionic epithelium in the circulating blood of the pulmonary arteries in eclamptics. J. Veit of Halle, in 1900[1] found chorionic villi and connective tissue also in the uterine veins. The latter is authority for the statement that R. Nitabuch, working with Langhans, saw them many years before, and that Breschet reported the same findings in 1826. Heilner[2] was the first to demonstrate the action of blood ferments on injected albumin. But it remained for Abderhalden (with Pincussohn and Weichardt)[3] to put this on a working basis. Prof. Abderhalden then began his work on the serobiological determination of pregnancy,[4] taking into account the proven physiological fact that ferments are formed by the blood in which they circulate when foreign substances are introduced. He cites the well-known physiological dogma that the intestinal canal, with its associated glands, produces ferments whose function it is to break up food elements in such a manner that none of the original food structure remains. To use his classical phrase, "Baustein wird von Baustein gelöst," meaning, every element in the food foundation is separated from its neighbor, until there remains but a collection of indifferent products, to be utilized later by the system. These serve the body cells in their manifold functions, and from these "indifferent products" the protoplasm and its nuclei build each after their own plan. The foregoing mentioned "breaking up" takes place in a step-like manner. The broken up products are at once resorbed and carried to the body cells. Besides this "breaking up" (which might be substituted by the terse German expression, Abbau), there also take place oxygenation and reduction, according to the needs of the cells. Likewise the intestinal canal is assisted by the liver, whose duty it is to hinder the entrance of foreign "stuffs" into the blood. Still other protective agents are the kidneys and probably the leucocytes.

So we are thus reminded of the well-known principles of physiology, namely, the action of external or gland ferments, secretions, excretions, and phagocytoses.

In the foregoing we had to do with the entrance of foreign material per os. But we are now occupied in a biological way with a variety of internal ferments, protective ferments, whose function it is to change and take over foreign matters that enter, not per os, but by the blood current, such as parenteral albumin, derived from the placenta.

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In order to recognize these parenteral and blood foreign bodies, we must make use of new methods, and here we are so concerned.

Abderhalden[3] set to work firstly to study the problem as to whether the blood plasma has the power to break up blood foreign material, and if the ferments so concerned could be isolated. The former problem he succeeded in proving; he also demonstrated the ability of the blood to break up fats. But most important were his studies as to the ability of the organism to break up parenteral substances of the albumin group—peptone, polypetide, protein, and amino acid. He also proved that these blood ferments not only broke up, but also naturalized alien bodies and turned them to account. These experiments raised numerous other questions, which I shall not enter into here. But sufficient it is to say that we have fully proven the existence of blood ferments, ferments whose function it is to break up albumin into assimilable elements, though these experiments have not advanced as far as to positively state their nature.

Abderhalden[4] set to account this foregoing dogma in the utilization of the now well-known serobiological test for pregnancy. This test is most discernable within the first six months of pregnancy. Even in the first few days of conception the reaction can be determined. This is especially of value in extrauterine pregnancy. After birth the reaction begins to disappear, being evident from eight to fourteen days in the puerperium. Investigations up to date have shown that these ferments are specific only against placental peptones.

It is interesting to note that in toxemias of pregnancy this Abbau of placental peptones does not occur in the usual way. One wins thus the impression that the blood of eclamptics is not able to form protective ferments. This is the basis of Veit's theory of eclampsia. Also in pregnant women dying from any cause whatsoever the "Abbau" is absent or lessened.

Further, allow serum from a normal pregnant woman plus serum from an eclamptic to act on a normal placenta. The dialysate injected into mice intraperitoneally produces no untoward effect. On the other hand, allow these sera to act on an eclamptic placenta, and the dialysate injected into mice causes profound toxic symptoms. Still further, heat the serum for ten minutes at 60° C.; then allow it to act on eclamptic placenta; again inject the dialysate and the mice remain well. By the warming process the proteolytic ferments are destroyed.

I shall not attempt in this paper to dwell on the pathological side of this question—namely, the ability of this test to detect morbid conditions. This is a subject in itself about which I will have more to say at some subsequent date. I have also omitted a description of the technique of Aberhalden's test, for at this late date I believe we are all more or less acquainted with its workings.

I will add only that the methods are two in number: (*a*) the dialyzing method and (*b*) the optic or polarization method. The former is the simpler and requires inexpensive apparatus. The latter is much more arduous and is expensive to operate, necessitating an especially constructed polariscope costing in Germany about $400.

The dialyzing method is not difficult, but it requires painstaking and exact labor.[7] The articles on the subject so far appearing in America would have it as "a very easily performed test requiring a few dialyzing membranes, test tubes, and pipettes." One can at once see the fallacy of these statements by taking into account the numerous late writings by Abderhalden himself, in which he devotes his whole energy to detailing the numerous errors that may be made in performing the test, pleading all the time for the observance of exactness and care. The test carelessly and not delicately performed gives absolutely no results.

The following is a list of ninety cases treated by the method of dialysis: The cases were taken at random and the blood was labeled in such a manner that I was not aware of their proprietorship until the completion of the tests. The amount of serum employed in all cases was 1 c.c., instead of the usual 1.5 c.c. This was done to avoid any reaction that might have ensued from protein-laden sera—that is, sera holding enough albumin to react with 0.02 grams of ninhydrin, as may occur from blood taken after a meal rich in proteins. The amount of placental mass employed was one-half gram, instead of one gram, with a similar purpose of minimizing the end (color) readings, in that way to detect the very smallest amount of Abbau. This may seem a paradox, but all observers have satisfied themselves that a positive reaction ensues in nearly 100 per cent. of certain pregnancies. It is only with the non-pregnant and pathological cases that the end results of the various workers are not in accord.

The latest reports on the use of Abderhalden's reaction in health and disease are by his co-workers at Halle, Lampe and Papazolu (of Budapest)[8]. These authors assert that not only species-foreign and body-foreign matter make mobile ferments in the blood, but also blood-foreign, lymph-foreign, and cell-foreign substances, and they can (by the action of these ferments) be converted into body property. The production of these ferments has for its purpose the naturalization of stuff foreign to the blood, lymph, and cells.

By these means we are thus able to function-prove all organs—that is, to diagnose biologically disfunction. If the tasks of these authors prove worthy then we can hope to obtain a deeper insight into the pathogenesis of disease. Their first experiments demonstrate that sera from organ-normal persons have absolutely no Abbau properties. The experiments of Lampe and Papazolu consisted of allowing sera from healthy persons to act on various organs, thymus, liver, pancreas, muscle, adrenals, ovary, testicle, and placenta. The dialysate is tested in the usual way with ninhydrin. These were mostly negatives (98 per cent.), which clearly shows that there are no active circulatory ferments in the blood of healthy individuals, for the very evident reason that "protectors" are unnecessary. To cast a further ray of light into the possibilities of this line of labor, one need only consult the extensive work of Fauser[9] who proved that sera from persons suffering from Basedow's disease had the power to break up thyroid gland tissue.

FROM ROYAL UNIVERSITY WOMEN'S HOSPITAL AT HALLE (MAY, 1913), THROUGH PHYSIOLOGICAL LABORATORY—PROF. VEIT

Case No.	Disease or Diagnosis	Reaction	Remarks or Verifications
6–9	House preg. at 4 months	+ +	
7–10	House preg. at 6 months	+ +	
12–13	House preg. at 7 months	−	
14*	House preg. at 10 weeks	−	Wassermann positive
8–11–15	12-16-19 weeks in preg.	+	
	Gynecological Dept.		
15–18	Ovarian tumor	−	Operation in both cases
16–19	Prolapsus	−	Operation in both cases
17–20–22	Myoma uteri	− −	Operation in cases 17-20; 22 treated by X-Ray
21–23	Sactosalpinx	− −	Case 21 tubercular
24‡	Carcinoma uteri	+	Wertheim operation

FROM THE ROYAL UNIVERSITY, WOMEN'S HOSPITAL AT KIEL, GERMANY

Both Divisions

Case No.	Disease or Diagnosis	Reaction	Remarks or Verifications
93–99	Bilateral	−	Both chronic
129–116	Adnexitis		Gonorrheal
74–84–97		−	
111–115	Ovarian cysts	− −	Cases 74–84–111 Operated
121–124		− −	
60–69			
70–71	Myoma uteri	− −	All cases except 109–122 verified by operation
103–109			
122–128			
64–67‡	Carcinoma uteri	+ +	Operation
68–78	Vaginal fistula	−	
63–66	Extra uterine	+	Operation in both cases
105–108	Carcinoma vulva	− −	Pathologic report
125–127	Carcinoma uteri	− −	Operation in both cases
90–91	Post partum	+	4 and 10 days P. P.
98**	Post partum	−	36 days P.P.
104–113	Unilateral sactosalpinx	− −	Operated
82	Tubal T. B. C.	−	Operation (drainage)
123–126	Tumor of tube	−	Operation, pathologic report, carcinoma
83–106	Climacteric bleeding	− −	Case 83 operated
119–120–121	Prolapsus uteri	− −	All in menopause
92–100	Tubercular peritonitis	−	Fluid withdrawn, caused T. B. C. in guinea pig
61–62–87			
107–85	Extra uterine	+ +	All operated except case 61
110–114	Pregnancy plus ovarian tumor	+	Abortion in case 114, 110 Caesarian
117–118	Salpingitis-appendicitis	−	Operated
101	Abdominal tumor	+	Later verified as positive pregnancy
76*	Pregnancy, 6 months	−	Wassermann positive
65–72–73–75			
77–79	Pregnancies from 5 months to full term	+ +	All verified by positive signs or advent of labor
80	Amenorrhea of 4 months duration	−	Later diagnosed as hæmatometria
81††	Extra uterine preg	−	Operated
86–88	Post partums 6 and 21 days	+	
89–94–95–96	Pregnancies from 2 months to full term	+ +	Case 94 a 2 months' pregnancy with incarcerated uterus abortion
102	Gonorrheal vulvitis	−	

Explanatory Signs:

+ means faintly positive.

− + means strongly positive.

− − means strongly negative, that is, no color in placenta serum dialysate or in control.

− means weakly negative, both dialysates colored, but placenta serum dialysate strongly colored.

*The negative reaction can be accounted for by the existence of lues.

‡Failure in these cases of cancer is reported by other observers also.

**The reaction begins to disappear at about the 14th day.

††I cannot account for the result in this case.

The following tests were made by the author while an assistant in the Kiel Klinik and during his activity in Prof. Abderhalden's laboratory at Halle:

It will at once be evident that the foregoing results are not perfect, nor in accord with Abderhalden's claims, but those who have followed the literature in Germany, where 95 per cent. of this work is being done, will realize that but few investigators have reported exact results. Yet I feel that my labor has not been in vain, and I am imbued with renewed hope as to the ultimate outcome of this test. Some former experiments which I have carried out at Kiel were still more unsatisfactory, but I have since acquired a host of "laboratory tricks," if I may use the expression, and every acquired knack and one's ever-increasing manipulative acumen, brings increasingly better results. The report of my predecessor in this work at the Kiel Klinik[10] was also far from perfect; but, unlike him, I am not ready to condemn the method, for I realize with Abderhalden, that one cannot be too exact in this work, that laboratory errors are always liable to occur, and that some of these I have myself committed.

To sum up, I have appended some recent precautions and will reiterate my former admonitions: (1) One must be absolutely certain that the one-half gram of placenta utilized contains in it sufficient chorionic tissue; I found in my beaker pieces that were made up almost entirely of connective tissue. Needless to add, connective tissue does not deliver peptones. To guard against this error one should utilize the spongy (chorionic) overlying layer only, and discard the rest of the placenta. (2) Where lues exists the test, to my belief, is useless. (3) Placenta, serum, test-tubes, beakers, etc., must be handled with aseptic fingers, or, better, with sterile rubber gloves, for the introduction of bacteria clouds the issue. (4) Sera should be centrifuged at least three times. (5) The placenta is best freed from its blood by means of the umbilical vessels, through which the blood is drawn, by means of a fine cannula ending in a continuous stream of cold water. (6) Placenta must be cooked at least ten times, and the drawn-off water tested with 0.2 of ninhydrin until no color appears. (7) Even certified dialyzing membranes should be tested. (8) I prefer horse serum to Seiden-peptone in determining the uniform osmotic properties of the membranes. (9) Distilled water should be used throughout. (10) The dialyzing process should consume at least sixteen hours.

In closing let me add that I look forward to a brilliant future for Abderhalden's test, not only in the determination of pregnancy, but also in numerous other fields, some of which have been already mentioned.

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Case of Acute Cerebellar Ataxia in an Adult.—E. Farquhar Buzzard, reports the case of a woman, aged 38, who gives the following history: When in good health in September, 1910, on a certain day she was seized with shivering and general malaise. This continued until the following Tuesday morning, when she woke up to find herself hardly able to speak, and quite unable to use her arms or legs properly. From that time until the present there has been gradual but slow improvement, so that she is more able to talk clearly and able to use her hands for most purposes. At the same time she is still unable to stand or walk without some support. Present condition: The function of the cranial nerves is normally carried out with the exception that she displays a marked amount of ataxic dysarthria. The strength and sensibility of her arms are perfectly good, and she only displays a slight amount of cerebellar incoordination when tested severely. The lower extremities are powerful enough, but widely ataxic when she attempts to walk. There appears to be very little impairment of sense of position. There are no nystagmus, no ophthalmoscopic abnormalities, and no organic changes in the reflexes. The patient complains of no giddiness or tinnitus.—*Proceedings of the Royal Society of Medicine.*

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THE ERYTHROCYTES IN ADVANCED CASES OF PULMONARY TUBERCULOSIS.

IN 1913 I. Holmgren reported before the Eleventh International Conference on Tuberculosis a symptom-complex which has since been designated by his name, and which is recognized as an unerring indication of amyloid degeneration in pulmonary tuberculosis. This symptom-complex consists of the presence of an hour-glass deformity of the nails, an enlargement of the liver, and a sclerosis of the veins. Holmgren found in 85 per cent. of his cases of pronounced amyloid disease the presence of the hour-glass configuration of the nails, and in cases with well marked hour-glass nails 88 per cent. showed other evidences of amyloid degeneration. A close connection between the changes in the nails and amyloid degeneration was postulated. Holmgren's discovery added a new sign of eminent clinical value in the diagnosis of amyloid disease.

A. Gullbring of Stockholm has studied the relationship of the red blood cells to the viscosity of the blood in advanced cases of pulmonary tuberculosis, and more recently he has studied this relationship in cases in which Holmgren's symptom-complex is present. He reports his results in the *Zeitschrift für Tuberkulose*, May, 1914. In the first place he extols Holmgren's discovery as an important means of making an early diagnosis of amyloid degeneration in cases of pulmonary tuberculosis. In his clinical studies he included among such cases of amyloid disease all those patients who in addition to a hard palpable liver presented the typical hour-glass nails. The majority of these cases had in addition albuminuria and other characteristic clinical symptoms of amyloid kidney. In studying the relationship of the red blood cells to the above symptom-complex Gullbring investigated 131 cases all of which were in the third stage of the disease, with little or no fever, no hemorrhages, no diarrhea, no apparent dyspnea, and who were up and about for the greater part of the day. The duration of the disease had been at least one year. The literature pertaining to this subject records that in certain cases of pulmonary tuberculosis of this nature the erythrocytes show a normal or increased number. In other cases, as pointed out by von Noorden, Grawitz, and Strauer, the number is reduced when amyloid disease is present. Gullbring's studies show that in advanced cases of pulmonary tuberculosis with a relatively good general condition there are obtained relatively high as well as low erythrocyte counts. As a rule the highest counts are obtained in cases in which Holmgren's symptom-complex is present. He emphasizes the fact that the presence of amyloid disease is not, as has hitherto been thought, accompanied by a diminution in the number of red blood cells, but that on the contrary these cells are increased in number in this class of cases. The discrepancies in previous studies along this line are attributed to the fact that no precise clinical sign of amyloid disease was available until the delineation of the Holmgren symptom-complex.

THE TRUE STATUS OF RADIUM IN THE TREATMENT OF CANCER.

THE value and limitations of radium in the treatment of the various types of cancer are well brought out in a recent article by H. H. Janeway (*Journal of the Am. Med. Ass'n.*, May 30, 1914), who reviews the results reported by Wickham, Dominici, Pinch, Riehl, Wertheim, and others, who have applied this treatment in about 1,700 cases. Wickham's work has been done in the Laboratoire Biologique du Radium, which was organized in 1906. Since that time 1,000 patients suffering from various types of cancer have been treated, and Wickham has summarized his opinions as to the action of radium on cancer as follows: "(1) Radium causes an undeniably destructive modification of the malignant cells. (2) Malignant tissues display a special and very selective susceptibility to the influence of radium. (3) This destructive action extends to a depth varying up to 9 cm., according to the dosage used and the sensitiveness of the neoplasm. (4) This action, even to the depth mentioned, occurs with the maintenance of relative integrity of the normal tissues traversed. (5) The action, nevertheless, is not complete enough to warrant the use of radium as a primary therapeutic agent in any form of operable cancer, with the single exception of cancer of the skin." Among other facts of special importance to be gleaned from Wickham's work are that "in a majority of epitheliomata of the skin, even in the gravest cases, radium is undoubtedly superior to any other therapeutic agent, both on account of its direct curative action and because of the simplicity of its application." Regarding other types of cancer he remarks, "Operable cancer should be operated on immediately —without delay. This is an absolutely fixed rule." In nearly all of the inoperable forms it is permissible to use radium because of the relief afforded from many of the objective and subjective symptoms. Sarcoma yields more quickly than any of the various types of cancer, while lymphadenoma and mycosis fungoides are still more susceptible. Important palliative results have been obtained in the treatment of cancer of all types and in all parts of the body. Rarely apparent cures have been obtained in some of the inoperable cases; but "in no instance, however, has there been a complete eradication of the ultimate ramifications of the disease."

As Janeway suggests, the only conclusion to be drawn from these results is that while the influence of radium on all types of cancer is a favorable one, it does not extend to the limits of the disease in any but the most superficial varieties.

At the Radium Institute of London, 467 cases of cancer were treated during 1912; and while it is too early to determine the ultimate results, there are a great many apparent cures, mostly of the epitheliomatous involvements of the skin, and the results in this institution apparently confirm Wickham's conclusions. The Vienna Radium Institute began research work in 1912, and from here reports have been made by Riehl as to the action of radium on 114 patients having cancer of the skin; by Wertheim in nine cases of inoperable cancer of the uterus; and by Ranzi, Schüller, and Sparmann, who report upon the radium treatment of six cases after operation, for the purpose of preventing recurrence, and of 47 cases of inoperable tumors of various types and in various parts of the body. The results where there was involvement of the deeper structures do not seem very encouraging as to the prospect of ultimately obtaining cures by this method of treatment, even with massive dosage, although there was often marked decrease in the subjective symptoms and sometimes considerable diminution in the size of the growth. Janeway also summarizes Caan's report upon cases treated by radium, mesothorium, and thorium-X at the Samaritan Hospital at Heidelberg. Improvement was obtained in 40 to 50 per cent. of the cases under each of these forms of treatment. This improvement consisted in the amelioration of symptoms and the retrogression of the growth but no cures are claimed, and Caan agrees with Wertheim and Wickham that in no instance where radical removal is possible should these methods of treatment supersede the knife. Another conclusion that has been forced upon many observers is that an insufficient dosage may *stimulate* tumor growth. Since the intensity of the rays diminishes inversely as the square of the distance, it is evident that the deeper portions of a growth may be stimulated into abnormally rapid proliferation even in the presence of marked retrogression of the more superficial portions.

These, then, are the facts as brought out by most painstaking investigation in several large series of cases. Incalculable harm has been done by the widespread dissemination through the lay press of gross exaggerations as to the value of radium in the treatment of cancer, and it will be devolve upon the medical profession to correct, as far as possible, the false impressions that have been given, and to emphasize strongly the fact that, for the present at least, no operable cancers, with the exception of those affecting merely the skin, should be treated by radium in preference to the knife.

FUNCTIONAL TESTS OF THE HEART.

It has long been the ideal of diagnosticians to be able to recognize in practice not only the functional capacity of an organ at a given moment, but the future outlook as well. The former task is comparatively simple, as the patient may be readily submitted to an extemporaneous strain, while the heart's action may be followed up from day to day. The ultimate outlook is not only difficult to determine *per se*, but is conditioned by affections of other organs—the kidneys, great vessels, and so on. In general, quick response to the action of cardiac stimulants is good prognostic evidence; but, as all good clinicians aver, the heart has a certain life of its own, which cannot possibly be measured or foreseen. The greatest clinicians, even when placed on their mettle by the importance of the lives concerned, have been forced to admit that hearts may be made of shoddy stuff; while good enough to pass muster under tests of all sorts, such organs suddenly cease to act even in the midst of the most vigorous pushing of analeptic remedies.

At a recent session of the Berlin Society for Internal Medicine and Pediatrics (*Münchener medizinische Wochenschrift, May* 26) Katzenstein referred to his method of increasing arterial resistance in animals—for it is in the latter that the first steps of the problem should be worked out. If a healthy dog has its abdominal aorta ligated, the blood pressure is increased until a collateral circulation is established. The vasomotor nerve system is not a whit concerned therein for the phenomena are the same after division of the spinal cord. Ligation of the abdominal aorta causes hypertrophy of the left ventricle. If this ligation is not followed by increased blood pressure, there sets in increased rapidity of the pulse, and the animal dies with dilated heart.

In man the test is simple. The two femoral arteries are compressed after their pulse beat and blood-pressure have been measured. Other measurements are then taken after the period of compression. If the heart is sufficient, no marked changes occur, and the same is true of slight insufficiency. But if the insufficiency is marked the pulse is increased and the blood pressure diminished.

THE OBJECTIVE SIGNS OF NEURASTHENIA.

Most of the symptoms of neurasthenia are purely subjective. The objective evidences are strikingly meager in comparison with the symptoms of which the patient complains. One of the common objective signs of this condition is the increased knee-reflex and the tremor of the fingers when the arms are extended with the fingers outstretched. O. Schellong (*Zeitschrift für klinische Medizin*, Vol. 80, Nos. 1 and 2) has made a study of the relative value in the diagnosis of neurasthenia of the following symptoms: the increased knee-reflex, the tâche cérébrale, the palpebral tremor, the tremor of the tongue, the tremor of the fingers, and the increased frequency of the pulse. He finds that none of these is pathognomonic of neurasthenia, for it may occur in a large percentage of healthy individuals. On the other hand, the association together of several of these signs, perhaps of four of them, enables one to conclude that there is present an increased irritability of the nervous system such as

is found in cases of neurasthenia. Even then an absolute diagnosis of this condition is not justified. A marked tremor of the tongue is present in 50 per cent. of the cases of neurasthenia, and a pronounced tremor of the fingers is also present in 50 per cent. of the cases. A prompt appearance of the tâche cérébrale is present only in 29 per cent., while an accelerated pulse of one hundred and more is present only in 24 per cent. of the cases examined. The least important symptoms from the viewpoint of the diagnosis of increased nervous irritability are the palpebral tremor and the increased knee-reflex.

Occupation Stigmata of the Teeth.

A few of these have been known of old, notably in connection with various metals. With the modern advances in dentistry and in occupation diseases much has come to light. Kraus, at a recent session of the K. K. Gesellschaft d. Aerzte, Vienna (*Berliner klinische Wochenschrift*, June 15), enumerates some of the leading occupation stigmata as follows: Confectioners are peculiarly subject to caries. The sugar dust forms oxalic acid in the mouth, and this attacks the exposed tooth to a uniform extent, as well as the root. In workers in chlorhydric acid the enamel is attacked and the dentine turns brown. Changes in the teeth are notable after the first three weeks of exposure; the teeth feel sore, and from then onward the entire crowns disappear. Unsatisfactory attempts at prevention have been made, such as a sponge held in the mouth. This absorbs the fumes of HCl, but becomes a source of irritation to the lips. Mechanical defects in the teeth are common, whenever the latter are used for tightly holding hard substances (nails), or for biting threads. The incisors naturally suffer, and it should readily be possible to state whether a tailor were right or left handed. The so-called lines above the roots of the teeth, believed formerly to have great significance, can be prevented by proper mouth hygiene, so that if all workers in copper, brass, lead, etc., were cleanly in this respect no stigmata would be in evidence.

Treatment of Malignant Tumors With Autolysates.

If carcinoma and sarcoma exert their malignant activity through the action of destructive enzymes, which doctrine has been both affirmed and denied, it is not difficult to imagine that these same enzymes may possibly cause the (sterile) autolysis of intact cancer, both during life and after death. The notion that an autolysate could possess healing power in malignancy must necessarily be a corollary of the law that enzyme activity is inhibited by accumulation of its own products. At the recent meeting of the German Surgical Society (*Muenchener medizinsche Wochenschrift, May* 19) Pflaumer sought to obtain autolysates by leaving pieces of cancer and sarcoma in the refrigerator for 3 days. Lunkenbein's technique was observed. Not an autolysate but a simple extract was obtained. The latter, however, was injected into patients with malignant disease. Irrespective of many factors—old or recent, native or foreign—these extracts caused in doses of a few centigrams a pronounced febrile action initiated with chills. If these injections were given persistently the cachectic state appeared to be postponed accordingly. Thus far no cure has resulted. In the discussion Keyser regarded this plan as an active immunisation of the body against malignancy; but to secure this result a large amount of autolysate must be injected at once. Stammler had been using autolysates intravenously for a long time, and while the combined results were indifferent, believed he had cured a case of cancer uteri.

News of the Week.

Floating Hospital In Service.—The daily trips of the floating hospital maintained by St. John's Guild, New York, were recommenced on July 6. The vessel has accommodations for 1,200 patients.

The "Sane" Fourth.—An early estimate of the fatalities resulting from the celebration of Independence Day places the number throughout the country at 15, with a total of approximately 306 persons injured, and a fire loss of $125,000. In New York City alone 76 persons were reported injured, with no deaths, and in the State outside of New York the total injured was 37. These figures show a great improvement over last year, when the deaths throughout the country numbered 30 and the injured 1,131, and a still greater improvement over six years ago when 41 deaths resulted from the celebration, 2,361 persons were injured, and the fire loss was $724,575.

Civil Service Examinations.—The New York State Civil Service Commission announces an open competitive examination to be held on July 25, 1914, for the purpose of filling vacancies in the following positions:

Assistant physician, regular, in the State Hospitals and other State and county institutions, at a salary of $1,200, increasing $100 yearly to $1,600, with maintenance. The examination is open to men and women who are licensed medical practitioners in this State and graduates of a registered medical school. Unmarried men are preferred.

Assistant physician, female, in the State Institutions for Women at Bedford Hills, Albion, and Hudson, at a salary from $1,000 to $1,200 a year, increasing $100 yearly, and maintenance. The examination is open to women who are licensed medical practitioners in this State, have graduated from a registered medical school, and since graduation have had one year's hospital experience or three years' general practice.

Assistant medical officer, Health Officer's Department, Port of New York, at a salary of $1,500. This position is in the detention and hospital service at the quarantine station, Staten Island, and requires a knowledge of cholera, plague, yellow fever, smallpox, and epidemic cerebrospinal meningitis. The examination is open only to licensed medical practitioners of the State.

County bacteriologist, Onondaga County, at a salary of $1,000 a year and expenses. Applications will be received from men and women who are graduates of recognized medical schools or colleges or of college courses in bacteriology, or who have had at least one year's training and experience in bacteriology.

Application blanks admitting to any of the above examinations will be supplied on request by the State Civil Service Commission, Albany, N. Y., before July 15.

Tokio Hospital.—A Japanese Council to arrange for the extension of St. Luke's Hospital, Tokio, was formed at a meeting held in Tokio on July 1, Count Okuma, the Japanese premier, presiding.

The hospital was established some years ago by Dr. R. B. Teusler, who was sent to Japan as a medical missionary of the Episcopal Church in this country. It is now planned to make it a thoroughly modern international hospital as a practical monument to international friendship and cooperation in medical science. Many Americans here are also interested in the project.

Traffic Accidents.—The report of the National Highways Protective Society shows that during the month of June 53 persons were killed by vehicular traffic on the streets of New York, of whom 26 were children. Automobiles and motor cycles caused the death of 29 persons, wagons of 13, and trolleys of 11.

Japanese Ambulance Surgeon.—For the first time, it is said, in New York, a Japanese has been assigned to ambulance duty. Dr. Jokichi Oguri, who was graduated from Fordham Medical College this spring, began his service at the Fordham Hospital on July 1, and has undertaken ambulance service.

Condemns Island Hospital.—The Secretary of the New York Prison Association, who was appointed by Commissioner of Charities Davis to investigate the hospital in the penitentiary on Blackwell's Island, has reported that the conditions there could not be worse and that the whole system should be reorganized. The staff consists of one physician and one hospital helper, and the hospital contains only two poorly furnished wards. The investigator recommends that at least fifty beds be provided, that one male nurse and one interne be added to the staff, and that every patient be examined on admission. Not less than 25 per cent. of the cases treated, it is said, are drug users, and with the enforcement of the Boylan law this number will probably be largely increased.

Free Health Test.—The conservation program for free examinations, chemical tests, and health reports, offered to policyholders of the Equitable Life Assurance Society throughout the United States became effective on July 1. Under this plan a policyholder whose insurance has been in force for three years or longer can obtain a free examination as to his health from the society's salaried examiners. It is believed that this will lead to the better health of the policyholders and thus to the good of the society as a whole, since with 500,000 policyholders the addition of only six months to the average life time will mean an aggregate added life time of 250,000 years.

Ptomaine Poisoning.—It is extremely difficult for the Department of Health of New York to learn how prevalent bacterial food poisoning (ptomaine poisoning) is in the city, since the only opportunity it has for studying this condition arises when a considerable number of cases in one group attracts public attention. The Department will, therefore, welcome reports of suspected cases of food poisoning from private physicians and will gladly have special investigations made if requested.

War on Rats.—The discovery of three cases of bubonic plague in New Orleans, two of which have been fatal, has resulted in a general quarantine and a widespread campaign against rats. The Health Officer of the Port of New York has declared a quarantine against New Orleans and Santiago de Cuba, and every ship coming into the harbor from any of the Southern plague ports will be thoroughly fumigated so as to destroy the fleas and infected rats, and will be required to provide rat guards to cover its mooring lines. The Public Health service has sent two of its experts to New Orleans to control the situation and has recommended that a campaign for the extermination of rats be begun at once in every port from New York to Galveston and along the Mississippi from New Orleans to St. Louis.

Dr. Charles Irving Fisher, for twenty-two years superintendent of the Presbyterian Hospital, New York, retired from office on July 1. Dr. Fisher was at one time health officer of Boston, and for eight years before coming to New York was superintendent of the Massachusetts Infirmary. He will be succeeded at the Presbyterian Hospital by Dr. Charles H. Young, who has been his assistant for some time.

Dr. Nicholas Duguet, vice-president of the French Academy of Medicine and a member of the Legion of Honor, died at his home in Paris on July 4, aged 77 years.

Gifts to Charities.—By the will of the late Miss Kate Warner of New York the Home for Incurables receives a bequest of $50,000.

The Pennsylvania Hospital, Philadelphia, has received from Mr. George W. Nevil of that city a gift of $5,000 for the endowment of a free bed in memory of Joseph and Amelia Nevil.

Obituary Notes.—Dr. AUGUST H. SCHWACKE of Charleston, S. C., a graduate of the Medical College of the State of South Carolina, Charleston, in 1886, died at his home on June 18, after a long illness, aged 50 years.

Dr. CHARLES JENKS SIMONS of Chicago, Ill., a graduate of the Albany Medical College in 1867, a veteran of the Civil War, and a member of the Illinois State and Chicago Medical Societies, died at his home after a long illness, on June 18, aged 71 years.

Dr. FRANK MARTIN CUNNINGHAM of Macon, Ga., a graduate of the Medical College of Virginia, Richmond, in 1899, and a member of the Medical Association of Georgia and the Bibb County Medical Society, of which he was a former president, died in the hospital of the University of Pennsylvania, Philadelphia, on June 21.

Dr. WILLIAM B. MOSELEY of Brooklyn, chief of the observation ward of the Kings County Hospital, a graduate of the University of Virginia, Department of Medicine, Charlottesville, in 1890, and a member of the New York State and Kings County Medical Societies and the Brooklyn Society of Neurology, died suddenly at the hospital, as a result of the hot weather, on June 25.

Dr. THOMAS W. EMBLEY of New York, a graduate of the Hahnemann Medical College and Hospital, Philadelphia, in 1896, visiting physician to the Metropolitan Hospital, Blackwell's Island, and a member of the Homeopathic Medical Society of the County of New York, died suddenly while visiting friends in Plainfield, N. J., on June 28, aged 40 years.

Dr. GEORGE SOULE of Wickford, R. I., a graduate of the Boston University School of Medicine in 1878, died at his home, after a long illness, on June 23, aged 60 years.

Dr. GEORGE STRAWBRIDGE of Philadelphia, a graduate of the University of Pennsylvania, Department of Medicine, Philadelphia, in 1866, founder and physician in charge of the Pennsylvania Eye and Ear Infirmary, and a member of the American Medical Association, the American Ophthalmological Society, the American Otological Society, the

Medical Society of the State of Pennsylvania, and the Philadelphia County Medical Society, died at his home in Germantown, on June 28, aged 70 years.

Obituary.

JOSEPH WILLIAM GLEITSMANN, M.D.

NEW YORK.

Dr. JOSEPH WILLIAM GLEITSMANN died in New York City on July 2, at the age of 73 years. He was born in Bamberg, Germany, in 1841, and received his medical education at Würtzburg, Munich, Berlin, and Vienna. After graduation he served in the Medical Corps of the German Army in 1866, receiving as a reward of merit the order of the Iron Cross. He also served as surgeon in the Franco-Prussian War, in 1870, and was given a medal of honor upon his retirement. Following this he came to the United States and established himself as a specialist in the department of diseases of the throat and lungs, first at Asheville, and later in New York.

Dr. Gleitsmann was a man of profound learning and a specialist of unusual ingenuity and skill, and both in this country and abroad he ranked among the foremost authorities in his department, to the literature of which he made many valuable contributions. He was a member of the American Laryngological Association, and formerly its president; of the New York Academy of Medicine; the Medical Societies of the County and State of New York; the German Medical Society, and other associations. For many years he was Professor of Laryngology and Rhinology at the New York Polyclinic Hospital and Medical School, and Laryngologist and Otologist to the German Hospital and the German Dispensary. He was also a member of the Council of the International Congress of Laryngology.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

HONORS ON KING'S BIRTHDAY—ALEXANDRA DAY FESTIVAL—CAUSES OF INSANITY—SCHOOL OF TROPICAL MEDICINE—LISTER COMMEMORATION CONFERENCE—BRITISH HOSPITALS ASSOCIATION.

LONDON, June 26, 1914

THE King's birthday—Monday, the 22d inst.,—was marked as usual by the distribution of a number of honorary distinctions among men who have already achieved distinction of various kinds. There were promotions and new creations in the peerage, the baronetage, and the orders of knighthood and other orders. A few were awarded to medical men, mostly to those who have served in the army, navy, universities, and civilian offices at home, in India, or the colonies. The recipients are all well known and deserving of higher honors than they received and their number might well have been increased.

Alexandra Day, Wednesday, the 24th inst., has become a most popular festival—kept by almost everyone wearing a rose—an artificial one, of course, and the perfection of these paper flowers is a source of great admiration. They are made by 300 crippled girls who work all through the year at Groom's Crippleage, which has developed this thriving industry. Eight millions of them were sold early in the day and then the supply ran short. As the hospitals share in the profits the event has a medical interest. They were sold at almost every street corner. The sellers were ladies dressed in white relieved by wreaths of roses, etc., who volunteered for the arduous day's work—twenty thousand of them. They were mostly young and enthusiastic and groups of them were often guided and superintended by some of their older relatives. Some were up in the morning and met the earliest trains to catch the gentlemen arriving for business. At the Mansion House there were about seventy of them and the Lord Mayor and Lady Mayoress supervised and distributed them in the city localities and provided them with luncheon and tea. Every "flower girl" carried a special box into which it was requested the price of the flowers should be dropped—a penny each, but not seldom customers gave silver and not a few gold. Queen Alexandra took a drive through the streets in the afternoon and met with such a reception from enormous crowds as could not be surpassed. The enthusiasm generally at home and in the streets was unbounded—some declared it amounted to mania.

The movement has spread to the provinces and it is stated that the colonies intend to follow suit.

The Cavendish Lecture was delivered this day week before the West London Medico-Chirurgical Society by Dr. F. W. Mott, F.R.S., who took for his subject the "Causes of Insanity." After referring to the increase of the malady and the necessity of educating the public conscience on the value of research, he said there was no hope of curing until we knew the underlying causes, but the history of medical science proved that the application of physical, chemical, and biological discoveries to the study of diseases had resulted in prevention and successful treatment. His own researches into general paralysis of the insane convinced him that the cause was syphilis and the most hopeful way of combating this paralysis must be deduced from that fact. Dr. Mott then insisted that mentally defective children, particularly if more than one occurred in a family, were usually the offspring of imbeciles or of persons of low grade mentality. Though mental deficiency was not limited to any social grade, it was mostly found in the lower. Among the inefficients there would always be people of weak will, futile intelligence, and deficient moral sense; their environment was also unhygienic. These persons were prone to mate and breed, they were to an extensive degree the subjects of tuberculosis, alcoholism, and other race poisons. It was not then surprising that the next generation was likely to exhibit an increase of bodily and mental deficiency. It had been suggested that the race poisons might tend to weed out poor types, but they seemed quite as likely to produce them. Practising physicians were mostly convinced that saturation of the blood by race poisons, especially if continued in successive generations, could *per se* cause degeneracy in healthy stocks through the germ plasm.

As to mental disorders of which so far no explanation existed, Dr. Mott grouped them as toxic or degenerative. Of the first alcohol played a great part, but he doubted the statement that it was the sole or even the chief cause of admission to asylums. Every practitioner knew of people born of sound stocks that none of the usually assumed causes, such as head injury, exhaustion, overwork, shock, alcoholism, or microbic infection could render permanently insane. Delirium might be the result of

such conditions and might persist some time, but when the cause was removed the patient recovered sooner or later. Should there be neuropathic inheritance that was another thing, and any of these causes, singly or in combination, might lead to temporary or even permanent derangement. Every case of insanity must be regarded as a problem which could only be solved by full consideration of what the patient was born with and what had happened to him since.

Sir H. Burdett, referring to the question of state aid, declared that no chancellor of the exchequer would ever be strong enough to destroy the voluntary system which had saved us from the cruel abuses attached to the treatment of the people in other countries. He would rather die than live where they had state hospitals. State-aid meant that the profession dominated and humanity suffered. Dr. Mackintosh of Glasgow Western Infirmary pointed out that in the first year of the Insurance Act £123 were withdrawn because of it, but the sum was made up by new subscriptions, chiefly owing to better times in the shipyards.

The London School of Tropical Medicine has placed bronze portrait reliefs of the two chamberlains in one of the wards of the Seamen's Hospital, headquarters of the school, in commemoration of the two statesmen. The ceremony of unveiling was performed on Tuesday afternoon by the Colonial Secretary, Mr. Lewis Harcourt, and a number of distinguished supporters of the school, medical, and others were present. Mr. Joseph Chamberlain's health did not permit him to attend, but his wife and Mr. and Mrs. Austin Chamberlain were among these present. Mr. Harcourt spoke of his lifelong friendship with the Chamberlains and the pleasure of meeting on the illuminating ground of applied research. The problems of tropical disease were realized by Mr. Chamberlain when he became secretary for the colonies. He saw the need of further research and proposed the institution of such a school, which was largely due also to Sir Patrick Manson, to whose discoveries many men owed their lives, and millions of mosquitos their deaths. It was easy to suggest a school, but another thing to endow it. With characteristic energy Mr. Chamberlain did both. In May, 1899, he raised £15,000 at a banquet and by October the laboratories were built and the school opened. He afterwards raised £10,000 and this brought the beds up to 50 and equipped the museum and library. Experimental work had gone on in the laboratory and the students, about 1,800, had taken courses there and were spread over half the globe—some 700 entering the colonial medical service. The west coast of Africa, long called a death trap, would soon be thought a sanatorium. The mortality among British officials had fallen from 28 to 8 per 1,000, and the invaliding rate from 62 to 28. Mr. Austin Chamberlain, in returning thanks, said his father very early ascertained that Sir Patrick Manson was the best man to advise and cooperate in combating tropical diseases, for he had had great experience in tropical countries, and the suggestion for such an institution had been made by him. As for his own part he came in later and regarded himself as an accident, but he hoped a happy one.

The Lister biennial commemoration was held on Tuesday, the Earl of Roseberry presiding as Chancellor of the University. A number of distinguished gentlemen received honorary degrees. Sir Hector Cameron delivered the oration in which he recalled that when Lister came on the university staff, surgery was a limited, disappointing art. Anesthesia had been some time in use, but the healing of wounds was uncertain. Lister swept away the uncertainty that had dogged the steps of the surgeon up to his time and he left to the world a priceless heritage and to his profession an inspiring example. Lord Roseberry thanked the orator and said one item had been left for him to announce—the gratifying one that the managers of the Royal Infirmary had agreed to present to the university the structure of Lister's ward and lecture room in which the principles of antiseptic surgery were first expounded, in order that they might be re-erected on the university grounds as a permanent memorial to the great surgeon.

The annual conference of the British Hospitals Association this year was held at Newcastle, opening on the 19th inst. Sir George Philipson, chairman of the Royal Infirmary, welcomed the visitors, and Dr. Hume, vice-president of the Victoria Infirmary, gave an address in which he held that the effect of the Insurance Act caused increasing pressure on hospitals and changed the attitude between givers and recipients. He felt sure the voluntary system was endangered, and owing to lack of funds the hospitals, which were unsurpassed as clinical schools already finding it difficult to maintain their position. The difficulty would be increased when the working classes became generally contributors. They resented the idea of paying anything as inpatients and thought insurance provided them with free treatment everywhere.

Mr. W. G. Carnt, superintendent of the Royal Infirmary, Manchester, said the voluntary system was not a failure in that city, but coupled with contributions of a voluntary character for the maintenance of patients had been most successful.

OUR VIENNA LETTER.

(From Our Regular Correspondent.)

TREATMENT OF EXOPHTHALMIC GOITER WITH PITUITARY AND THYMUS EXTRACTS—INFECTIVITY OF THE CEREBROSPINAL FLUID OF PARETICS—LANZ'S OPERATION FOR THE ASCITES OF HEPATIC CIRRHOSIS—DEGENERATION OF THE LENTICULAR NUCLEUS—TENOPLASTY IN POLIOMYELITIS—A NEW METHOD OF FORMING AN ARTIFICIAL ESOPHAGUS.

VIENNA, June 2, 1914

A SERIOUS case of exophthalmic goiter was treated successfully by Professor Pal with pituitary extract. The patient was extremely emaciated and had trembling of the hands and feet, insomnia, diarrhea, vomiting, respiratory troubles, a pulsating goiter, Graefe's symptom, etc. Within the course of two months 70 injections of increasing doses of pituitary extract were administered to the patient whose weight very soon increased. His respiration and sleep improved and the tremor subsided. Although the patient has not been cured, his condition has been considerably ameliorated. M. Englander has also reported good results in the treatment of exophthalmic goiter with thymus extract. This remedy he employs only in those cases in which neither medicinal nor operative treatment has had any effect. In the case which he presented, a girl with considerable dilatation of the heart and with a systolic murmur and a goiter, 10 weeks' treatment with thymus extract produced a remarkable result. The goiter diminished and the murmur and nervousness disappeared.

The infectivity of the cerebrospinal fluid of paretics has been confirmed by the observations of E. Mattauschek. Of four paretics there were two without any paralytic symptoms whose cerebrospinal fluid produced syphilis in rabbits, whereas inoculation with the blood of the patients did not produce syphilis. The conclusion is drawn that tabetics and paretics do not differ from syphilitic patients with respect to the infectivity of their disease. Lanz's operation for the ascites of cirrhosis of the liver was demonstrated in a case presented by H. Lorenz before the Vienna Medical Society. The method consists in opening the inguinal ring, bringing the testicle into the abdominal cavity, and sewing it in a fold of the mesentery. Through the anastomosis of the veins of the mesentery with the large veins of the pampiniform plexus there is formed an exit for the vascular engorgement resulting from cirrhosis of the liver. The method which was reported in 1911 bears a certain resemblance to Talma's operation, but the success of the latter is a variable one. The patient upon whom the Lanz operation was performed by Lorenz is now quite well and no further enlargement of his abdomen has occurred.

Progressive degeneration of the lenticular nucleus which was first described by Wilson was demonstrated by J. Zappert in a boy who presented the following symptoms: An inclination for laughter which became convulsive, a disturbance of speech, a constant twitching of the muscles of the neck and head, an intention tremor, and awkwardness in walking and in taking hold of objects. The patient is, however, able to perform all movements, there is an increased tension of his muscles, but there is no spasm. Swallowing is but little affected. The cases observed by Wilson have all been acquired. Up to the present time about fourteen cases have been described. A similar condition occurs in cases of carbon-dioxide poisoning.

The transplantation of tendons in poliomyelitis has recently been demonstrated in two cases. Both children had had their original attack in the eleventh month of life. In one of the patients both legs had been effected; power returned to the muscles with the exception of the peronei on both sides and the right quadriceps muscle. The paralytic clubfoot of the left leg was cured by sewing the tibialis anticus superiosteally to the cuboid bone. The patient can now freely move his foot. On the right leg the tensor fasciæ latæ was sewed to the patella, as the result of which operation the action of the paralyzed quadriceps muscle was replaced. The right leg can now be raised and both feet can be flexed and extended. In the second case the extensor hallucis was used as an elevator for the foot. On the right side the gastrocnemius, which was the only muscle that had retained its functional power, was used for the purpose of fixing the paralytic clubfoot as follows: the tendo Achilles was isolated and three-quarters of it were drawn through the interosseous ligament and sewed on to the cuboid bone. The patient is now able to plant his foot on the ground and to walk firmly. The operations were performed two months ago.

A new method of forming an artificial esophagus has been demonstrated by Maximilian Hirsch, who up to the present time has performed this operation successfully on dogs. More recently the operation has been performed on several patients who are now in the Vienna hospitals. The artificial esophagus is formed entirely or almost entirely from the wall of the stomach. A long rectangular flap is cut out of the anterior wall of the stomach, the defect in which is at once sewed up, and the line of suture is continued on the flap in such a manner that it is folded into the form of a tube lined with mucous membrane. This tube constitutes a new esophagus which is placed under the skin on the outside of the thorax. If the tube is long enough it can be placed in direct communication with the beginning of the esophagus. If it is not long enough an intermediate piece of skin may be used.

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

GUARDING AGAINST THE PLAGUE—BACTERIOLOGICAL EXAMINATION OF THE MANILA WATER SUPPLY—PERSONALS

MANILA, P. I., May 28, 1914.

THAT the Philippines are seriously threatened with the invasion of quarantinable diseases from nearby foreign countries was well illustrated by the experiences of the past week. No less than three vessels arrived from the China coast with cases of plague aboard. One of the cases was of an unusual type and perhaps warrants being reported more or less in detail.

The S. S. *Taisang* sailed from Amoy on May 14 and arrived in Manila on May 17. The routine quarantine inspection of this vessel was made on the morning of the 17th at about 9 o'clock. A physical examination was made of each person on board and the temperature of every one taken. No cases of fever were found. The Chinese steerage passengers were then transferred to the Immigration Detention Station, from which place they were released about noon on the same day without any illness among them having been noted. At about 2 P.M. a Chinaman in the Chinese section of the city was found violently ill with a disease suspicious of plague. He was promptly transferred to the Chinese Hospital, where he died at 5 P.M., or three hours after his illness was reported. Investigation showed that he was one of the passengers who had come from Amoy that day on the S. S. *Taisang*. At the autopsy which was held on the morning of May 18, an enlarged spleen, cloudy swelling of the liver, and acute parenchymatous nephritis were found, all of which indicated that the cause of death was in all probability due to an acute infection. A careful examination for enlarged glands resulted negatively. Smears made from the spleen showed bipolar staining organisms resembling plague. After further search, a mass of enlarged glands was found under the right psoas muscle. Subsequent inoculations made into a guinea-pig resulted positively for plague. This experience shows conclusively that enlarged plague glands may be overlooked even at autopsy, and that persons in the last stages of plague may be admitted into a country in spite of the most careful quarantine inspection.

Another case occurred on the S. S. *Rubi* on May 20, while that vessel was at Cebu. The *Rubi* left Hongkong on May 12 and was inspected at Manila on May 15 in the same careful detailed manner as is mentioned above in the case of the S. S. *Taisang*, but nothing suspicious of plague was found. At Cebu a Chinese member of the crew reported himself ill, with the statement that he had been feeling badly for some days. A large bubo was found in

his right groin, which subsequently was diagnosed as plague.

Another case of plague occurred among the passengers of the S. S. *Linan,* which left Amoy May 20 and arrived in Manila on May 23. This case was detected at the quarantine inspection on account of the elevated temperature. The victim, a young Chinaman, aged 19 years, was transferred to the San Lazaro Plague Hospital, where he died a few hours after being admitted. The autopsy findings were typical for plague.

On account of the fact that the histories showed that in all probability the infection in none of these cases had occurred on board the vessels, the latter were thoroughly fumigated for rats and vermin and then released.

The Quarantine Service has issued a circular letter which provides for an inspection at Mariveles of all vessels from Amoy and a second inspection at Manila before such vessels are given pratique. There is to be no quarantine detention of vessels unless cases of plague are actually found on board. If vessels, however, are bound for other ports of entry in the Philippines where plague does not already exist, they must undergo a quarantine detention of seven days.

The bacteriological examination of the Manila water supply during the month of April gives some very interesting results. For instance, the bacterial count at the storage basin is with one or two exceptions very much lower than at a city tap. The average daily count for April at the basin was 846 colonies per c.c. and at the city tap 3,099 colonies per c.c. The bacterial count is somewhat lower in the covered basin than in the open storage basin. The average daily number of bacteria for the month in the covered basin was 740 colonies per c.c., whereas the average number in the uncovered basin was 846 colonies per c.c. It is also of interest at note that water which was pumped from the badly infected Mariquina River when treated with calcium hypochlorite so as to make a solution of 1 to 2,000,000 apparently showed no change in the bacterial count. This would indicate that calcium hypochlorite used in the strength of 1 to 2,000,000 in tropical waters which are highly charged with organic matter is insufficient and that a stronger solution will be necessary in order to produce the same results as weaker solutions do in temperate zones.

Doctor Roburg, of the Washington State Board of Health, has arrived in Manila and will pursue his studies of tropical diseases as a member of the staff, Department of Pathology, College of Medicine and Surgery, University of the Philippines.

Doctor E. A. Farrow, formerly of the Constabulary Medical Service, has resigned on account of a reduction in his grade by the recent appropriation bill and has returned to the United States. The vacancy created has been filled by the appointment of a Filipino.

Alopecia Following Severe Impetigo of the Scalp.—J. M. H. McLeod reports the case of a girl aged six on whose scalp there were a number of bald patches which were dotted over with small fibrous growths. According to the mother's statement the affection had begun two years before in the form of purulent sores on the scalp which became crusted over with a thick scab. When this separated the bald areas were left, upon which the papillomatous growths subsequently appeared.—*Proceedings of the Royal Society of Medicine.*

Progress of Medical Science.

Boston Medical and Surgical Journal.

June 25, 1914.

1. Anal and Rectal Growths of Benign or Doubtful Character. T. C. Hill.
2. Back Pain and Its Diagnosis. H. Platt.
3. Vaccine Therapy of Typhoid Fever. A. A. Hornor.
4. The Function of the Social Service of the Psychopathic Hospital. M. C. Jarrett.

1. Anal and Rectal Growths of Benign or Doubtful Character.—T. C. Hill notes that in his series of 3,000 rectal cases there were but forty-nine cases of benign growths. The vast majority of benign tumors of the rectum are easily recognized. The two most common varieties are the adenoid and the fibroid polyps. They may arise from any part of the rectum but are generally found in the lower two inches. Their presence is generally undetected until the pedicle has stretched sufficiently for them to protrude at the anal orifice during defecation. When found, as a prophylactic measure, they should always be removed even if causing no discomfort and of course should be submitted to examination for possible malignancy. Operative removal is simple and in most cases can be done under local anesthesia. The growth should be hooked down with the finger or instruments and the pedicle infiltrated with a weak solution of cocaine and clamped with a suitable pair of forceps as close as may be to its attachment to the rectal wall. A linen or silk ligature is next applied on the proximal side of the clamp, or if the pedicle is very broad, the latter is transfixed with the ligature and is then tied in sections. The growth is now cut away on the distal side of the clamp, the latter is removed, and in due time the ligature sloughs away.

2. Back Pain and Its Diagnosis.—H. Platt analyzes a series of thirty-two cases of lame back. These cases group themselves into the following classes: sacroiliac strain, 12; hypertrophic arthritis of lumbar spine, 7; postural back strain, 4; lumbosacral strain, 3; spondylolisthesis, 2; lumbar caries, 2; fracture of the transverse processes of the third and fourth lumbar vertebræ, 1; infectious arthritis of the lumbar spine and sacroiliac joint, 1. The outstanding complaint in all these patients was pain in the lower back, in some instances associated with pain of the sciatic type. There was no case of true sciatica or lumbago in this series, and the author did not see any such case amongst a good many other back cases in the clinic during a three-months' period, although especially on the lookout for them. Spondylolisthesis is not uncommon amongst the laboring classes; in coal heavers it is regarded almost as a normal condition. The seven examples of hypertrophic arthritis all occurred in men above the age of forty-eight who were following arduous occupations. Postural sacroiliac and lumbosacral strains present a close interrelationship; all three conditions may co-exist in the same patient, and it is not always possible to establish any definite boundary line between the several types. In four of the author's cases the chronic backache was considered to be due entirely to the obviously extremely faulty body poise present. Under the generic title of sacroiliac strain is grouped a most interesting class of cases. There are three interesting and important facts which the author emphasizes. None of the cases studied showed any gross displacement of the sacroiliac joint which was demonstrable by the *x*-ray; none of the cases presented the physical signs of relaxation of the joints; and finally no actual pathological process such as, for example, tuberculosis, was evident in any single instance.

New York Medical Journal.

June 27, 1914.

1. Service of Medicine to Civilization. V. C. Vaughan.
2. Cerebrospinal Fluid and Its Relation to Brain Tumors. C. H. Frazier.
3. A Visit to Lourdes. H. L. Shively.
4. The Liver in Acquired Syphilis. Harlow Brooks.
5. Diagnostic Pitfalls in the Mental Examination of Negroes. J. E. Lind.
6. Treatment of Whitlow; Later, Felon. Beverley Robinson.
7. Ausculatory Inflation of the Colon. J. H. Musser, Jr.
8. Pituitary Extract in Obstetrics. G. L. Brodhead.
9. The Effect of the New Regulation Restricting the Sale of Bichloride of Mercury. C. F. Pabst.

1. **Service of Medicine to Civilization.**—By V. C. Vaughan. (See MEDICAL RECORD, June 27, 1914, page 1151.)

2. **Cerebrospinal Fluid and Its Relation to Brain Tumors.**—C. H. Frazier states that tumors of any dimensions, irrespective of their size, character, or seat, may exist without signs of increased intracranial tension. Per contra, the encroachment upon the intracranial space, sufficient to give rise to the clinical picture of increased tension in cases of brain tumors (or to such physical evidences of increased pressure as may be demonstrable upon the operating table), is almost invariably the result of an excessive accumulation of cerebrospinal fluid. In many instances this will be found in the lateral ventricles, in many in the large basal cisternæ, and less frequently in the subarachnoid space over the cortex. It does not seem to make any difference where the tumor may be situated, whether in the cortex, deeper in the substance of the hemisphere, or at the base; the increase in the amount of the cerebrospinal fluid is the factor responsible for all but the focal symptoms. In subtentorial lesions this phenomenon is even more constant. The disturbances arising from an increased intracranial pressure have nothing to do with the size, situation, or character of the tumor, but rather are to be attributed to some perversion in the normal balance between the secretion and absorption of cerebrospinal fluid. The extraordinary rapidity with which the cerebrospinal fluid reaccumulates after evacuation suggests a pathogenic factor in its secretion. The relation of arterial pressure to the function of the choroid plexus has never been determined with any precision. Inasmuch as the blood pressure is not disturbed in brain tumors to any appreciable degree in any case, and not at all in most cases, to the author's mind this clearly eliminates the arterial pressure as a factor. That obstacles to correct diagnosis and localization of tumors are caused by an associated hydrocephalus is well known to neurologists. While the masking of symptoms is a matter of not common experience, the mimicry of tumor by hydrocephalic conditions is unusual. If the continued and increasing pressure of the associated hydrocephalus is effectively controlled, the prognosis of brain tumors would be less grave and the expectation of life prolonged. One has attempted in the past to meet this situation by decompression. This has been effective, however, only to a limited degree, both as to degree and duration of relief, and decompression will be more or less effective and more or less lasting in its effect if there is with the tumor an associated hydrocephalus of mild or severe grade. If the latter is the case, decompression will be less effective and less during. If the output of cerebrospinal fluid cannot be controlled, can its absorption be promoted? In the so-called puncture of the corpus callosum, as proposed by Anton, there is such a method.

4. **The Liver in Acquired Syphilis.**—By Harlow Brooks. (See MEDICAL RECORD, January 10, 1914, page 86.)

6. **Treatment of Whitlow and Felon.**—Beverley Robinson recommends the use, morning and evening, of equal parts of glycerin and a saturated solution of magnesium sulphate. Aseptic gauze should be saturated with this mixture, then covered with thin rubber tissue and a little absorbent cotton, and held in place on the finger with a narrow gauze bandage. During the day this application may be removed advantageously for a while, and the finger soaked in hot water and borax (half an ounce of borax to one pint of hot water) at least during fifteen to twenty minutes, two or three times in twenty-four hours. The borated solution is very useful in reducing local pain and redness, and probably limits the spread of the disease. Prior to its employment the author used a half saturated solution of boric acid in water, with very poor results. When the felon is well on toward recovery, after several weeks of wet dressing and soaking, oxide of zinc ointment applied at bedtime or during the day also, is notably beneficial in curing what still remains, although slight, of pain, redness, and swelling.

Journal of the American Medical Association.

June 27, 1914.

1. The Service of Medicine to Civilization. V. C. Vaughan.
2. Aerophagy. C. D. Aaron.
3. Medical Versus Surgical Treatment of Pyloric Stenosis in Infancy. L. Emmett Holt.
4. Pyloric Obstruction in Infants. William A. Downes.
5. An Internal Alexander Operation. H. T. Byford.
6. The Treatment of Tetanus by Antitoxin. E. E. Irons.
7. Vaginal Drainage. P. B. Bland.
8. History of a Typhoid Carrier. M. P. Ravenel
9. Rationale of the Use of Antiseptics and Germicides in Inflammations of the Mucous Membranes. M. Pitzman.

1. **Service of Medicine to Civilization.**—By V. C. Vaughan. (See MEDICAL RECORD, June 27, 1914, page 1151.)

2. **Aerophagy.**—C. D. Aaron concludes that continued belching of gas for a considerable length of time indicates aerophagy. All eructated gas consists in the main of atmospheric air swallowed in attempting to belch. Aerophagy accompanies many neuroses and is a frequent symptom of functional and organic disease of the gastrointestinal tract. The presence of bile in the stomach contents with eructations is suggestive of aerophagy.

3. **Medical versus Surgical Treatment of Pyloric Stenosis in Infancy.**—By L. Emmett Holt. (See MEDICAL RECORD, June 13, 1914, page 1095.)

4. **Pyloric Obstruction in Infants.**—By William A. Downes. (See MEDICAL RECORD, June 13, 1914, page 1095.)

6. **The Treatment of Tetanus by Antitoxin.**—E. E. Irons states that it is important that the full effect of the antitoxin be obtained immediately, and this may be accomplished by giving as outlined by Park, 3,000 units intraspinally, and from 10,000 to 20,000 units intravenously at the earliest possible moment after the symptoms of tetanus appear. On the following day the intraspinal injection of 3,000 units may be repeated. The blood remains strongly antitoxic for several days. On the four or fifth day 10,000 units should be given subcutaneously to maintain the antitoxin content of the blood. It is doubtful whether the enormous doses given in some cases over periods of many days are any more effective than the more limited dosage outlined above. If only a small amount of antitoxin (3,000 units) is available it should be given intraspinally. Intraspinal and intravenous injections should be given with all the precautions usually enjoined for these methods. This use of antitoxin in no respect replaces other recognized non-specific methods of treatment in tetanus. Surgical treatment of the site of infection should be instituted at once. The patient should be placed at rest in bed in a quiet darkened room, and should receive sufficient sedatives to control convul-

sions, together with an adequate supply of fluid nourishment and attention to elimination by kidney and bowel. The necessity for large and continued doses of sedatives such as chloral or chlorbutanol should not blind the physician to the possible danger of giving an overdose. The condition of the patient should be carefully watched and a revision of the standing orders for sedatives should be made whenever the symptoms suggest the necessity for decrease or increase of dose.

The Lancet.

June 20, 1914.

1. The Hygienic Aspect of the Coal Mining Industry in the United Kingdom. F. Shufflebotham.
2. Calculi in the Common Bile-Duct; Transduodenal and Retroduodenal Choledochotomy. H. B. Robinson.
3. Veronal Poisoning. M. H. Fraser.
4. Boots and Shoes from Historical and Surgical Points of View. E. M. Little.
5. Malignant Growth at the Base of the Bladder Treated by Diathermy. C. E. Iredell and R. Thompson.
6. Angioma in Cerebellar Peduncle, Fatal Intracranial Hemorrhage. C. W. Wirgman.
7. Septicemic Purpura. A. W. Brodribb.
8. Advanced Extrauterine Pregnancy. R. Scheult.
9. Non-Parasitic Cyst of the Liver. J. Everidge.
10. The Transport of Wounded in War. A. J. Hull.

2. Calculi in the Common Bile-Duct.—H. B. Robinson points out that the association of jaundice with the clinical evidence of calculi in the gall-bladder is strongly suggestive that they are also present in the common bile-duct. Accordingly when one is operating on the gall-bladder the presence of jaundice makes it imperative that the bile passages should also be investigated. This cannot be done effectually without opening the common bile-duct and proving the presence or absence of stones with the sound or scoop. Even when one is examining the gall-bladder, and there is or has been no jaundice, the bile-passages should be also thoroughly palpated as a routine measure, and in some of the cases, if not in most, a more complete investigation by sounding is fully justified. When calculi are situated in the lower end of the common bile-duct different procedures have to be adopted for their removal. Palpation in the course of the common duct, through the wall of the duodenum or to its inner side before any opening in the duct is made, may indicate that the stone is in a fixed position. This arrest may take place in the narrow part of the duct as it is piercing the duodenal wall, or in the ampulla of Veter, if it is present, or in the lower retroduodenal portion. If a lump is felt distinctly through the duodenal wall at a level consistent with the normal opening of the duct it is in one of the two former positions, and removal by a transduodenal operation is indicated. Should a lump be felt at a site above where the duct would have entered the duodenal wall, then one may employ Kocher's transduodenal method, particularly when the arrested stone is in close relation with the duodenum, or the retroduodenal method, when the duodenum is mobilized and the stone is removed from the duct behind.

4. Boots and Shoes.—E. M. Little notes that the subjects of the arthritic diathesis are peculiarly prone to suffer from painful affections of the feet. Painful flat feet, bunion, hallux flexus or rigidus, metatarsalgia, and ingrowing toenails are some of the ills that the ill-shod foot is subject to. The functions of a proper shoe should primarily be protection from cold, wet, and injury by external objects, and, secondarily, support when from any cause the foot alone is unequal to the strains to which it is liable. The shoe should closely and tightly fit the heel and what the French call the neck of the foot, as far forward as the middle of the metatarsus, while it should give plenty of room for free movement of the toes and for the normal spread of the foot when loaded with the body weight. It should above all fit easily across the bunion joint and be what is called straight on the inner edge, that is to say, the forepart of the shoe should be adducted so as to bring the great toe into the line of the first metatarsal bone. The lower the heel the better. The author refers to certain simple modifications of the normal boot to which reference may be made. In flatfoot the heel and sole may be made continuous on the inner side in order to prevent that breaking down of the waist of the boot which so often occurs and also to throw the foot onto its outer border. In the same condition the inner border may be raised a quarter or even half an inch; this has a similar effect in a more marked degree. In anterior metatarsalgia and painful corns on the forepart of the foot, whether from clawfoot or any other cause, a simple device will often entirely remove the pain and distress from which some patients suffer acutely. The author refers to the insertion of a flat plate of metal between the welt and the sole which has the effect of preventing extension of the toes, and generally limiting movement. Such plates are made of steel, or better of duralumin, which has the advantage of not corroding. If a thin layer of spongy indiarubber is put inside the boot the patient's comfort is still more promoted.

The British Medical Journal.

June 20, 1914.

1. On the Murmurs in Dilated Hearts and Their Explanations. S. West.
2. Common Errors in Diagnosis and Treatment of Cardiac Diseases. F. W. Price.
3. On Tincture of Digitalis: Its Activity and Stability. W. L. Symes.
4. A Case of Acute Rheumatic Heartblock. A. H. Gosse.
5. The Influence of the Total Fuel-Value of a Dietary upon the Quantity of Vitamine Required to Prevent Beriberi. W. L. Braddon and E. A. Cooper.
6. A Case of Hypothyroidism in a Male. I. G. Cobb.
7. Cerebral Cyst without Localizing Symptoms. A. Turnbull.
8. Notes of a Case of Contraction of the Upper and Lower Limbs After Still's Disease. J. C. Renton.

1. Murmurs in Dilated Hearts.—S. West states that dilatation of the heart is a common condition easily recognized by physical signs. Murmurs are frequently associated with dilatation and are due to it, for they come and go with it. They may be therefore very properly described as "dilatation murmurs." Murmurs are audible eddies. The conditions under which eddies form fall into two groups according as the blood is passing into or out of a dilatation of the vessels, or through a constriction in it. In order that the eddies may be audible they must be sufficiently forcible, so that they will depend upon the force of the circulation. This explains why these murmurs vary in intensity at different times, why they come and go, and sometimes why they even disappear. Of the forms in which dilatation is the prominent change the simplest is that known as mimic aneurysm. In these cases of simple dilatation murmurs are not always present; this depends partly upon the abruptness of the dilatation and partly upon the force of the circulation, but as an attack of abdominal pulsation is usually associated with palpitation, the action of the heart being rapid and forcible, the murmur is generally well marked as long as the attack lasts. A true fusiform aneurysm presents exactly the same condition except that the dilatation is permanent. Over it a systolic murmur is common. With saccular aneurysms murmurs are common though not constant. The second group of conditions which may cause the eddies necessary for the murmur is that in which the vessel is constricted, the blood having then to pass through a constriction, and having thus a dilatation, relative or absolute, both above and below, conditions the most favorable of all for the eddies required. This constriction may be produced by external pressure—by the stethoscope, for instance, or by a tumor or bony prominence pressing on the vessel. An

allied condition is that which occurs at the root of the neck, where the external jugular vein passes through the fibrous membrane, closing the thorax in the supraclavicular fossa. Constriction of a vessel is, however, more commonly produced by disease of its walls. In this case the lumen is narrowed and eddies are the necessary result. Dilatation murmurs in the heart fall into two groups, according as they occur at the base of the heart or over the body of it, and may be described as basic or ventricular respectively. Whether basic or ventricular they may be present on the right or left sides in the aortic or pulmonary areas in the one case, and over the right or left ventricles or auricles in the other. The basic murmurs are often called hemic and are referred to some altered condition of the blood, but what this altered condition is, except that there is anemia in some form, is not explained. Moreover, these murmurs vary from time to time while the blood condition remains unchanged. Anemia of any kind causing defective nutrition and therefore weakness of the cardiac muscle, will lead to dilatation, and this is easy of demonstration. Murmurs of this kind at the left base are usually called pulmonary and are assumed to be produced in the pulmonary artery. The characters of the murmurs of mitral regurgitation resulting from organic disease are well known. These murmurs are systolic in time, audible at the apex and outside it, transmitted to the axilla and to the angle of the scapula where they may be heard louder than elsewhere. The heart sounds are greatly altered. Sometimes these murmurs are not so definitely propagated. They may vary in many particulars and may at times even be absent. These variations may depend upon varying conditions in the force of the circulation or of the heart's action, but as the general rule the regurgitant murmurs are propagated as stated. The left ventricle dilatation murmurs, however, differ. They are systolic in time and as a rule softer and more blowing in character. They are definitely limited to the precordium, are heard more widely over it, and are not propagated to the axilla and back, while the heart sounds are little if at all changed.

2. **Common Errors in Diagnosis and Treatment of Cardiac Diseases.**—F. W. Price states that the most important question of all is the efficiency of the working power of the heart, and that the best method of testing this is to see how the heart responds to effort; in other words, is the patient able to undergo physical exertion without distress? Careful and detailed inquiries should be made in regard to this. In making such inquiry it is essential to remember two facts—namely, the natural standard of the heart's strength varies in each individual, and symptoms of cardiac distress on exertion may be due to some temporary or extrinsic cause, such as deficient tone from lack of physical exercise, temporary physical or mental overstrain, and anemia. With regard to the first, one healthy individual can normally perform only a moderate amount of exertion without experiencing symptoms of cardiac distress, while a second can do more, and a third can do still more. The point of inquiry should be to ascertain whether the normal standard of a particular individual has decreased, and if so, in what degree. To sum up: Provided temporary and extrinsic causes can be excluded, the fact and degree of departure from the normal standard of an individual may be taken as fairly indicative of the presence and degree of myocardial impairment or disease, and further, provided there is no other cause to account for it, and the patient has had the advantage of an adequate amount of rest, an increasing severity of the symptoms is indicative of a progressive lesion. The most common symptoms are undue breathlessness or fatigue, palpitation, precordial distress or pain, and a sense of tightness across the chest, on or after exertion.

3. **Activity and Stability of Tincture of Digitalis.**—W. L. Symes presents the following conclusions: Weak tinctures show little or no changes in a year or more. Active tinctures deteriorate much more rapidly. Of those initially within 25 per cent. of standard, all were more than 25 per cent. below standard after a year's storage. Of those initially more than 25 per cent. above standard only one-half were within 25 per cent. of standard after one year's storage, and these had lost 20-70 per cent. of their original activity. In a few samples deterioration was recognizable one month after manufacture. Few tinctures of digitalis are, initially, below standard. Tinctures, not below standard, vary 200-300 per cent. in initial activity. All such tinctures, after a variable period of constant activity, undergo deterioration, which may commence within a month of manufacture, and may amount in a year to 70 per cent. or more, of their initial activity. Concentrated alcoholic extracts of digitalis leaf compare favorably with, and behave as, the British Pharmacopœia tincture. Solutions of crystalline French digitaline are more stable than the above. Commercial "non-alcoholic" tinctures and allied preparations are not trustworthy.

Berliner klinische Wochenschrift.

June 15, 1914.

Cosmetics and Anatomy.—Saalfeld, under this title, contributes an article on recent advances in dermatology. He wishes to show to what extent the prognosis for smooth recovery depends on the depth of the lesion, the more superficial being amenable in this respect. The indications have been to remove blemishes in such a manner that the skin will be left sufficiently intact and that the original lesion be not replaced by scars, stains, etc. Seborrhea and comedones can be disposed of without injuring the texture of the skin. Acne nodules may be made to disappear *en masse*. Larger lesions may heal with resulting pigmentation, which, however, is not permanent. Still larger, purulent lesions, which in the end become abscesses of the skin, tend to leave scars, because of the depth of the lesions we can only hope to abort such lesions. Aside from acne, we have to deal with noninflammatory nodules—warts, etc. These can be destroyed without compromising the skin by a combination of methods. If, however, the wart extend deeply into the derma, a raw surface must be left behind. It is often aggravated by the previous use of nitric acid, the healing being accompanied by the formation of ugly scars. Many a maiden has had her hands disfigured permanently by the repeated use of glacial acetic acid. It is better in such cases to give arsenic internally, with the external use of salicylic acid, ext. thujæ, etc. Other cosmetic blemishes are freckles and chloasma spots. Pigmented moles also belong here. To remove pigment without scar formation is the great desideratum. The cautious use of electrolysis and the galvano cautery, carbonic acid snow, etc., will decrease the amount of pigment present. Small telangiectases may be removed scarless, but in the more deeply seated angiomata scars must result from cautery, etc. These scars are, however, a great improvement over the tumors. Some of these growths yield to the *x*-ray, and are much improved, without scar formation. Premature alopecia must be considered as past all restitution, provided the individual follicles have been empty for a certain period. Some fat must be secreted, but not too much. If the scalp is hidebound the prognosis for arrest of the

alopecia is hopeless. For the rest a sharply individualized treatment may do something toward arresting the condition. The scalp should be mobilized and hyperemized. If a lanugo remains it may be developed into a thicker growth, but this happens rarely because downy hairs have no sebaceous follicles of their own.

Ocular Lesions Due to Atoxyl.—Steinebach does not accept the common conclusion that atoxyl is contraindicated under all conditions because of the innumerable cases of blindness which have followed its use. He has recently observed a case in which amblyopia of high degree followed a few small doses of the remedy. The case was summed up as follows: The woman, aged thirty-six, had been a hard drinker for years. She had never had syphilis, but had a severe itching dermatosis, the nature of which is not stated. She was somewhat cachectic. The diagnosis, as made from the principal disorder, was secondary anemia. For the latter she received a series of injections of atoxyl of small dosage. The amblyopia soon followed. The author's immediate conclusions, after patient had recovered her sight, were that the eye lesions were specific for atoxyl, and his final conclusions were to the effect that alcoholism was the predisposing factor. He believes that whatever the power of atoxyl over the eye strong predisposing factors should be present; such as cachexia (from cancer or old age), autointoxications, and certain infections of the nervous system (tabes, lues cerebri); above all, however, chronic alcoholism.

Münchener medizinische Wochenschrift.

June 9, 1914.

Origin of Arthritis.—Berg sums up his views on this subject as follows: endogenous uric acid formation depends upon some defective composition of the blood, chiefly lack of inorganic bases. Retention of uric acid due to diminished solubility of the urine is no doubt an accessory cause. So-called exogenous uric acid is really almost exclusively endogenous resting on uric acid formation during the process of secretion of the digestive fluids, when there is insufficient nutriment. It is possible that by a permanent reasonable method of living the formation of uric acid in the human organism would cease altogether. As an indicator of suitable nutriment the reaction of the urine suffices, using ordinary neutral litmus tincture. With proper diet the urine should color the latter blue, while with improper diet it reacts acid. When the urine becomes alkaline the value of the uric acid in the urine has sunk to the minimum, while the solvent property of the urine towards uric acid is greatly increased. In acid reaction of the urine we find increased formation of uric acid and a supersaturation of the urine with uric acid. The deficiency of phosphates and carbonates in an alkaline urine is seldom seen. The putrescibility of the urine seems to be less in alkaline than in acid urine.

Origin and Course of Scurvy in German Southwestern Africa.—Scherer gives an account of endemic scurvy occurring in a part of the world in which but little has been known of the disease, save that it dates back to the oldest time traceable. The affection is positively not due to an organized virus. The part played by lime salts is worth considering. Both hard and soft water are plentiful in the colony. The rainfall increases progressively from South to North, causing a great variety in the foliage. Scurvy is but little known in the North, where there is the greatest precipitation and abundant plant life. Here farms abound, and the inhabitants tend naturally to be vegetarians, living chiefly on rice, flour, and sugar. On the other hand, the drinking water in the North is very hard, ten times that in the South. The latter water, however, is correspondingly rich in alkali. The alkaline salts and alkaline earth salts possess a certain reciprocal antagonism where scorbutus is concerned. The disease is of a semimalignant type, and after eight months the mortality is from 30 to 40 per cent. The vegetarians in the North have different teeth from those in the South, and this as much as anything implies that the Southerners' diet is too poor in alkaline earths. Phosphate of lime is the best treatment for scurvy when this is of recent origin.

Deutsche medizinische Wochenschrift.

June 11, 1914.

Pancreas Achylia and Acute Pancreatitis.—Schmidt concludes that there exists a disturbance of the pancreas secretion (pancreas achylia) which is most readily and certainly recognized by the abnormal fecal findings with a test diet (creatorrhea, positive nucleus test slight steatorrhea). Further, there appears at regular intervals in pancreatic achylia intestinal dyspepsia of gastrogenic origin. The mild form of acute pancreatitis, which is chiefly a complication of gallstone disease, differs from pancreas achylia in that it begins with a crisis of pain and fever, while the feces show marked steatorrhea with abundant free fatty acids, creatorrhea being not much in evidence. The different character of the digestive disturbances is explained by the fact that in the one case achylia gastrica, equivalent to absence of HCl, the most important stimulus of trypsin secretion. In the other case of gallstone disease, the bile, which is the activator of pancreas lipase, is damaged.

Pathology and Surgery of Ulcus Duodeni.—Kümmell sums up his serial study of this subject as follows: Duodenal ulcer is not so common in Germany as in England and the United States, yet occurs in Germany in relatively large figures, often with the diagnosis of ulcus pylori. In fact, we have been ignorant of its earlier history. The family history and clinical course are chiefly so typical and characteristic that a correct diagnosis is the rule. The results of surgical therapy are to be regarded as good, the intervention is not dangerous. In any case, the ulcus duodeni seems to be a better object for treatment than the various lesions of the stomach.

Paternal Inheritance of Syphilis.—Bruck speaks of this possibility as abolished forever by modern experimental teaching. Contaminated semen we can readily understand as something different. True paternal inheritance could only imply that spermatozoids bearing spirochetes could introduce the latter into the ovum so that the forthcoming embryo would harbor them in an active or latent state. The older inoculations of spermatozoids from a recent syphilitic into apes gave negative results, but quite recent reports of Lesser and Carston seem to show that such semen has been successfully inoculated into apes and rabbits. Bruck objects that such results do not constitute proof, which would require that the spermatozoids be in a state approximating a pure culture. In any case, such a possibility is beside the mark, for the more simple explanation that the father has already rendered the mother syphilitic, and that the ovum is already infected, explains all the requirements until some one actually sees living spermatozoids actually containing the treponema. In a few cases only a newly born infant has given its mother a typical chancre of the nipple, but such a sequence, from its extreme rarity, must constitute only a superinfection.

Insurance Medicine.

SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

FISTULA IN ANO.

THE Medico-Actuarial Investigation Committee reports the mortality among persons with a history of fistula in ano calculated by the Medico-Actuarial tables based on policies issued on standard lives during the years 1885 to 1908 inclusive. The instructive cases may be divided in the following groups:

Fistula in Ano, With or Without Operation.

	Ratio of Actual to Expected Deaths
1—One attack within 2 years of application	120%
2—One attack between 2 and 5 years prior to application	136%
3—One attack between 5 and 10 years prior to application	100%

An analysis of the material from which these figures were taken showed that the death rate from tuberculosis of the lungs, cancer, and Bright's disease was several times higher than the normal in each case.

The committee was interested in determining whether fistula in ano as an impairment was of special importance among overweights or underweights. Combining those who had one attack within ten years with weights approximately 25 per cent. or more above the average weight, there were 297 cases with 26 deaths against 19.35 expected—a ratio of 134 per cent. Fistula, therefore, does not seem to be of special importance in conjunction with overweight, as the additional mortality is little, if at all, in excess of the ratio usually found among overweights.

A similar analysis of the lightweights, those approximately 15 per cent. or more underweight, showed the actual deaths to be 30 against 22.32 expected—a ratio of 134 per cent. The mortality among lightweights is not very excessive generally, so that the result is significant. Out of the 30 deaths, 13 were due to tubercular disease, a fact which seems to confirm the belief that fistula is sometimes an indication of a tubercular taint. It must be borne in mind that these underweights with a history of fistula in ano were probably selected witn special care in other respects.

If the subject is studied from a clinical and pathological point of view, it is safe to say that no definite or settled opinion can be found as to how large a proportion of cases may be due to tuberculosis. Pathological examination does prove, however, the presence of tuberculosis in at least a small proportion of anal fistulæ, and it is, therefore, important to know when the condition exists. This is particularly true in the case of lightweights as brought out by the Medico-Actuarial Investigation.

Maladies affecting the anus and rectum are numerous and of common occurrence, often causing much pain, discomfort, and mental distress. Nevertheless, the diagnosis of anal and rectal diseases has not received the attention due to it. This may be accounted for by a feeling of delicacy, especially when the patient is a woman, and an unwillingness to make the disagreeable examination more than a perfunctory one, if at all. Success is not likely to be reached as long as physicians are willing to take it for granted that nearly every rectal trouble coming to their attention is due to hemorrhoids. It is a matter of record in our large institutions that such serious disorders as fistula, ulcerations, tuberculosis, and malignant growths are not infrequently discovered among patients who come in with the story, for which their attending physicians are responsible, that they have simple hemorrhoids.

When an applicant, then, states that he has hemorrhoids, especially if he has passed middle age, there should be a searching inquiry into the symptoms and cause of this trouble. A history of pain should be investigated as to the time of its occurrence, character, and location, as it may point to fissure, ulceration, abscess, or malignant disease. The presence of a discharge will confine the diagnosis to abscess, fistula or ulceration. Inquiry should also be made as to the presence of any protrusion at the stool and loss of blood. If there is any suspicion in the case, an examination should be made. The examination, aside from the inspection of the external parts, can not be properly carried out, however, by a physician as a representative of a company, as, in order to be of any value, it must usually be partly instrumental. Instrumental examinations of any kind by a representative of a company may lead to a legal claim, sometimes justified but usually false. The only safe and feasible plan is the requirement of a certificate, furnished by the applicant, from a competent diagnostician. The applicant then assumes the entire responsibility.

Industrial Insurance.—In a paper read before the National Association for the Prevention of Tuberculosis, in Washington, D. C., on May 7-9, 1914, by Dr. J. W. Schereschewsky, Surgeon U. S. Public Health Service, it was pointed out that the citizen owes it to the state quite as much as to his own interests to see that his efficiency is not compromised by a defective state of health. If from any cause an individual suffers from defect or disease which reduces that efficiency it is manifestly unfair that the burden should be shouldered by society, if such defect or disease arose from causes which might have been personally prevented. In the opinion of the speaker industrial insurance constituted a logical means by which society might equitably distribute the costs which would result from physical inefficiency.

With regard to industrial insurance the speaker drew the following conclusions. 1. Industrial sickness insurance is an economic necessity in modern social evolution. 2. The basis upon which industrial insurance should rest is the prevention of illness and physical disabilities. 3. Frequent periodical physical examinations of workers constitute the logical means by which defects and diseases can be detected in their incipiency. 4. The scope of such examinations should be extended to include home as well as factory conditions. 5. Industrial insurance based upon preventive measures should redound greatly to the benefit of society (a) by reducing the annual loss of time through illness; (b) by establishing hygienic standards; (c) by establishing minimum hygienic standards for industries; (d) by favoring the enactment of uniform industrial legislation; (e) by increasing the efficiency of local health authorities. 6. The cost of carrying industrial insurance based on preventive principles should be less than that of the present systems.

Book Reviews.

La Stase Intestinale Chronique. Par le Docteur E. Sorrel, Ancien Interne, Lauréat des Hôpitaux de Paris et de l'Hôpital Maritime de Berck-Sur-Mer, Aide d'Anatomie des Hôpitaux. Paper, 253 pages, with 30 illustrations. Paris: G. Steinheil, Éditeur, 1914.

After a short historical note the author takes up in order the embryology of the large intestine, the description of the various types and positions of the different portions of the large intestine, the physiology of this portion of the gut and, very briefly, the etiology of stasis cases. The pathologic anatomy and theories as to the pathogeny of this subject are then discussed in great detail; and the same may be said as to the symptomatology and diagnosis of chronic intestinal stasis, dependent as it is upon so many pathologic processes which may affect the large intestine and the terminal portion of the ileum. The author then takes up the various operative procedures which have been suggested or utilized in the treatment of these cases, including the removal of bands and adhesions, fixations, and entero-anastomoses, with or without exclusion, with or without resection, all these with a wealth of detail and quotations from the work of very numerous authors, thus giving the most complete review of the subject from every angle that has ever been published. The last chapter, a résumé and the author's conclusions, brings out the main features of the subject remarkably well. A bibliography of about twenty pages, covering most, if not all, the articles of any importance that had appeared up to the close of the year 1913, rounds out this excellent thesis, and it is hard to imagine how one could have a more thorough presentation of this important subject.

The Practice of Pediatrics. By Charles Gilmore Kerley, Professor of Diseases of Children in the New York Polyclinic Medical School and Hospital; Attending Physician to the New York Nursery and Child's Hospital; Assistant Attending Physician to the Babies' Hospital; Consulting Physician to the Sevilla Home for Girls and to the New York Home for Destitute and Crippled Children; Consulting Pediatrist to the Greenwich (Conn.) Hospital, to the Tarrytown (N. Y.) Hospital, to the Englewood (N. J.) Hospital, and to the Lawrence (Bronxville) Hospital; ex-President American Pediatric Society; ex-President to the New York County Medical Society. Illustrated. Price $7.50 net. Philadelphia and London: W. B. Saunders Company, 1914.

Dr. Kerley has written a most practical textbook on pediatrics. He has extended the scope of his book on the "Treatment of the Diseases of Children" by including a larger number of diseases and by discussing their etiology symptoms, diagnosis, and prognosis, and paying as much attention as in the latter work to the subject of treatment. One of the distinguishing characteristics of the present volume is the personal note that pervades its pages. The author describes largely the results of his own experience, although he acknowledges credit to others and cites freely from the latest literature on the various subjects under discussion. Among the recent methods fully discussed is that of siphon drainage in the treatment of empyema, which method has been efficiently employed by Kenyon of New York. The subject of treatment is presented in ample detail. Definite directions are given and the doses of various drugs are indicated for particular ages of children. There are a large number of useful prescriptions. The illustrative case histories bring home in a concrete manner the subjects under discussion. One cannot subscribe entirely to all that the author teaches. Thus, he regards acute laryngitis as synonymous with spasmodic croup. This attitude is not in accord with the views of most pediatrists, particularly the English, at the present day. Acute laryngitis in children differs but little from the similar condition in adults, and is to be differentiated only with great difficulty from primary laryngeal diphtheria. Spasmodic croup, on the other hand, is characterized chiefly by its paroxysmal character and by its occurrence in children who seem to be predisposed to this condition. It is termed by most English and other European writers on this subject "laryngitis stridula." The author discusses the various dwarfing conditions in infancy in an interesting manner. Ateleiosis is misspelled "ateleosis." Considering its size, however, this volume contains remarkably few errors. It is well illustrated and contains a complete table of doses graded according to the different ages of children.

A Manual of Clinical Diagnosis by Means of Laboratory Methods. For Students, Hospital Physicians and Practitioners. By Charles E. Simon, M.D., Professor of Clinical Pathology and Experimental Medicine in the College of Physicians and Surgeons, Baltimore. Eighth edition, enlarged and thoroughly revised. Illustrated with 185 engravings and 25 plates. Price $5.00. Philadelphia and New York: Lea & Febiger, 1914.

It is pleasant to see this well-known manual appearing in a new edition, for it is among the most widely used of the works on laboratory diagnosis, and deservedly so. During the past year or two an unusually large number of new procedures have been devised and found suitable for diagnostic use, and the more important of these have been included in the present issue of Dr. Simon's book. Among them are the determination of blood sugar, Marshall's soy bean urea method; Folin's microchemical methods for determining the various nitrogenous components of blood and urine; the Abderhalden ninhydrin reaction for determining the existence of pregnancy; the technique of the gonococcus fixation test; improvements in the Wassermann technique, etc. A useful section on the application of the phenolsulphonephthalein test for renal efficiency has been introduced; but the methods for employing lactose, potassium iodide or the quantitative determination of diastase in the urine for the same purpose are not given. Other omissions of some importance are the failure to describe Benedict's methods for the estimation of urea and for the qualitative and quantitative determination of sugar in the urine, which are all very useful. A feature of especial value is the large amount of space given to the clinical aspects of the results of laboratory methods. This material is collected in a separate part of the book where the sections on the different diseases are arranged alphabetically, and under each the laboratory findings relating to the condition in question are discussed; an unusual plan, but one which has much to commend it as here carried out. All in all, the book is one of the best available and has many points of marked superiority.

Ten Sex Talks to Girls (fourteen years and older). By Irving David Steinhardt, M.D., Instructor in Clinical Surgery, Cornell University Medical School. Price $1.00 net. Philadelphia and London: J. B. Lippincott Company, 1914.

This small volume is founded on a series of lectures which the author has delivered before several organizations. They contain about the same material as can be found in the numerous other books on this subject which have appeared in the past few years. The language of the book is a curious mixture of technical terms and slang, of frankness and reserve. For instance, the author always speaks of "lower limbs," which looks decidedly out of place in a book in which the sexual organs are quite minutely described.

Some American Medical Botanists. Commemorated in Our Botanical Nomenclature. By Howard A. Kelly, M.D., LL.D. Delivered as a lecture before the Medical Historical Society of Chicago, 1910, and before the University of Nebraska, October 16, 1913. pp. 200. Price $3.00. Troy, N. Y.: The Southworth Company, 1914.

It was a happy thought of Dr. Kelly to choose for biographical sketches renowned American medical botanists whose names have been commemorated in our botanical nomenclature. Although many names have thus been handed down to posterity, the present generation has forgotten in most instances that the men who bore the names ever existed. Few are aware that that popular flower, the gardenia, was named after Dr. Samuel Garden or that the wistaria was called after Dr. Wistar of Germantown. It can be plainly seen that the writing of these sketches of our botanical medical forebears has been with the author a labor of love. The book is in every respect a fascinating one and may be recommended to the busy practitioner as a pleasant mode of evading for a while the oftime irksome duties of a toilsome profession and the bothers of a too material age. The volume is beautifully illustrated in keeping with the subject and absolutely exudes the odors of flowers and plants.

International Clinics. A Quarterly of Articles on Treatment, Medicine, Surgery, etc. Edited by Henry W. Cattell, A.M., M.D. Volume I. Twenty-fourth Series. Price $2.00. J. B. Lippincott Company, 1914.

This volume contains thirteen articles on therapeutics, medicine and surgery and a review of the progress of medicine during the year 1913. The most important papers are those of Vaughan on the Importance of Frequent Medical Examination of All Citizens and of Bierring on Thrombosis and Embolism. The review of the year's progress is very complete. This number is quite up to the usual standard for this well-known publication.

The Junior Nurse. By Charlotte A. Brown, R. N., Instructor in the Boston City Hospital; Graduate of the Boston City Hospital and Boston Lying-in Hospital Training Schools for Nurses; late Superintendent of the Hartford Hospital Training School, Hartford, Conn. Illustrated. Price $1.50. Philadelphia and New York: Lea & Febiger, 1914.

Here is a volume for nurses which actually deals with nursing and is not addressed to social workers or research students. The book contains much well selected information; most of it is of an elementary nature, but all of it is necessary for the competent nurse. The volume is well printed and attractively bound, and should prove useful not only to the beginner or pupil but also to the nurse who is interested in the practice of her profession. We have noticed a few slips which can easily be rectified in a second edition (see for example pages 71, 76, 100 and the index), but these do not materially detract from the value of the book.

A Handbook for the Postmortem Room. By Alexander G. Gibson, D.M., (Oxon.), F.R.C.P. (London), University Demonstrator in Pathology, Oxford, and Honorary Assistant Pathologist to the Radcliffe Infirmary, Oxford. Price $1.50. London: Henry Frowde Hodder & Stoughton, 1914.

The methods here dealt with are designed to cover the technique of all ordinary postmortems that are likely to be made in a general hospital and detailed methods for instances occurring with extreme rarity are omitted. The methods are based upon those of Virchow as practised in most of the schools here and abroad. Instruments, external examination of the body, examination of the organs before and after removal from the body, etc., are described.

Dental Disease in Relation to Public Health. By J. Sim Wallace, D.Sc., M.D., L.D.S. formerly Dental Surgeon and Lecturer on Dental Surgery, London Hospital. Price $3.00. London: The Dental Record, 1914.

This small volume presents a report on dental disease, in relation to public health, opens a discussion on dental hygiene in infancy and childhood, and on children and dental disease. The importance of a knowledge of the physiology of oral hygiene is insisted upon because of its neglect in textbooks. When the subject of the book receives proper attention, the author believes that dental caries and consequent and concomitant disease will cease to exist.

Pathfinders of Physiology. By J. H. Dempster, A.B., M.D., Editor of the *Detroit Medical Journal;* Lecturer in Physiology, Detroit College of Medicine. Price $1.00. Detroit: Medical Journal Company, 1914.

This volume contains brief biographies of some of the great pioneers of physiology and is both interesting and instructive.

American Red Cross Abridged Textbook on First Aid. A Manual of Instruction. By Major Charles Lynch, Medical Corps, United States Army, and First Lieut. M. J. Shields, Medical Reserve Corps, United States Army. Prepared and endorsed by the American Red Cross. With illustrations. Price 30 cents. Philadelphia: P. Blakiston's Son & Co., 1913.

We have before us four small volumes which form a series. These are especially indicated as being Railroad edition, Police and Firemen's edition, Miners' edition, and Women's edition. As knowledge of certain facts is necessary to all students of first aid to the injured, a great part of each of these volumes is common to all. The last chapter or two contains the special information which is required by the individual of the class for whom each volume is written. Each book contains instructions on: What first aid is; general directions, shock, bandages, bruises, strains, sprains, dislocations, fractures, wounds, bleeding, burns and scalds, sunstroke and heat exhaustion, frost bite and freezing, suffocation and artificial respiration, drowning, electric shock, gas poisoning, hanging, unconsciousness or insensibility, and poisoning. The Miners' edition gives extra chapters on how to carry the injured, miners' first aid, safety and care of the injured, and organization of first aid instruction. The Railroad edition has extra chapters on how to carry the injured, railroad and shop first aid, including safety and care of the injured. The Police and Firemen's edition contains chapters on how to carry the injured and special first aid for police and firemen. The Woman's edition contains special chapters on common emergencies, and carrying and home preparations for sick and injured. The books are well printed, and the instruction given is serviceable and practicable. The price of each volume is remarkably low.

Medical Gynecology. By Samuel Wyllis Bandler, M.D., Fellow of the American Association of Obstetricians and Gynecologists; Adjunct Professor of Diseases of Women, New York Postgraduate Medical School and Hospital; Associate Attending Gynecologist to the Beth Israel Hospital, New York City. Third Edition. Thoroughly Revised, with Original Illustrations. Price, $5.00 net. Philadelphia and London: W. B. Saunders Company, 1914.

The appearance of the third edition of this well-known work comes at a most opportune time, coinciding with the renewed attention that is being given to the subject of internal secretions in gynecology. The author has emphasized the importance of this subject in the first two editions but in the present volume he devotes considerably more space to this topic, which exemplifies more than anything else the efficiency of medical treatment in gynecology. A separate section of 53 pages discuses the general aspects of the internal secretions, including those of the pineal gland, the thymus, the parathyroids, the thyroid, and the hypothysis, and there are also discussed the function of the ovaries and their relation to normal and pathological states, hypergenitalism, hypogenitalism, and skin affections with reference to the internal secretions. The internal secretions are again alluded to in the chapter on the associated nervous conditions in gynecology. The rôle of the internal secretions is most forcibly presented in the discussion in what the author describes as constitutional dysmenorrhea. Thus, he notes that the constitutional phenomena that are associated with the premenstrual changes or so-called nervousness, are in many cases evidences of hyperthyroidism. This is also manifest in many cases preceding the menopause. On the other hand, symptoms of depression at these periods may be evidence of hypothyroidism. The administration of the thyroid gland aids in the diagnosis. In other respects this volume maintains the high standard which it has already reached in the discussion of all those numerous resources which are at the disposal of the general practitioner in the treatment of gynecological disorders. The book is fully illustrated. The directions for treatment are given in minute detail with the aid of many prescriptions. As a reliable guide for the student and practitioner this work may be recommended without reserve.

Blood Pressure in General Practice. By Percival Nicholson, M.D. With ten illustrations. Second Edition. Price $1.50. Philadelphia and London: J. B. Lippincott Company, 1914.

The significance and importance of blood pressure have been recognized only within comparatively recent times, and consequently the medical practitioner is often at a loss as to how to determine it and to apply it clinically when determined. It was therefore with the object of placing in the hands of the general practitioner a handy book in which was set down in concise language modern views as to blood pressure and up to date methods of determining the same that Dr. Nicholson issued this volume. It may be said that the author has succeeded well in fulfilling his self-imposed task and his book may be recommended as a useful condensed review of the subject of of blood pressure from the present aspect.

Society Reports.

AMERICAN MEDICAL ASSOCIATION.

Sixty-fifth Annual Meeting, Held in Atlantic City, June 22, 23, 24, 25, and 26, 1914.

(Special Report to the MEDICAL RECORD.)

(*Concluded from page 43.*)

SECTION ON SURGERY.

Thursday, June 25—Third Day.

Anoci-Association in Relation to Operations on the Gall-Bladder and the Stomach.—Dr. GEORGE W. CRILE of Cleveland said that there was a certain degree of exhaustion due to infection, to indigestion, to starvation, and other possible causes in patients requiring operations on the gall-bladder or stomach. He presented evidence of morphological changes in the brain, liver, and adrenal gland in patients with operative stomach and bladder conditions identical with changes due to emotional states such as fear and anger. Toxins and fatigue cause similar changes. There were acid changes in the blood or increased H-ions along with the above changes. The margin of safety for each patient depended upon the existing exhaustive changes in the above organs and acidosis. To raise the margin of safety he advocated increasing the store of energy and diminishing possible exhaustive changes. He eliminated worry and excitement, increasing the patient's confidence as far as possible. He administered morphine sulphate, 1/6 gr., and scopolamine-hydrobromide, 1/150 gr., before operation, novocain, 1-400 sol. subcutaneously, or quinine and urea hydrochloride, 1-600, intramuscularly and used a general anesthetic when necessary. Speaking of postoperative pneumonia, Dr. Crile said he had prevented the occurrence of a single case during the past year in his hospital service by preventing postoperative pain which, he held, brought about pulmonary stasis, which may or may not develop into pneumonia.

Dr. W. D. HAGGARD of Nashville favored the excision of the thickened indurated gall-bladder and praised the combination of the surgical laboratory and surgical clinic.

Dr. ERNEST LAPLACE of Philadelphia considered all kinds of shock of the same fundamental nature, and, therefore, minimized by an amelioration of any of the respective causes. He favored the removal of the gall-bladder with seriously impaired function and exhibited a liver-retracter which facilitated its removal.

Dr. ROBERT MORRIS of New York expressed his belief that he had helped to provoke anoci-association by his 1½-inch incision.

Dr. A. J. OCHSNER of Chicago said it was fundamental to widen the margin of safety. He felt that Crile's innocuous method accomplished this.

Dr. HOWELL of Columbus, expressing admiration for Crile's method, administered veronal in 10-gr. doses, followed by morphine sulphate in divided doses to his preoperative patients. He found that quinine and ureahydrochloride injected into the skin caused a slough, interfering with union.

Dr. CRILE, in conclusion, advised the administration of morphine in selected cases and warned against the injection of quinine and urea hydrochloride into the skin.

The Problem of Intestinal Obstruction: Effort to Explain Variable Clinical and Experimental Results.—Dr. FRED T. MURPHY of St. Louis quoted a number of observers who generally agreed that death in obstruction was due to toxemia. This toxemia depended upon its production and toxicity for its severity. He reconciled the contentions of Hartwell and of the Hopkins Laboratory in part. They differed in the origin of the toxin. Murphy concluded that toxin caused death in obstruction, that the toxin was bacterial in origin, and varied with the duration of the obstruction. He said the toxin might enter the system through the thoracic duct and that obstructive death was not marked by peritonitis or general blood invasion. He concluded further that interference with circulation of obstructed loop was necessary for absorption, and advised resection rather than drainage for such a portion of intestine. Dogs with excluded jejunal loops die without peritonitis. He pointed out that high loops produced the greatest accumulations of secretion with distention, while the low loops produced the least secretion and were tolerated longer. He maintained that a sterilized loop produced no symptoms until after infection. The same applied to obstructive gall-bladders. He looked upon the toxin as a ptomaine.

Dr. J. W. DRAPER of New York opened the discussion. He presented two very potent reasons for believing obstructive death due to a toxemia is of a biochemical nature. In the first place, obstruction at the cephalad end of the intestinal tract which was comparatively sterile, was particularly fatal, whereas obstruction at the caudad end which was rich in infectious material was well tolerated. He further showed that if you feed duodenally obstructed dogs cells from the jejunum and ileum of healthy dogs it will prolong the life of the obstructed dogs once again as long as the control dog. He pointed out that this prolongation of life resembled somewhat that produced by feeding doubly nephrectomized dogs kidney tissue. These facts were emphasized by a series of carefully arranged lantern slides.

Dr. J. A. HARTWELL of New York denied the sterility of the upper intestine, affirming that there were considerable organisms always present to infect obstructed loops. He drew attention to the importance of water supply to dogs with high intestinal obstruction where the water loss is considerable and to the comparative unimportance of water to dogs with low obstruction. He held, in addition to brain, liver, and renal glands, the kidneys and the body tissues in general could be shown to suffer from the effects of a toxemia.

Dr. MURPHY, in conclusion, said that he considered feeding experiments unreliable and denied the relative sterility of the upper intestinal tract.

Internal Hernia Due to an Aberrant Middle Colic Artery.—Dr. ALEXANDER PRIMROSE of Toronto reported a case of internal hernia due to an aberrant middle colic artery which arose from the right common iliac and formed the mouth of a pouch containing the entire small intestine. He pointed out other locations where similar internal hernias might occur, including the duodenal jejunum junction, the sigmoid, and the ileocolic junction. He mentioned particularly the foramen of Winslow, and by it emphasized the gravity of dealing radically with such hernia. The imminent relation of important blood vessels made it impossible to relieve the hernia without seriously interfering with the nutrition of some portion of the intestine.

Dr. C. A. POWERS of Denver commended Dr. Primrose on his conservative judgment of internal hernias.

Dr. W. A. COLEY of New York reported a similar case of inter-sigmoid hernia where he was compelled to operate to relieve obstruction and overcome the effects of rupture.

Dr. E. W. ANDREWS of Chicago considered hernias of such character inoperable. He recognized the necessity of relieving strangulation where in an attempt to save life intestinal anastomosis might be necessary. He favored classifying internal hernias under intestinal obstruction.

The Rodman Operation for Cancer of the Breast.—Dr. DONALD GUTHRIE of Sayre, Pa., described the Rodman operation for cancer of the breast. He described the technique carefully considering it to be of considerable value to dissect away from the axilla. This revealed the extent of axillary involvement and cutting across the lymphatics prevented further extension during the traumatism of the operation. He said that skin grafts were seldom necessary and that limited arm function due to cicatrix was very unusual.

Cancer Vaccine and Anticancer Globulins as an Aid in the Surgical Treatment of Malignancy.—Dr. J. W. VAUGHAN of Detroit called the cancer cell a protein cell with toxic and nontoxic groupings, the former when injected into the body intoxicated, the latter sensitized to cancer-globulin. Intraperitoneal injection was associated with the greatest reaction because of the exposure of the greatest number of body cells to foreign protein. He presented the problem of using up the antiferment produced at each injection of ferment that the ferment injected might be free to attack the cancer tissue. Dr. Vaughan concluded his talk by recommending the use of his cancer vaccine in connection with operation for cancer.

Dr. PARKER SYMS of New York, discussing, said he believed that every case of chronic cystic mastitis should be regarded as potential cancer and treated by radical operation in all instances.

Dr. W. L. RODMAN of Philadelphia explained that his operation had been originated so as to embrace the good points from operations of Halstead, Meyer,

Harold Stiles, and others. Of fifty cases operated upon for cancer of the breast, 78 per cent. were found living after three years.

Dr. Joseph Bloodgood of Baltimore declared that results as he saw them of the younger men were, in general, equal to the results of the older men of greater experience. He emphasized the wide dissection of fat and fascia overlying cancer. He declared that the wall dissection was more important than axillary dissection, but that most important of all was the ability to diagnose any breast lesion when first met with.

Dr. W. B. Coley of New York outlined briefly the different means of producing or of attempting to produce immunity to cancer.

Dr. M. M. Lucid of Cortland, N. Y., emphasized early diagnosis and sharp knife dissection.

Dr. Weider of Philadelphia pointed to the importance of frozen section study in the operating room.

Dr. Jacobson of Toledo declared that the Rodman operation was alone free from the complication of lymphedema of the arm.

Dr. Guthrie in conclusion said that in postoperative cases he used the *x*-ray for one year following operation.

Dr. Vaughan in conclusion added that vaccine was given according to increased mononuclears. He advised operation after vaccination when the ferment was free in the blood stream.

The Standardization of the Surgeon.—Dr. J. T. Finney of Baltimore enumerated the difficulties of establishing the standard of one desiring to practise surgery. He recommended leaving physical and temperamental requirements with the teachers of the medical schools. Speaking of professional requirements, Dr. Finney held that the abuses of fee-splitting, self-advertisement, and extortionate fees should be left with the surgical society to correct. He said that the technique of private life should be spotless. He held that he was guilty of misdemeanor who while unfit for surgery practised surgery, for he was pretending to possess that which he did not have. Charges should be based upon professional training, special skill, and the financial status of the patient.

The Standardization of the Surgical Clinics.—Dr. F. D. Gilbreth of New York said that surgery presented an ideal example for motion study especially in respect to the surgeon as a worker and his equipment. Speaking of his instruments he said they were very poor and too many. Surgeons' methods were numerous in spite of the fact that there could be but one perfect method. He illustrated the fact that uniformity of method saved time and effort. He recommended the organization of one hospital where the best surgeons might operate in the best way with standardized instruments.

The Surgical Service in Hospitals.—Dr. H. O. Collins of Minneapolis said that the choice of materials for hospital use should be left to a conference between the surgeons and the administration. Choice of the nurse for any particular case should be left with the administration. The preparation of patients for operation in each hospital should be agreed upon and left with the internes to arrange for. The operating room should of course be ideally equipped and in it there should be tolerated one uniform method of performing each operation. Uniformity of method was facilitated by having an organization comprising a surgical chief who would be responsible for all operations performed within his hospital, associates who should be qualified to operate, and assistants whose function it was to arrange the patients for operations. None of the associates should operate without the knowledge of the chief. Both the associates and the assistants should be chosen by the superintendent upon the nomination of the surgical chief.

Dr. R. E. Dickenson of Brooklyn reviewed Gilbreth's talk as he saw it.

Dr. MacGee of Burlington expressed himself opposed to the limitation of the medical student who he declared was licensed to practise both medicine and surgery.

Dr. J. A. Hornesby of Chicago pleaded for more economical hospital management and recommended cooperation between the surgeons and administrators to accomplish that end.

Dr. H. T. Sutton of Ohio suggested that the conscience of the operative surgeon be considered a requisite for his license to practise surgery.

Dr. Finney in conclusion explained it was his hope to suppress unethical and immoral practices.

Hodgkin's Disease.—Dr. J. L. Yates of Milwaukee ascribed high mortality of Hodgkin's disease to its unknown etiology. It was curable in early stages. To effect its cure it was necessary to remove the focus of infection and prevent its extension to other foci. Vaccine therapy produced improvement but not beyond that of other methods of treatment.

Dr. G. W. Crile of Cleveland held the value of vaccine study lay in its relation to cancer and the ductless glands.

Dr. J. T. Ochsner of Chicago expressed the view that Hodgkin's disease was an infection. He thought the elimination of the harbor of entry and of infected food would prevent the disease.

Dr. E. W. Andrews of Chicago related his experience in the study of the etiology of Hodgkin's disease.

Dr. Yates concluded that there was a characteristic clinical and microscopical picture for Hodgkin's disease, that no case could be considered cured that gave any microscopical evidence of the disease within six years following the treatment, and that judged according to these standards he had two cases absolutely well.

Penetrating Wounds of the Abdomen.—Dr. Ralph Winslow of Baltimore discussed his personal experience with gunshot wounds and stab-wounds of the abdomen. While prompt laparotomy was the wisest procedure for them in civil practice it was apparently prudent to trust to nature in military practice. Treatment included arrest of hemorrhage, the establishment of efficient drainage. Fowler's position, and rectal instillation.

Dr. E. LaPlace of Philadelphia emphatically pleaded for immediate operation when the knowledge of a bullet within the abdomen was obtained.

Dr. C. Wilson of Birmingham, Ala., reported for his first twenty-five cases ten deaths, and for his second twenty-four cases sixty-five per cent. mortality.

Dr. Jacob Frank of Chicago said penetrating abdominal wounds in military practice were sealed up to keep out ectogenic infection, although septic peritonitis developed twelve hours later. He recommended insertion of a drain to keep the wounds open.

Dr. Ford of U. S. A. added it was military practice not to touch gunshot wounds of the abdomen. Of those operated upon all died, while of those not operated upon some had recovered.

Dr. F. N. McRae of Atlanta recommended prompt operative treatment for penetrating wounds in civil practice.

Dr. W. L. Rodman of Philadelphia quoted authority for fifteen per cent. mortality from operation for penetrating abdominal wounds within the first twelve hours, 44.6 per cent. for second twelve hours, 67 per cent. for third twelve hours and 70 per cent. for fourth twelve hours. He advised flushing out of the abdomen in late cases of penetrating abdominal wounds where there had been extensive soiling of the peritoneum.

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, March 16, 1914.

The President, Dr. Thomas S. Southworth, in the Chair.

Presentation of a New Cystoscope and Gastroscope.—Dr. Julius London demonstrated a new cystoscope and gastroscope which he had devised.

The Differential Value of Cyclic Indicanuria in Gastrointestinal Diseases.—Dr. Gustave Baar of Portland, Ore., and Carlsbad, Austria, read a paper on this subject, in which the practical results of his studies, extending over several years, were summed up as follows: (1) Instead of guessing at the diagnosis in cases coming under observation in which there were indefinite gastrointestinal symptoms, we should test the urine regularly for indican, and, after having made twenty or thirty such tests we should be able to make a diagnosis. Only repeated examinations for indican would throw any light on those obscure lesions of the gastrointestinal tract which for years might not have shown any definite symptoms. (2) We should practise high colonic lavage, for a few weeks, in order to be assured that the indican did not form in the lower colon. (3) We should watch the gastric juice for achlorhydria, to exclude this possible cause of indicanuria. If we made these tests we would find that we

could divide the indicanuria cases into three types: (1) Transitory indicanuria, due to some temporary anatomical lesion or insufficiency of gastrointestinal secretions (psychic). (2) Constant indicanuria, due to permanent or progressive anatomical lesions of the gastrointestinal tract or to permanent insufficiency of the gastrointestinal secretions (earmarks of hypoplastic constitutional anomaly). In this latter class of cases, about 1½ per cent. of all, we could remove indicanuria, and many of the clinical symptoms, by high colonic lavage. (3) Recurrent indicanuria, due to some recurrent anatomical lesion of the gastrointestinal tract. High colonic lavage would remove this type of indicanuria only when the lesion was located in the colon, having no effect whatever when it was higher up. In these cases cyclic indicanuria was quite often the only positive evidence of gastrointestinal lesions which called for surgical interference (chronic appendicitis, cholecystitis; ulcer of stomach or duodenum). The acceptance into our diagnostic armamentarium of the symptom of cyclic indicanuria would, the speaker trusted, help to reduce the number of so-called intestinal neurasthenics and hypochondriacs, reduce the mortality of gallstone operations, because of an earlier diagnosis of atypical cases, prevent gastric ulcers from remaining unrecognized until perforation occurred or cancer developed on their bases, and cure a large number of "nervous" hyperacidity cases by removing the anatomical substratum of such.

Dr. William H. Porter said that frequently repeated examinations of the urine for a considerable time—for days and weeks in steady succession—was the only way in which we could arrive at any satisfactory conclusions regarding indicanuria and its relation to metabolic disturbances. In the case of one patient he had had the opportunity of examining a specimen of urine every twelve hours successively for eighteen months, and this afforded a wonderful revelation as to the true significance of indicanuria. There were many phases of the subject, as he had found by this series, and by examining some three or four thousand other specimens during the past two years. One of these was the fact that that all forms of indicanuria have as their cause an arrest of the normal flow of the digestive secretory ferments, however brought about; and also that just as soon as we could re-establish the normal flow of these ferments the indicanuria would disappear. Hence, in all these cases, this was the main thing to accomplish. In the case referred to, which was that of a gentleman with enlarged prostate, the indicanuria did not yield to any kind of treatment until the pain from which he suffered had been relieved. Relief was very promptly afforded by minute doses of powdered opium combined with potassium bromide and extract of valerian, and with the relief of the bladder pain and spasm there came an augmentation of the digestive ferments and a rapid disappearance of the indicanuria. Furthermore, this was more or less permanent for weeks thereafter. Dr. Porter had observed many instances in which troublesome nervous disturbances associated with indicanuria had continued as long as the digestive secretory ferments were not adequately produced, and in which just as soon as they were, all abnormal symptoms were removable.

Dr. Louis F. Bishop said that the idea, still retained by many, that indicanuria is often dependent upon constipation, should have been exploded long ago. In his own work, especially regarding the problem of arteriosclerosis, he had become impressed by the importance of indicanuria of metabolic origin. Thus, indicanuria was a constant accompaniment of advanced arteriosclerosis with high blood pressure, discomfort in the region of the heart, threatened apoplexy, etc. Everyone recognized that the animal protein elements in the food are the ones most concerned, and recent work at the Rockefeller Institute, pointing to the comparative simplicity of the digestive processes pertaining to protein foods in the intestinal tract and to the fact that the amino acids are stored in the tissues, leaving the more elaborate changes for a later period, emphasized the importance of metabolism. This fact, that protein foods are quickly broken up and pass into the tissues, from which they are taken up and dealt with by the chemical processes of the body, indicated that the processes within the intestine are of much less importance than was formerly supposed. Arteriosclerosis represented the result of that disturbance of metabolism which was of most importance to the human race. It consisted of the direct damage to the cells of the body by materials, of food and bacterial origin, to which the cells are sensitive. Somehow, during this process, indican appeared in the urine, and this indicanuria was of a most intractable type and, from his own point of view, had overbalanced in importance the intestinal indicanuria to which he had formerly paid as much attention as anyone else. Dr. Baar's point that a lesion in the intestinal mucosa would permit the passage of indican into the circulation was interesting to him because, if this were the case, it was possible that crude proteins, leading to sensitization of cells, might also gain entrance to the circulation.

Dr. Edward Waitzfelder stated that indicanuria was an evidence, not of intestinal fermentation, but of intestinal putrefaction. There was always a small amount of indican in normal urine, and it was only when it was in excess that it was indicative of a pathological condition. After some remarks on certain abnormal digestive conditions and processes and their results, he went on to say that the value of the presence of indicanuria was not that it indicated intestinal putrefaction, but that it showed that there was present some abnormal condition, anatomical or physiological, which interfered with the functions of the abdominal viscera in maintaining a proper balance between the benign and the malign intestinal bacteria. The rate of flow and quality of the blood-stream within the abdominal cavity was not the least important element in this matter. Congestion meant stasis, and stasis meant a change in the alkalinity and osmotic properties of the blood, with a resulting new culture medium within the digestive tract. Any focus of irritation within (and sometimes without) the abdominal cavity might be sufficient to give rise to a "reflex" manifesting itself in intraabdominal congestion. It was in this way that indicanuria was produced as a symptom of chronic appendicitis, lesions in or about the gallbladder, gastric or duodenal ulcer, pathological conditions in the female pelvis, etc. These were the so-called surgical causes of indicanuria, and the cases constituted but a small proportion of those in which this was present. The medical cases of persistent indicanuria were far more frequent, and usually followed an error in diet or were of psychic or nervous origin. It was well known that psychic disturbances caused a change in the splanchnic blood supply, and it was along this line that an explanation might be sought for the functional neuroses. Toxemia resulting from the action of abnormal microorganisms in the gastrointestinal tract produced an irritation of the higher nervous centers in the medulla and upper spinal cord, at the origin of the sympathetic; manifesting itself by an alteration in the rate of flow in the abdominal blood-vessels. In this way a vicious circle was established. The irritation of these higher nervous centers, if continued sufficiently long, resulted in anatomical change; cellular degeneration took place, a morbid anatomical condition supplanted a morbid physiological one, and, as in all other pathological conditions where nerve cells were destroyed, complete restoration of function was impossible. The examination of urine for indican should be as much a routine as that for albumin or sugar, for indicanuria was frequently the first symptom of a condition which, if allowed to go on unchecked, would result in the most serious consequences. It was, however, but a symptom, and treatment should be directed against the cause producing it.

Dr. Baar said that Dr. Bishop's contention regarding indicanuria, however plausible it might appear, was certainly not yet proved. In the paper he had propounded no theories, but had confined himself strictly to facts in regard to cyclic indicanuria. In gastrointestinal cases where a diagnosis could not be made, 24-hour specimens of urine should be examined every second day for six weeks. Usually between 30 and 40 tests were required in order to arrive at satisfactory conclusions, and where symptoms of abdominal or pelvic disturbance persisted, the patient ought to be cut open. Cyclic indicanuria associated with vague symptoms of this character constituted a surgical case.

Report of Fifty-four Cases of Lobar Pneumonia Treated by a Special Method.—Dr. Edward E. Cornwall, after having summarized the clinical features of these 54 consecutive hospital cases, stated that there occurred four deaths, giving a mortality of 7.4 per cent.; while two of the patients were moribund when admitted. A fifth patient died two weeks after apparent recovery from his pneumonia, but as his death was due to another disease, it was not included among

the pneumonia fatalities. The special method employed in this series of cases, he said, exploited no new drug, nor any old one in extraordinary dose; nor did it include vaccines, though the door was left open for them. It was essentially a physiological method, aiming solely to put and keep the patient in the condition he would be able most easily to cure himself, and to ward away from him everything tending to interfere with the natural process of recovery. A point in the hygiene considered of importance was to temper the cold fresh air to the afebrile patient. During the febrile period of a well-marked lobar pneumonia the fresh air should be cold, but in the aged and in cases with little or no fever, and always after defervescence, the patient should be kept warm and protected from drafts. A particular and essential feature of this treatment was the regulation of the diet along the following lines: The amounts of protein and fuel given were less than in the minimum health rations, the diet as a whole was nonputrefactive, and it included a sufficient quantity of the food salts needed by the body, especially calcium salts, of which there was reason to suspect that a deficiency regularly existed in pneumonia. The purpose of this diet was to supply nourishment sufficient to carry the patient through the short period of the disease with a minimum of trouble from the alimentary tract, that region of special danger in pneumonia, whence might come general poisoning, vasomotor paralysis, nervous disturbances of the heart through the reflexes, and mechanical disturbances from distention. The speaker then described in detail the diet he was accustomed to order. Prescription 1, to be taken during the febrile period and for at least three days after defervescence, was as follows: 8 A.M. Give 7½ ounces of a two-to-one mixture of milk and barley water, to which has been added 5 grains of sodium chloride. 8:30 A.M. 12 grains of calcium chloride dissolved in 5 ounces of water. 10 A.M. 7½ ounces of the milk and barley mixture. 11 A.M. 7½ ounces of orangeade, made with the strained juice of one orange and 1 ounce of milk sugar. 12 M. 7½ ounces milk and barley mixture. 12:30 P.M. 12 grains of calcium chloride in water, as before. 2 P.M. 7½ ounces milk and barley mixture. 3 P.M. 7½ ounces of orangeade, as before. 4 P.M. 7½ ounces milk and barley mixture. 4:30 P.M. 12 grains of calcium chloride in water. 6 P.M. 7½ ounces milk and barley mixture. 8 P.M. 7½ ounces milk and barley mixture. 8:30 P.M. 12 grains of calcium chloride in water. 11:45 P.M. 7½ ounces of orangeade. 11:55 P.M. 12 grains of calcium chloride in water. Administer everything through a tube, without raising the patient's head. This prescription, which supplied about 38 grams of protein, and fuel to the value of 1,200 calories, 35 grains of sodium chloride and 60 grains of calcium chloride, in addition to the salts in the articles of food given, and 95 ounces of water, served as a standard diet, and a maximum diet, except in regard to water, which might be given freely in addition, if desired. Certain modifications of this prescription, to be used under special circumstances, were also given. Later a somewhat more liberal diet was allowed, as in prescription 2, to be taken on the fourth day after defervescence in uncomplicated cases, and prescription 3, on the seventh day after defervescence, or as soon as convalescence was assured. Another essential and characteristic feature of this treatment was extreme caution and reserve in the use of cathartics, as his clinical experience had convinced him that patients would generally do better if their bowels were not much or often disturbed by artificial evacuents; provided that they were fed according to the plan described. Under the nonputrefactive, limited diet recommended the bowel contents were generally harmless. There could be no question, however, that if in the beginning of the attack the bowels had not moved within a reasonable time, a gentle laxative should be given. A vegetable cathartic, such as castor oil, was preferred, and the popular calomel and Epsom salt were looked upon with disfavor, either then or later, as adding materially to the gravity of the prognosis. The artificial induction of a bowel movement, by any means, near the time of crisis, or when the heart was undergoing strain, seemed to be contraindicated. In this treatment, after an initial gentle purge, simple enemata were given every second day, if the patient was in good condition, until the expected time of the crisis (usually about the fifth day), and after that time, or at any time if there were signs of heart strain, the bowels were not disturbed. The treatment of symptoms, according to this method, was distinguished by conservatism, and a few points in this connection were referred to by Dr. Cornwall. For severe pain in the early period morphine or codeine was given in moderate doses, but later on, especially near the time of crisis or at any time when there was much respiratory embarrassment, opiates were strictly avoided. Hot poultices were sometimes applied for severe thoracic pain. For restlessness, sodium bromide was the preferred drug. If delirium incited the patient to get out of bed, physical restraint was employed. In case of gastric irritability, diarrhea, or tympanites, reduction of the diet was the only treatment given. Stimulation of the heart was required more often than not, except in children, and in the aged, alcoholics, and patients with preexisting myocardial disease it was employed from the beginning. It was considered more desirable to begin this a little before it was actually needed than to wait until the heart had suffered from lack of it. Strychnine sulphate was regarded as the most useful drug, and if more stimulation were needed, tincture of strophanthus was given in addition. In exceptional instances caffeine citrate was also employed, and where there was an obstinately dilated ventricle, digitalin was administered hypodermically. In cases with extremely low blood-pressure adrenalin was given, hypodermically or by the mouth. Whiskey, in small amounts, was given to alcoholics and to the aged, if they bore it well. For extreme dilatation of the right ventricle, threatening disaster, venesection was believed to be indicated, and in one case (not in this series) he had resorted to it with good results. In this treatment not only was frequent or violent catharsis by such agents as calomel and salts avoided, but also excessive heart stimulation, especially with digitalis (which should never under any circumstances be given by the mouth), the use of analgesics or hypnotics of the coal tar class, the use of expectorants, intestinal antiseptic drugs, and diuretics, and the use of creosote carbonate quinine, hexamethylenamine, camphor, or any drug for a specific bactericidal effect. Anything like positive conclusions, he went on to say, could be properly drawn only from the statistics of a very large number of cases, and there were few diseases in regard to which it more became us to be reserved in this respect than pneumonia. But although the report of this series of cases might not serve as a basis for positive conclusions, it certainly was suggestive. Particularly suggestive were the following facts observed: (1) While in nearly one-third of the cases the temperature reached or exceeded 105° F., only one of the four deaths occurred among these patients. (2) The clinical observation was made in a number of instances that after a stage was reached where the circulatory signs and symptoms pointed to a speedy collapse, according to experience in the past with other methods of treatment, the heart showed an unusual endurance, which enabled it to keep on beating until the time of defervescence came, with recovery. (3) The systolic blood-pressure fell below the pulse rate in 27 out of 31 cases in which sphygmomanometric records were made, but out of those 27 cases which showed this supposedly bad prognostic sign, only 3 died, while 24 recovered. (4) Pronounced vasomotor paralysis did not develop in any of these patients after admission. (5) Tympanites in noticeable degree was not observed in any of the patients except those who entered the hospital with it, and in the latter, barring the two moribund cases, it soon decreased markedly or disappeared.

Dr. AUSTIN W. HOLLIS said he would be quite ashamed to compare his own statistics with those of Dr. Cornwall, although they were no worse than the average. The general mortality for large numbers was the same today that it was twenty years ago—between 20 and 25 per cent. When we took cognizance of the nature of pneumonia, and of the subjects most liable to the disease, the aged and cardiacs, cardionephritics, and alcoholics, we had to concede a mortality of 10 per cent. as inevitable. The severity of many of the cases outlined in the paper would not permit us to say that under any treatment the results would have been as favorable, and if we analyzed the main points which Dr. Cornwall inculcated we might find good reasons for his arguments. First, as to the diet: "Antiputrefactive" sounded well, but he felt bound to say that the ordinary diet employed generally in pneumonia, as milk, broths, gruels, and albumen water, had been found by long experience to be about the best for such a disease, and he did not think that Dr. Cornwall had really made any good points in the matter of

dietary. Second, as to letting the bowels alone and non-use of cathartics he quite agreed, for he believed that the initial calomel and continuous purgation often fatally disturbed digestion. Third, the avoidance of useless drugs and much alcohol was a most admirable practice. Fourth, as to the use of calcium salts. We could only theorize as to the possible effects of these salts in pneumonia. Dochez had found the coagulation time of the blood during the acute stage of the disease prolonged under their use, while Ewart had found it shortened. Again, Rudolph and Cole had found that calcium, administered by the mouth, had no effect on the coagulation time. Januseklie had shown that pleural effusions may be checked by subcutaneous injections of calcium chloride, and several observers had shown that the permeability of the vessels is lessened by the use of the calcium salts. Lauder Brunton had suggested the employment of calcium salts in pneumonia to neutralize the toxins of albumoses and peptones and to counterbalance the sodium chloride retention, and because of their direct stimulating effect upon the heart. We might assume that their use in this disease diminishes exudation and improves capillary tone, thus giving more power to the heart; but it would take a very large experience to prove that the mortality of pneumonia is lessened by them. While the mortality in the disease might not have materially decreased in the last twenty years, many advance steps had been taken which might pave the way for much better results. A few years ago the cold fresh air treatment had been heralded as a wonderful reducer of mortality, and it bade fair to delay our therapeutic resources in the same manner that tub bathing had done in typhoid fever. Cold air was of value in most cases, and fresh air in every case, but, after all, these were only hygienic necessities. As to chemotherapy, preparations of creosote were still held in repute as making the lungs a less favorable breeding place for the pneumococcus, and now camphor, supposed to have the same effect plus a stimulating action on the heart muscle, had taken a still greater hold on our imagination; but in watching individual cases he had never met with an appreciable response to their employment. Chemical bactericides such as ethylhydrocuprein, as experimentally tried on animals by Morgenroth, did not seem a promising discovery, as they were more likely to do harm than good to the host. In regard to drugs in general, those which affected the heart or blood-vessels had always been given a prominent place in the treatment of pneumonia, and definite knowledge concerning their value had accumulated. Aconite, nitroglycerin and other vasodilators, once so much used, had been abandoned as harmful. Preparations of digitalis, in his opinion, were equally harmful, save in exceptional instances. Strychnine and caffeine still retained their place as excellent transitory cardiac and vascular stimulants. Adrenalin, subcutaneously or intravenously, had proved its value as a heart stimulant and reducer of pulmonary congestion by dilatation of the coronary and bronchial arterioles. The greatest triumph that he had ever seen by drugs had been in the use of this agent in those trying cases of bronchopneumonia in infancy characterized by edematous lungs, fixed diaphragm, retracting airspaces, and pale purplish eyeballs. Two minims of adrenalin, hot mustard baths, and cool fresh air had in his experience pulled two such cases from the grave. Drugs which eased pain and cough and caused sleep must often be used. The best of these was codeine, and next came dionin or morphine. Paraldehyde intravenously was excellent in alcoholics, but the ordinary hypnotics of the veronal type, except in very small doses, were all pernicious. Bacterial vaccines, in doses of from ten to one hundred millions, had been very well tried. N. Rau, reporting 200 cases, with a mortality of 16 per cent., had seen no bad effects and believed the vaccines to be of positive value, especially when used early. His own experience was of the same favorable character, but he thought that in such a rapid disease their effect could hardly be striking. Antipneumococcus serum had been used by Roberts in lobar pneumonia and by Freeman in bronchopneumonia. From their reports, as well as his own experience, he did not think it of any value. Pneumococcus phylacogen was a double-edged sword, perhaps capable of killing the enemy, but a dangerous weapon to employ. We were not yet in possession of sufficient knowledge to advise its use during the acute stage, but, in his opinion, one of the greatest advances in the treatment of some of the phases of pneumonia was with this agent. Delayed resolution, abscess of the lung, necrosis, and subacute or chronic pneumococcic infections of the broncial or bronchopneumonia type would clear up in a marvelous manner under its employment. The initial dose, if given intravenously, should never exceed one-twentieth of a cubic centimeter.

Dr. CORNWALL said that while he had emphasized in the paper the point that no reliance ought to be placed on the statistics of such a small number of cases as that reported, it certainly seemed a significant fact that in the last forty hospital cases he had had previous to adopting the plan of treatment now described the mortality had amounted to 20 per cent. The good result met with in the present series of cases he attributed largely, first, to the system of diet employed, and, second, to the non-disturbance of the bowels. The whole idea was to make the metabolic burden as light as possible for the patient. He had laid stress upon exactness in prescribing the kind of diet and the times for giving the food, and this he considered as essential for the welfare of the patient as precision in the administration of drugs. He had also emphasized the importance of the salts in the diet, particularly the calcium salts. He could not agree with Dr. Hollis that there was no advantage in the dietary scheme which he had adopted over the diet usually employed in pneumonia, and too often given in a careless, haphazard way. As to chemotherapy, he had no faith whatever in its specific agency. In the whole range of medicine there was only one instance of a bacterial disease in which a chemical agent appeared to have any such effect—namely, syphilis—and here the result was apparently due to the fact that the diseased process was of such long duration.

A New Operative Treatment for Spastic Paralysis.—Dr. WILLIAM SHARPE said that spastic paralysis was a condition resulting from a lesion of the brain occurring before, during, or shortly after birth. It was characterized by more or less complete paralysis of the part affected, and was associated with a stiffness or spasticity, the degree of which depended on the extent of the involvement of the pyramidal tract. This hypertonicity produced muscular contractures and deformities, usually flexor in type, with a corresponding over-stretching of the opposing muscular groups. In mild cases, however, the spasticity might be very slight. Frequently athetoid movements of the limbs were observed, and epileptiform attacks might occur. In a large proportion of the cases, as the child grew older, not only did the spasticity and its resulting contractures increase, but the mentality became impaired, and this was likely to eventuate in imbecility or even idiocy. The most common cerebral lesion was intracranial hemorrhage which caused a clot to form over the cortex, and, according to the extent of this, and the pressure produced, did we find the gravity of the clinical signs. In spastic paralysis the hemorrhagic lesions constituted 70 per cent. of the cases, the remaining 30 per cent. being mostly the result of agenesis and maldevelopment and of meningoencephalitis complicating acute infectious diseases. The operations which had been used in the past, and were still being employed, to improve the conditions of spastic paralysis, such as tenotomies, tendon lengthenings, sections of the posterior spinal nerve-roots, nerve sections, and alcohol injections of peripheral nerves, were, in the speaker's opinion, of only temporary benefit, and he had yet to see a case in which the spasticity had not returned, at least to some extent, within one year. Little, if anything, had been done to permanently improve these conditions, and he now offered his observations in the hope that they might lead to a more satisfactory treatment of these pitiful cases. His attention had been first centered on the importance of relieving the increased intracranial pressure, as a means of lessening the spasticity and improving the mentality in such cases, by a decompression operation performed at the Nassau Hospital in June, 1913. In all his work Dr. Benjamin Farrell had been associated with him. Since then they had done a subtemporal decompression in 24 selected cases, and the results had been so gratifying that they felt justified in making a report of what had been done up to the present time. In all the cases practically the same improvement had been noted, and while, on account of the short time since the operations, they would not assert that such improvement would be permanent, they could see no reason why the improvement should not become more and more marked as the children grew older. They had selected for operation only the extreme types of spastic paralysis. In cases of the hemiplegic, paraplegic, or diplegic type, with a definite history of difficult labor, in which, on ophthalmoscopic

examination, signs of intracranial pressure were shown in the dilated retinal veins and a blurring of the optic disks, especially in their nasal halves, a large right subtemporal decompression was performed for the purpose of relieving this pressure. If the pressure were extremely high and remained high after the operation, a left subtemporal decompression was done the following month, the operative recovery requiring only a week or ten days. The usual pathological findings were definite cystic formations resulting from a cortical hemorrhage occurring at birth. The after-treatment consisted in the corrections of deformities by tendon lengthenings or stretchings of the contractured muscles, the maintenance of corrected positions by suitable braces, and skilled massage in conjunction with electricity; particular attention being given to the weakened and overstrained muscle groups. A systematic course of muscle training was carried on daily. The improvement had been so marked—not only a diminution of the spasticity, but a definite amelioration of the mental condition—that they believed a cranial decompression was indicated in such cases of spastic paralysis as showed intracranial pressure on ophthalmoscopic examination. The operation was not a formidable one in the hands of one trained in neurological surgery, and they had had no deaths. It was a matter of importance that the anesthetic should be administered by an expert. One of the great advantages of this method was that, on account of the improved mentality resulting from the operation, the cooperation of the patient was obtained in carrying out the after-treatment. Of all the cases of spastic paralysis examined by them about 60 per cent. had shown signs of intracranial pressure, and were, therefore, cases which, in their opinion, could be greatly improved. Cases due to agenesis and maldevelopment of the cortex, not, of course, showing signs of increased intracranial pressure, were easily excluded by an ophthalmoscopic examination. In connection with the paper eight children were shown upon whom the decompression operation had been performed.

Dr. Benjamin Farrell made some remarks in further explanation of the after-treatment, and confirmed Dr. Sharpe's statements in regard to the gratifying mental improvement in the cases.

Dr. William M. Leszynsky said that the enthusiasm and hopefulness as to cure in these cases of infantile cerebral palsy were not justified by the facts, and were based upon an erroneous assumption as to the underlying condition of the brain. Dr. Sharpe had qualified his remarks by stating that the operation of subtemporal decompression was performed only in those cases in which "pressure upon the brain was shown by ophthalmoscopic examination." He (Dr. Leszynsky) felt confident, however, that upon further investigation the patients exhibited would not come up to the required standard, as claimed, when subjected to a critical neurological analysis. It was true that the spastic hemiplegia was the direct result of meningeal or cortical hemorrhage over the Rolandic area, but the presence of a cyst was secondary to the hemorrhage, being merely a terminal condition. The paralysis, due to damage to the pyramidal tract usually followed by secondary degeneration, was present for some time prior to cyst formation, and it was entirely unwarranted to assume that pressure from such a cyst was an important etiological factor in relation to the paralysis. Hence, there was no rational indication for removing a portion of the skull for the relief of supposed intracranial pressure. He recalled that about twenty years ago the Lannelongue operation was in vogue. This consisted in making longitudinal furrows in the skull about one inch wide and several inches in length, in both parietal regions, and was based upon the false idea that a normal brain was prevented from proper growth and expansion on account of premature cranial synostosis. The procedure was abandoned, as it failed to accomplish the desired results, and it was soon demonstrated conclusively that we were primarily dealing with a defective brain. Dr. Sharpe decried all other forms of treatment in these cases, as being directed only to peripheral conditions and not to the source of the trouble, but admitted that the desired improvement required the aid of just such measures subsequent to the cranial operation. As to the alleged mental improvement, it seemed to him that this was but temporary and the result of environmental changes, and largely a matter of self-deception on the part of the mother. A similar state of affairs occurred at the time of the vogue of the Lannelongue operation. It was but a repetition of history. Dr. Leszynsky protested against this surgical plan of treatment in these cases as being illogical and unsupported by a sound pathological foundation. The reader of the paper, he thought, had in his surgical ardor permitted himself to be deceived.

Dr. Edward Wallace Lee told of the case of a young woman of nineteen with spastic paralysis who had been treated for epilepsy, upon whom he had done a decompression with good results. After the operation the patient's mental condition, which had been that of a child of twelve years, improved, the spasms ceased, and the paralysis was markedly relieved.

Dr. Sharpe, in closing, said that the keynote regarding operation, it seemed to him, was the proper selection of cases. There were two reasons why in the past cranial operations had failed in these cases: First, there had been no selection of cases according to the presence or absence of intracranial pressure. If there were no increased pressure, naturally an operation would be of no benefit whatever. Second, the operations in the past had been of the typical bone-flap character; after the exposing of the brain the flap was replaced, and, naturally, no improvement had resulted because the intracranial pressure had not been relieved. A careful selection of cases was necessary, and also the inclusion in the operation of a permanent removal of bone. All the patients shown had had orthopedic treatment previous to the operation, without any real benefit. He had had a series of motion pictures taken before and after operation which showed the marked improvement in these cases. As to the pathology of the condition, if the hemorrhage were within the cortex, the brain would be permanently damaged, but if this were not the case the cortex would be damaged only by the pressure upon it. In the latter instance a cyst developed, and all that we did was to offset the effects of the pressure of this cystic formation. It seemed to him that if we were to adopt an attitude of hopelessness no progress would ever be made.

NEW YORK ACADEMY OF MEDICINE.

Section on Obstetrics and Gynecology.

Stated Meeting, Held April 21, 1914.

Dr. Asa B. Davis in the Chair.

Adhesions of the Sigmoid Flexure of the Colon with Report of Three Cases.—Dr. James N. West reported these three cases which presented very different pathological conditions, but they had one feature in common which had caused him to think of them in one group. This feature was adhesions of the sigmoid which were incidentally released and which in being released gave relief to the most prominent symptoms. The first case was that of a woman thirty-three years of age, never pregnant, who was operated on for an ovarian tumor of the left side. During the operation Dr. West had observed and called attention to several minute whitish spots on the peritoneum of the broad ligament, the intestines, and the uterus. The chief features of interest in this case were: 1. The rapid development of carcinoma from these few almost microscopical foci. 2. The chief early symptoms came from a band across the sigmoid flexure. 3. Rapid improvement after the removal of the obstructive band, notwithstanding the coincident development of carcinoma. 4. The presence in the region of obstruction of a movable and varying tumor. The second case was that of a woman, twenty-six years of age, who had been married at the age of nineteen and had had one pregnancy in which abortion was induced at two months. She had been operated on for appendicitis four months before marriage, the operation being followed by an abscess which opened through the appendicitis incision. She had also had the left ovary removed and later had a curettage. She then had a lipoma of the right breast removed and then the right ovary, and also an operation for the removal of adhesions. She then appeared complaining of pain in the left side of the pelvis, severe constipation, headaches, sleeplessness and extreme nervousness. A mass the size of a small orange could be felt in the left side of the pelvis and a swelling could be observed in the iliac region. A diagnosis was made of intraligamentary cyst of the left side and intestinal adhesions. At operation extensive adhesions of the omentum and intestines were encountered and were with difficulty separated. The sigmoid flexure was found to be somewhat twisted on itself and firmly adherent to the anterior brim of the pelvis and abdominal wall. The chief feature in this case was the marked relief from pain

and the resumption of normal function of the bowels after release of the sigmoid adhesions. The third case, a woman twenty-five years of age, entered Dr. West's service at the Post-Graduate Hospital in November, 1913. She had been regarded as a neurasthenic and almost a drug habitué. She complained of pain in the left lower quadrant which had been present for five years. She was subject to attacks of rapid convulsive movements of the abdominal muscles and diaphragm, which would continue until a drug was administered. The woman had had eight operations. A diagnosis of salpingo-oophritis and intestinal adhesions was made. At operation the intestinal adhesions were freed and the sigmoid flexure was obsrved with a band across its lower part, almost obstructing it. The band was thoroughly dissected away. The chief points of interest in this case were: 1. The patient had been regarded as a neurasthenic and had been repeatedly told that her pain was imaginary and the convulsive attacks hysterical. 2. There was a phantom tumor present at times, and the pain always proceeded from that point. 3. Uncertainty of the diagnosis and the relief following the operation.

Amenorrhea Primitiva.—Dr. IRA B. TERRY reported this case. The patient was a woman, twenty-seven years of age, who was first seen at Dr. West's Clinic at the Post-Graduate Hospital, November 13, 1913. She was an Italian who had been in this country four years. Her family history was good and she had a sister who was married and had three children. The patient had been married seven years and had never menstruated. She gave a history of pain in the left iliac region which came on once a month regularly and lasted two or three days; this would come on regularly for five or six months and then would cease for that length of time. The vaginal examination showed a cervix slightly larger than normal, and hard. The uterus was small, firm, and regular. The ovary on the left side was larger than normal, and a distinct corpus luteum could be felt on it. The other ovary was not freely movable and the tubes were palpable. The patient had no vicarious menstruation. The Wassermann was negative. She was treated by the administration of ovarian extract and calcium lactate, and also small doses of thyroid, but with no effect. She was then given extract of corpus luteum of pregnant cows with suprarenal extract, and lastly an ampoule of extract of pituitary body twice a week. When he started with the first treatment the patient had severe cramp-like pains in the lower part of the abdomen typical of dysmenorrhea and had to stay in bed for three days. She was given ergot-apiol capsules to relieve the pain. Each month, just as it was time for her to have these pains the left ovary would be as large as a hen's egg; then about the middle of the month it would be down to the size of an English walnut again. It was possible that there was an obliteration of the uterine venous plexus.

Dr. JAMES N. WEST asked Dr. Terry if he had had any experience with the use of animal extracts in these cases of amenorrhea primitiva. He had used them in several cases. He had employed the corpus luteum of the cow, and believed that he obtained good results, as the patient seemed to menstruate better than before its use.

Dr. HERMAN J. BOLDT said that in his experience he had seen no benefit from the use of the animal extracts. He had used an extract of the interior lobe of the pituitary body in these cases of amenorrhea primitiva, but the results were negative.

Result of Goffe's Operation for Complete Prolapse.—Dr. GEORGE GRAY WARD, Jr., presented this patient, a woman, thirty-four years of age, who for two years prior to the time he had operated on her had had a complete prolapse, the uterus and both vaginal walls hanging outside the vulva. He had operated on her two years and seven months ago. She was presented to show what results could be obtained in these difficult cases.

Dr. WARD asked the chairman to appoint a committee of three to report on the present condition of this patient. As he had done the Goffe operation he requested that Dr. Goffe might be appointed on the committee.

Dr. ASA B. DAVIS appointed Dr. Goffe, Dr. Boldt and Dr. West on this committee.

Dr. J. RIDDLE GOFFE said that he doubted if any could realize without seeing her the condition formerly presented by this woman. Now the levator ani muscles were very firmly united and the support to the pelvic floor was simply perfect. The vagina was rather small in size but not too small. In examining the woman he had detected a broad, firm band of tissue passing across the pelvis, evidently the broad ligaments which were sewn together in the median line. The comforting thought was that while extreme procidentias had been the *bête noir* of the profession, now they had an operation that would stand the test of time. Dr. Goffe congratulated Dr. Ward on the result that he had obtained in this particular case.

Dr. HERMAN J. BOLDT said he was in accord with what Dr. Goffe has said regarding the result of this operation for complete prolapse. He could not imagine it possible for anyone to get a better result than they had found in the examination of Dr. Ward's patient.

Dr. JAMES N. WEST said that his examination of Dr. Ward's patient confirmed all that he had said regarding the result of Goffe's operation for complete prolapse. He did not think that the patient would be troubled with either rectocele or cystocele. He had always felt some hesitancy in doing a hysterectomy in a patient of thirty-four years or thereabouts, but he should not hesitate to remove the uterus in such a case as this one. One could not ask for better results by the Goffe operation than were shown in this case.

Dr. GEORGE GRAY WARD said the question of what was the best operation in cases of complete prolapse was always before them. Recently, while in Rochester, Minn., he had seen the Mayos operate for complete prolapse and they did a combination of the Goffe operation and the Watkins-Duhrssen. They first removed the uterus and sutured the broad ligaments together as Goffe did and then they interposed the broad ligament between the bladder and vagina, anteverting the broad ligament and placing the bladder on top of it. He had tried this operation recently but did not yet know just what the results would be. This certainly was a promising operation and worth a thorough trial.

Report of a Case of Vesicovaginal Fistula with Unusual Phosphatic Deposit.—Dr. GEORGE GRAY WARD, JR., reported this case. The patient was a woman, forty-four years of age, who had had a very stormy history. Nine years ago she had undergone a very difficult labor. At that time he had used the Tarnier forceps, to which he seldom resorted. In this case they slipped and the result was a vesicovaginal fistula. This was repaired shortly after labor and with apparently a perfect result. Last May she returned and a mass was found encysted in the anterior vaginal wall; this was about the size of a cherry, and was undoubtedly made up of phosphatic deposit from the urine. She developed a leak in the anterior wall beneath the phosphatic deposit. He made a longitudinal incision of the vaginal wall and dissected it freely from the base of the bladder and thus removed the deposit with its sac. The opening was very minute so that he could scarcely pass a bristle through it. There was a small opening in the vaginal wall into the encysted deposit. The cystoscope had previously revealed the opening in the trigone. The bladder and vagina were sutured separately and the patient made a complete recovery.

Specimens from Two Cases of Carcinoma Uteri Obtained by the Wertheim's Operation.—Dr. GEORGE GRAY WARD, JR., made this presentation. The history of the first patient, he said, was of unusual interest. She was forty-two years of age, and had had seventeen children, the last ten months ago. Since that time she had been bleeding profusely and she still had a foul discharge. He did a typical Wertheim operation. The enucleation was satisfactory so far as the uterus was concerned, but it was found that the growth had eaten into the bladder. The case looked hopeless, but being encouraged to go ahead he removed a good part of the vagina and parametric tissue and a suprapubic cystotomy, as he found the growth perforating the trigone. A section of the bladder nearly the size of a twenty-five cent piece was removed. An elliptical incision was made in this removal. The drainage employed was that used after the operation of suprapublic cystotomy. There was no leakage from the bladder for six months. The patient had not lost weight and felt well. Recently there had been some bleeding on coitus and examination revealed a small polypoid mass in the vaginal scar. This was removed and sent to the pathologist, who found no evidences of malignancy.

Dr. WILLIAM MCKIMMIE HIGGINS reported on the small polyp. The diagnosis was vascular fibrous polyp with secondary simple chronic inflammation.

Dr. GEORGE GRAY WARD presented a second specimen of carcinomatous uterus removed by the Wertheim

operation about six weeks ago. The patient was forty-seven years of age, a widow, and the mother of four or five children. Her symptoms had progressed for a year. In this instance he removed about one-half the vagina as well as the parametric tissue as shown in the specimen. The interesting point in this case was that the patient's blood was low in hemoglobin, and they had been able to help her by transfusion of blood from a vigorous son. Dr. Edward Peterson did the transfusion by the Linderman method. The patient felt much better even on the following day. This was a recent case but it was interesting because of the marked degree of anemia complicating it.

Dr. Ward presented another specimen showing the result of the Wertheim operation which had been removed from a patient last December. The patient was thirty-eight years of age, and had had three children. She had had menorrhagia for about a year. The parametrium and the amount of vagina removed was shown in the specimen. There was no sign of recurrence up to the present time, four months after the operation.

Dr. Herman J. Boldt said that Dr. Ward was to be congratulated on the results obtained in his first case of carcinoma, particularly in the case of such marked obesity.

Dr. J. Riddle Goffe said he thought Dr. Ward very fortunate in obtaining such good results in his case of carcinoma, and he was to be especially congratulated on the case with the very low percentage of hemoglobin. The case recalled one that he had seen at the Woman's Hospital two years ago. She was brought in on a mattress, the bleeding having been terrible and continuous for weeks. He found the uterus large and made the diagnosis of some fibroid condition, probably submucoid fibroid. He made a short incision through the vaginal wall on either side, and applied compression forceps, catching the uterine arteries and controlling the bleeding. A month later he did a vaginal hysterectomy. On opening the uterus he found the interior full of irregular stalactites, protruding into the cavity of the uterus. Laboratory examination showed this to be carcinoma (epithelioma). He did not do the extreme operation. The woman improved rapidly and went home. She came back to his office in October, looking strong and healthy, but he found the pelvis filled with recurrences.

Dr. Herman J. Boldt said it seemed remarkable how long the first patient had had symptoms before the disease causing them became known. She had symptoms of carcinoma of the cervix for seven months and the disease was strictly limited to the cervix and did not extend beyond at all.

Dr. Charles Gordon Heyd said that in this case it was a comparatively easy matter to do the bladder operation if one had recourse to a distinct bladder technique. The Wertheim operation was abandoned for the time being and the bladder opened suprapubically in the space of Retzius. A wide excision *en masse* was made and the vesical defect closed after an ordinary suture method with No. 2 chromic catgut. Drainage was established by means of an independent stab wound anterior to the suture line. The reposition of the peritoneum over the posterior surface of the bladder adequately prevented leaking and the postoperative course was uneventful. The case showed how readily vesical carcinoma might be attacked and the high reparative power of the bladder in the face of a marked carcinomatous invasion.

Dr. George Gray Ward, Jr., said that in answer to Dr. Freidman's query as to whether the glands were removed, "yes." In all the cases they looked for the enlarged glands and removed all they could find.

External Rupture of Broad Ligament Hematoma.—Dr. Thomas A. Cherry reported this case, which occurred in the outdoor obstetrical service of the Post-Graduate Hospital. The patient was 38 years of age. She had had two stillbirths and a miscarriage and was obese, with large relaxed abdomen. She came to labor somewhat over term. The first stage was normal, but during the second stage the force and frequency of the pains subsided and the use of the forceps was indicated. The solid blade forceps were tried, but the second blade could not be rotated opposite the first posterior blade. Change was made to the axis traction instrument. Difficulty was encountered in applying these and traction had to be made with the blades in the oblique application. As the head appeared on the perineum and further traction was exerted a gush of dark blood was propelled with great force from the introitus. After this apparent rupture of some structure the head was easily delivered. The child was moderately asphyxiated, but cried on spanking. On seeking the origin of the hemorrhage a vertical laceration about three cm. in length was found at the upper angle of the anterior and left vaginal walls and labium minus close to the pubic ramus from which slight oozing of blood was seen. On exploration the rupture was found to lead into the cellular tissue outside the vaginal wall and into a cavity extending upward alongside the cervix and lower uterine segment and base of the left broad ligament about twelve cm. from the vulva. On further examination the finger came into contact below with the posterior surface of the pubis and anteriorly in the median line with the neck of the bladder. The uterus and bladder were found intact. The patient being in considerable shock the cavity was packed with gauze and efforts were made to combat the shock. The packing was partly removed on the third day and completely on the fifth. The cavity gradually filled in and was entirely healed on the twelfth day postpartum. The child developed stupor and refused to nurse on the third day. Spasm of the lips and eyelid, and later nystagmus followed, and death ensued on the fifth day, apparently from meningeal hemorrhage. The unusual condition of the mother was evidently an unrecognized pelvic hematoma formed during the first stage of labor in the cellular tissue at the base of the broad ligament, subperitoneally and above the pelvic fascia. As forcible traction was exerted on the head it dissected its way through the cellular tissue, and reaching the pubic ramus was deflected laterally until arrested by the hematoma which was forced toward the median line, where it was arrested by the anterior ligaments of the bladder. The strong fascia of the levator ani muscle prevented it making its way posteriorly, so being forced down by the advancing head rupture externally occurred through the inferior triangular ligament under the descending ramus of the pubis. Dr. Williams of Baltimore had collected 33 cases of subperitoneal hematoma, including one of his own, and since then others had been added. In the majority of the cases the hematoma became apparent following delivery, and thus far he had not ascertained that any had complicated the second stage of labor.

Specimens Showing Different Stages of Renal Tuberculosis.—Dr. Henry Dawson Furniss presented ten specimens and reported the histories of the cases from which they were taken. In a number of the cases the tuberculosis was secondary to infection elsewhere in the body. In several of the cases a tuberculous fistula persisted for a longer or shorter period following the operation. There had been but one death in the series.

Exceptionally Rapid Manifestation of Sepsis Following Curetting after Spontaneous Abortion.—Dr. Herman J. Boldt reported this case. The patient was a woman, 23 years of age, who aborted spontaneously at about the eighth week of her first pregnancy. Dr. Boldt had seen the patient in consultation on the following day because of some bleeding and the supposition that the abortion was incomplete. She was curetted at about 11 o'clock in the forenoon and the following afternoon she had a chill and her temperature began to rise, reaching 103.4° F. Her pulse was 140. She was transferred to the hospital, the uterine cavity irrigated with iodine water, and the cul-de-sac extensively opened and packed with iodoform gauze. Bacteriological examination showed a streptococcic infection. General peritonitis followed and death occurred on the third day.

Large Abdominal Wall Abscess of Unknown Origin.—Dr. Herman J. Boldt reported this case, which occurred in a patient who was five months pregnant for the third time. For three weeks she had had fever and at times was chilly. Examination revealed a hard mass in the abdomen about five inches in diameter in every direction. It involved only the parietes and though painful to pressure showed no fluctuation. On opening it about one hundred c.c. of foul pus escaped. No foreign substance was found in it. The walls of the abscess were about one inch thick and edematous. Bacteriological examination showed non-hemolytic streptococci in short chains. No other microorganisms were found.

Myofibroma.—Dr. Herman J. Boldt reported four cases of myofibroma, all having the usual history of profuse bleeding. The first patient had evidences of cardiac changes caused by the bleeding, the blood pressure being 80 on the diastole and 140 on the systole. There was also a very sensitive area at the junction of the second sternocostal cartilage junction and another at the base. The second patient had a blood pressure of 160 on the diastole, but no cardiac changes

were ascertainable. The third patient suffered from most severe headaches, which ceased after the operation. The connection between the bleeding and the headaches, which always occurred about a week before the severe bleeding, Dr. Boldt said he could not explain. The fourth patient who had bled profusely for three years at intervals of three or four weeks, had a uterus three or four times the normal size. It was removed by the vaginal route. Microscopical examination showed a marked increase of fibrous connective tissue without increase in the muscular elements. The walls of the blood vessels were markedly thickened.

Large Hydrosalpinx Which Caused an Erroneous Diagnosis.—Dr. HERMAN J. BOLDT reported this case in which all the evidence pointed to a diagnosis of ovarian cyst. At operation, however, it was shown that they were dealing with a large hydrosalpinx. If this diagnosis had been correctly made the distended tube would have been excised by the vaginal route and drained, since the fluid in such cases was not obnoxious.

Carcinomatous Uterus Removed by Radical Abdominal Operation.—Dr. HERMAN J. BOLDT reported this case. There were no glandular enlargements and the lateral walls of the cervix showed no evidence of the disease having gone outside the boundaries of the uterus. The history of the case was such as to have led one to expect a much more extended involvement.

Case Histories Illustrating Intestinal Complications of the Puerperium.—Dr. HENRY P. DEFOREST said we were in the habit of regarding intestinal complications as essentially medical in character, but occasionally surgical conditions arose which might be followed by serious and even fatal results. The diagnosis in such cases was by no means easy, and it was surprising what nature unassisted by a physician might effect in the way of a cure. In illustration of this statement he cited the case of a woman, 34 years of age, in her first pregnancy, who was attacked with nausea, vomiting, and pain in the right iliac fossa, about seven weeks before labor was expected. She later noticed black spots before her eyes and was troubled with dizziness. Under restricted diet her symptoms abated, but recurred later. There was very little albumen in the urine. As she grew worse it was decided a few days before labor was expected to terminate the pregnancy. This was done. The child was extracted by version, and, though still living, had had a number of convulsions during the first month of life, the cause of which was never apparent, though it seemed probable that they were due to toxic conditions arising from maternal causes. After labor a large tumor mass was found in the right iliac region, corresponding to the position of the ascending colon. This mass changed its position and the patient's temperature showed wide ranges from 97.5° to 106° F. in twenty-four hours. On the fifteenth day she experienced some unusual sensations in the epigastric region, the tumor suddenly disappearing. A few hours later she passed by rectum a piece of small intestine about ten inches long, quite black, and gangrenous. Evidently some weeks previously when she felt something giving away in the right iliac region an invagination of the small intestine through the ileocecal valve had taken place, and this had progressed along the transverse colon until the pressure had shut off the circulation in the invaginated portion and sloughing had occurred. The patient's temperature steadily rose for a week and then spontaneous healing must have taken place for the patient made an uneventful recovery.

A second complication of puerperium was constipation. A large number of women troubled with habitual constipation found this symptom exaggerated during the puerperium. The temperature in such cases was often indicative of the condition unless infection of the birth canal was coexistent. In such cases an accurate diagnosis must often be reached by exclusion. Dr. De Forest cited illustrative cases and stated that the following formula was one of the best for the speedy and thorough evacuation of the bowels: Oleii tiglii, ♏ ¼; oleii anisi, ♏½; oleii ricini, ♏ xx, one capsule. Four of these capsules usually caused watery catharsis without griping in from thirty to sixty minutes.

Dr. DE FOREST cited a case illustrating the puerperium complicated by gastritis, and one in which it was complicated by typhoid fever. He said that it occasionally happened that delivery took place during the progress of typhoid fever and it was a matter of some interest to know whether the occurrence of labor under such conditions added materially to the inherent dangers of the intermittent disease, or whether, on the other hand, the constitutional toxemia which occurred with typhoid fever influenced the morbidity of a woman during the puerperium. In the case cited the convalescence was uneventful and both mother and child did well.

The writer related the history of a case in which the puerperium was complicated by general enteritis due to the *Bacillus coli communis*. This was followed after about two weeks by an infectious neuritis of the right anterior crural nerve. It was his belief that owing to the intestinal condition the infection had its origin in the colon bacilli. A vaccine of this organism was administered, fifty million the first day, one hundred million the second day, and four million on the fourth. An enema was given daily and globules of ten drops of castor oil, containing one-eighth of a grain of podophyllin were administered to increase the secretion of the bile and to favor intestinal antisepsis. The patient gradually recovered. Occurring at the time it did the differential diagnosis between this condition and phlegmasia alba dolens was of practical importance. Finally Dr. DeForest cited a case of the puerperium complicated by intestinal parasites in which for eleven days the cause of the temperature was in doubt. Finally the finding of lumbricoid worms gave the clue to the treatment and the administration of anthelmintics was followed by a clearing up of the symptoms. A similar case had been reported by Hirst, in which a large tape worm was found to be the source of the trouble.

Case of Osteitis Deformans.—B. Myers reports the case of a man, aged 57, who came to the Western General Dispensary about a year ago for advice with regard to severe pains in the back and legs. It appeared that he had suffered from pains in various bones and joints for five years. The infected bones included the vertebræ, both femora, especially the left, both tibiæ and fibulæ, the right radius and ulna, and the skull. Tho walk of the patient was suggestive of osteitis deformans. He had lost about four or five inches in height since his pains began. The head was bent forward, evidently on account of the usual dorsocervical kyphosis of this complaint. There was very distinct thickening of the left femur, which also showed an outward and a forward curve. There was some thickening of the left tibia and perhaps the right radius and ulna. The clavicles seemed to be a little enlarged also. The peculiar feature of the case was the apparent want of increase in thickness of the cranial bones. The patient could wear the same hard hats now as formerly. He had arteriosclerosis rather well marked. Pains in the precordial region troubled him occasionally. The appetite was good, the bowels were open daily, the speech was "stuttery" at times, the memory fair, and he slept well. There was no similar case in his family. The urine was normal. The calcium content of his blood was estimated upon two occasions, and each time it was less than normal. The Wassermann test was negative. The diagnosis of osteitis deformans was backed up by the *x*-ray photographs, the only difficulty being his skull and a rather prominent lower jaw. The latter suggested the possibility of the co-existence of Paget's disease with acromegaly, but an *x*-ray picture showed a normal sella turcica and nothing abnormal in the inferior maxilla. With regard to treatment, he had taken quinine, iodide of potassium, and nux vomica with no noticeable benefit. For the pain various liniments had been tried, and perhaps had been of some use, but the greatest relief from pain had been obtained from salicylate of sodium, which the patient was still taking in conjunction with tonics.—*Proceedings of the Royal Society of Medicine.*

Glioma of the Cerebellum; Recovery after Simple Drainage of Cyst.—F. E. Batten reports the case of a girl, aged 8 years, who in November, 1911, complained of headache, attacks of vomiting, and unsteady gait, which she had had for two months. On examination she had double optic neuritis and symptoms pointing to a tumor of the cerebellum, the ataxia being rather more marked on the right than the left side. A subtentorial decompression was performed on November 14 and a cyst containing a yellow fluid, which rapidly clotted, was found in the left lateral lobe. The wall of the cyst was formed of a new growth which infiltrated the lobe of the cerebellum. A small piece of the growth was removed and on microscopical examination showed the appearance of a glioma. The child slowly recovered, and now, two years later, seems quite well.—*Proceedings of the Royal Society of Medicine.*

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

The Ready Reference Hand-Book of Diseases of the Skin. By George Thomas Jackson, M.D. Seventh edition, thoroughly revised. Illustrated; cloth; 770 pages. Lea & Febiger, New York and Philadelphia.

A Synopsis of Surgery. By Ernest W. Hey Groves, M.S., M.D., B.Sc., F.R.C.S. Cloth; price, $3.25 net; 599 pages. William Wood & Company, New York.

The Surgery of the Stomach. By Herbert J. Paterson, M.A., M.C., M.B., F.R.C.S. New and revised edition. Cloth; 342 pages; price, $4.00 net; illustrated. William Wood & Company, New York.

Plain Rules for the use of Tuberculin. By R. Allan Bennett, M.B. Cloth; price, $1.00 net; 48 pages. William Wood & Company, New York.

Renal Diagnosis in Medicine and Surgery. By Dr. Victor Blum. English Translation by Wilfred B. Christopherson. Cloth; price, $2.00 net; 144 pages; illustrated. William Wood & Company, New York.

Tropical Medicine and Hygiene. By C. W. Daniels, M.B., F.R.C.P.; with a chapter on Snakes by A. Alcock, C.I.E., M.B., F.R.S., Lt., I.M.S. In three parts; well colored and other illustrations. Part II. Diseases due to the Metazoa. Second edition; cloth; price, $3.00 net; 278 pages. William Wood & Company, New York.

The Road to a Healthy Old Age. By Thomas Bodley Scott. Cloth; price, $1.00 net; 104 pages. Paul B. Hoeber, New York.

Health Through Diet. By Kenneth G. Haig, L.R.C.P., M.R.C.S., with the advice and assistance of Alexander Haig, M.A., M.D. Cloth; price, $1.25 net; 227 pages. J. B. Lippincott Company, Philadelphia.

Des Haarschwunds Ursachen und Behandlung. By Dr. S. Jessner. Paper; price M. 90; 50 pages. Curt Kabitzsch, Wurzburg.

Defensive Ferments of the Animal Organism. By Emil Abderhalden. Third enlarged edition; cloth; not illustrated; 242 pp.; $2.75 net. Wm. Wood & Co., publisher.

Text Book of Local Anaesthesia. By Prof. Dr. Georg Hirschel. Cloth; illustrated; 181 pp.; $2.75 net. Wm. Wood & Co., publisher.

Über die Ernährung des Auges. By Dr. med. C. Hamburger. Paper; illustrated; 117 pp. Georg Thieme, publisher.

Der Salvarsantod. By Dr. Carl Schindler, Spezialarzt für Hautkrankheiten in Berlin. Paper; illustrated; 184 pp.; price, 8.50 marks.

Proceedings (Transactions) of the Am. Medico-Psychological Assn., at the sixty-ninth annual meeting held in Niagara Falls, Canada, June 10-13, 1913. Cloth; illustrated; 462 pp. American Medico-Psychological Assn., publishers, 1913.

Die Entstehung und Behandlung der Karzinome. By Hofrat Dr. A. Theilhaber in München. Paper; illustrated; 182 pp.; 12 marks. Verlag von S. Karger.

Bakteriologische Untersuchungen. By Dr. Maunu af Heurlin, Assistenzarzt der Klinik. Paper; illustrated; 616 pp.; 12 marks. Verlag von S. Karger.

Lehrbuch der Psychiatrischen Diagnostik. By Privatdozent Dr. Adalbert Gregor. Paper; illustrated; 240 pp.; 4.80 marks. Verlag von S. Karger.

Diagnostik der Nervenkrankheiten, by Prof. Dr. Alexander Margulies in Prag. Paper; illustrated; 124 pp.; 3 marks. Verlag von S. Karger.

Das Ulcus Duodeni. By Dr. J. Schrijver. Paper illustrated; 184 pp.; 10 marks, gbsk 11.20. Verlag von S. Karger.

Modern Medicine. By Osler & McCrae. Cloth; illustrated; second edition.; 1,040 pages. Published by Lea & Febiger.

Religion and Drink. By E. A. Wasson, Ph.D. Cloth; 297 pages. Published by New York Printing House.

Abdominal Surgery. By Thorkild Rovsing, M.D. Cloth; illustrated; 471 pages. Published by L. B. Lippincott Company.

Therapeutic Hints.

Tincture of Iodine and Ichthyol in the Treatment of Furuncles.—M. Berger details this method of treatment as follows: In the case of soft furuncles, these are painted with tincture of iodine, and then covered with a 10 per cent. ichthyol ointment. When pointing occurs the pus is evacuated and the surrounding skin is cleansed with benzine in order that fatty substances may be removed. The tincture of iodine is again painted on and the ichthyol ointment is again applied. As soon as suppuration has ceased the use of the iodine is discontinued, and applications of pure ichthyol are now made. Finally, if an extensive raw surface is left, the following ointment should be applied:

℞ Nitrate of silver, 1 gram.
Balsam of Peru, 5 grams.
Lanolin, 100 grams.

In the case of hard furuncles it is necessary to persist in the application of tincture of iodine, followed by that of pure ichthyol. The latter may be allowed to dry on, and may be left exposed, or may be covered by a compress of gauze. The following day the ichthyol is washed off with hot water and the application of iodine and then of ichthyol is repeated. This procedure is repeated from day to day.. When suppuration occurs and drainage is effected, the use of the tincture of iodine is discontinued, but that of the pure ichthyol is kept up.—*Medizinische Klinik.*

Sodium Bromide in Gastric Therapeutics.—M. G. Leven extols the value of sodium bromide in the treatment of diseases of the stomach. With or without the addition of subcarbonate of bismuth sodium bromide is useful in sensory, motor, and secretory disturbances of the stomach which are not controlled by dietetic measures. The author prescribes sodium bromide in those cases in which alkalies, belladonna, and opiates are frequently used. The drug is of eminent value in the treatment of hypersecretion, spasm of the cardia or pylorus, and the various ill effects of aerophagia. Sodium bromide is used in preference to the other bromine compounds in the following prescription:

℞ Sodium bromide, 20 grams.
Sterilized distilled water, 300 grams.

One tablespoonful of this solution is given morning and evening, the dose being 1 gram of the salt. The remedy is to be taken one-half hour before meals in one-half glassful of water.—*Bulletin Général de Thérapeutique.*

The Synthetic Derivatives of Strychnine.—M. J. Chevalier states that a number of these derivatives have been produced by the processes of oxidation, reduction, and the addition of sidechains. These derivatives mask or completely abolish the excitatory action of strychnine upon the spinal cord, modify the cardiovascular effects of this alkaloid, and greatly diminish its toxicity. The ethylbetaine of strychnic acid is a good example of the above derivatives. Its toxicity is one-tenth that of strychnine. In nontoxic doses administered to warm-blooded animals its excitatory action is relatively slight. In frogs large doses cause a paralysis analogous to that produced by curare. The ethylbetaine of strychnine acid is a depressant to the cardiovascular system.—*Bulletin Général de Thérapeutique.*

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Original Articles.

THE DIAGNOSIS AND TREATMENT OF GASTRIC AND DUODENAL ULCERS.*

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THE diagnosis of peptic ulcer is made if we have a distinct hemorrhage from the stomach, which manifests itself by the vomiting of blood or the passing of blood with the stools, and by pains in the gastric region. These are the cardinal symptoms. If, however, the diagnosis of gastric or duodenal ulcer is restricted to only these symptoms, we would fail to recognize a great many cases of ulcer in which these two symptoms have not been noted. We know that we often fail to make the diagnosis of stomach ulcer, because it is found in autopsies that about 4 per cent. of all who die have ulcers in the digestive tract—stomach or duodenum. If we were to restrict the diagnosis to these symptoms, therefore, we would find it in 1 per cent. or less. That is the way we know we do not make the diagnosis frequently enough.

Boas has discovered the fact that there are cases of ulcer in which there is no manifest hemorrhage, but in which the blood becomes recognizable in the gastric contents or in the stools by employing chemical tests, and we call that occult blood. It is not recognizable macroscopically, but we can find that it is there. So he introduced a method of looking for occult blood in the gastric contents or stools, as a help to recognizing this condition. This marked a great advance in the diagnosis of ulcers.

Now, if there is an ulcer in the digestive tract at the cardia, or pylorus, or elsewhere, then at times when there is more activity in the ulcerative process the blood comes out. In a quiescent state there is not enough blood to lead to its discovery in the stools or gastric contents. The ulcer may be there, but you will find no blood, even by these chemical tests, and the reason for that is that the contents of the intestinal tract are considerable, and the blood is mixed up with a great deal of food and water, and part of it is absorbed and digested, so that there is very little left to appear. The consequence is that we can recognize even the occult blood only when there is a considerable amount of it. In the quiescent stage we have ulcers, but we cannot find blood in the gastric contents or stools.

Now we have another test; that is the thread test. Here we have a method by which even when there is no exacerbation of the process, no direct oozing of blood, we can in some instances recognize it any way. The principle of that is that a thread with a tiny bucket attached is left in the digestive tract for quite a period of time—say, given in the evening and left in until 8 o'clock in the morning. As soon as the bucket gets into the duodenum it will proceed as far as the length of the fastened thread will permit it to; it cannot go further and remains there and stretches the thread. If the bucket has remained in the duodenum for two, four, six hours, it has come into direct contact with the walls of the stomach, and if the ulcer is situated at the cardia, lesser curvature, or the pylorus, for instance, the thread has become impregnated with the ulcer surface, which is always moist, and we get a mark on the thread corresponding to the situation of the ulcer. This not only shows the presence of the ulcer, but often the location, for by estimating the distance from the lips to the cardia or the pylorus it is easy to arrive at a fair idea of the position of the ulcer. This test makes it quite possible to recognize ulcers in patients who have no hemorrhages yet, and when there is not yet a distinct oozing of blood—no blood in the gastric contents and none in the stools. It is characteristic for the stain to be quite localized. If you get a sharp stain in a definite spot it is of more value than a stain that is much spread out. That the stain is not caused by an artificial erosion produced by the pulling of the thread, can be shown by the following circumstance: It is not exactly red, but dark brownish; it is not fresh. If you got a stain due to the erosion of the pulling thread it would be a fresh stain of red blood, and it would be more spread out.

How shall we differentiate between gastric and duodenal ulcers?

Years ago it was thought that the differentiation between these two kinds of ulcers was almost impossible. Within recent years the opinion prevails that it is a very easy thing to do, and this is the opinion of Moynihan. In fact, Moynihan says that one needs no tests at all in order to recognize a duodenal ulcer, but that it can be done by the history of the case in association with the clinical symptoms—*i.e.* pain two or three hours after meals; still later, hunger pain—that is, pain allayed by the ingestion of food; the periodic appearance of these symptoms periods of suffering for two or three weeks, interchanging with feelings of euphoria (well-being), chronicity all these years. All these points go, according to Moynihan, to make the diagnosis. He says that nothing else is necessary. If you have these you have a duodenal ulcer.

My opinion is that these points alone cannot be taken for a positive proof of a duodenal ulcer. We may have the above symptom complex and there may be either a gastric ulcer present or perhaps none at all. The fact that such a symptom complex can be caused by gastric ulcer has been demonstrated by patients who have been operated upon. In these the symptoms sometimes were found to be due not to duodenal ulcers, but to ulcers in the stomach situated near the pylorus or along the lesser curvature,

*Address delivered at the meeting of the Canadian Med. Association at St. John, N. B., on July 8, 1914.

even near the cardia. Whether such a symptom complex exists without ulceration I could not say, for I don't have these patients operated on frequently. I could not give the proof, but from what I know I would say that in a great number of cases that have this symptom complex there are no ulcers. But what is of importance is that in these cases where there is so much acidity and discomfort two, three, or four hours after meals, that if that abdominal disturbance continues it will ultimately give rise to ulceration. The ulceration is not the primary factor; it is due to these functional disorders of gastric secretion. If you wait long enough you will have an ulcer.

Now, there is one point more which I wish to speak of; that is that the surgeons nowadays—Moynihan, too—claim that in the symptomatology of ulcer the pains do not appear right after eating, as was formerly supposed, but always two or three hours later. I think that that has been exaggerated, and I must say that the old teaching of our clinicians that ulcer of the stomach is indicated by pain pretty soon after eating is correct. I will explain that divergence of opinion. If there is an ulcer somewhere in the stomach and it is not in the quiescent state, but in an active state we have pain pretty soon after eating is correct. I will explain pain on pressure. The pressure may not be great and still there is pain. But if we have to deal with a latent, quiescent, not active ulcer, at that time we may have no pain. We have a patient, for instance, who has too much acidity—pains two or three hours after meals. The pains are there, no matter whether the ulceration is there or not. In these cases where the great acidity gives rise to an ulcer, the other condition, hyperchlorhydria exists, but the symptoms are not due entirely to the ulceration, but to the primary troubles. The ulcer exaggerates the symptoms. If there is great acidity it makes itself felt sooner. That is the explanation I would give.

An ulcer can, however, exist with a normal acidity and also with a diminished acidity, but in most of these patients there is too much acidity. I have made a chemical analysis before I knew there was an ulcer, and that was found to be an achylia gastrica. The patient had to undergo an operation for gallstones and a gastric ulcer was discovered at the laparotomy.

How shall we make a diagnosis of gastric or duodenal ulcer?

Formerly it was believed that if the pains appeared late after the meals the probability was that the ulcer was in the duodenum. That was taken for a prominent sign twelve or fifteen years ago. Now, as I have told you, Moynihan lays still more stress on that. Another sign is that in gastric ulcer the blood is usually vomited, while in duodenal ulcer there is less vomiting, but the blood appears in the stools, large hemorrhages appearing in the movements and the patient frequently becoming unconscious. But neither of these phenomena is a positive sign in either direction. You may find one or both misleading. Cardiac ulcer sometimes gives rise to melena—blood passing out through the stools —without vomiting. Such instances have been proven by several tests and also by operation. In cirrhosis of the liver, for instance, you find that very often. There are venous ectases, big veins in the esophagus above the cardia, that burst and give rise to hemorrhage—no vomiting—and you may find the blood in the stools. The patient may even die, and you will find at autopsy that there was a bursting of the vessels in the esophagus. These signs are not, therefore, positive enough for duodenal ulcer.

I think the thread test is the best means of recognizing the presence of an ulcer and of ascertaining whether it is in the stomach or in the duodenum.

Not all ulcers can be demonstrated with the thread test, however. For instance, an ulcer on the anterior wall of the stomach will not come in contact with the thread, and there will be no stain on it. Ulcers, however, situated in the cardia, the lesser curvature, pylorus, or especially in the duodenum, can usually be recognized by the thread test. It would be a great exception if there were a duodenal ulcer present and it gave no blood stain on the thread.

If, however, there is a mere infiltration of the mucous membrane, but no raw surface present, or if the ulcer has almost healed, it would give rise to no stain. But in most instances we can recognize ulcer of the duodenum by the thread.

You recognize the position of the ulceration by the distance of the bloodstain from the lips. . . . A bucket which has sojourned in the duodenum shows at the lower part of the thread near the bucket a decided bile stain, and just above is the mark of blood, if the ulcer is in the duodenum. When taking out the bucket you should make a mark on the thread at the lips, and then you can estimate where the stain was made. The distance from the lips to the cardia is 16 inches, and to the pylorus is 22 inches; that is, in medium sized patients; in tall persons it would be somewhat greater; in short persons somewhat less.

If you find when you pull the bucket out that there is no bile stain and that there is no resistance in pulling it out, then the bucket was merely in the stomach, but not in the duodenum. In more than nine cases in ten it will pass if there is no stricture or spasm of the pylorus. If there is a spasm we give the patient atropine and give the thread again and let him sleep with it, and then take it out again. If we find bile at the end it shows that it has been through. X-rays will also occasionally be helpful in establishing a diagnosis of peptic ulcer.

So I have given you these more important points for diagnosis. By employing these means we can discover ulcer more frequently than by any other means we know of.

Now as to treatment, for that is what interests you most. What shall we do with these patients?

You may have cases in which the diagnosis of gastric or duodenal ulcer is made, but the patients do not present many symptoms. They don't suffer much, and they go about their business. They have a little pain and inconvenience, and cannot eat coarse foods, etc. In such cases it may not be necessary to use a very rigorous treatment, for the patient will not follow it. You cannot force him to stay in bed, and he says he has to attend to his business. For such cases we have an ambulatory treatment which can be applied. Of course, it is not so good as the more rigorous treatment, but we can use it in appropriate cases. It consists in first giving the patients large doses of bismuth. That is one of the best remedies in all forms of gastric or duodenal ulcer. Give a large dose of bismuth—say, half a dram three times a day—combined with six or eight grains of calcined magnesia, and then an appropriate diet.

The diet should consist of milk, eggs, cereals, and

a great deal of butter—not too much meat, and no heavy foods; no salads, nothing sharp, nothing peppery, no ice water. That would be the principal treatment in these ambulatory cases. You cannot keep a patient who is going about his business on a restricted diet of milk, or milk and broths, for it would not do. A man at his work must have a more considerable amount of food. You can supplement that diet by telling the patient he should lie down for half an hour after taking the bismuth, and if this does not go he should apply a wet compress over his abdomen at night to act as a kind of sedative; if the pain is very pronounced you may add a small amount of atropine (gr. 1 120) once or twice a day, but that should not be carried out for a long time. Such remedies should be reserved for short periods of time. I saw recently a patient who has been taking atropine for a year, and he has had to increase his dose, and I am not sure that it has not been doing him harm. These strong alkaloids should be used with great care. Atropine has been believed to decrease the acidity, but in this patient there was an acidity of 110; that means more than twice the normal. The prolonged action is injurious. The above treatment covers the mild cases.

We now come to the severe cases. What should be the treatment in those instances where the symptoms are very pronounced and occur principally after hemorrhages? That is the most serious condition in ulcers—large hemorrhages. If the ulcer is accompanied by a considerable hemorrhage, the proper treatment is absolute rest. Put the patient to bed. Don't let him move around much, keep him quiet, put an icebag over the stomach and abdomen and forbid all kinds of food and drink—absolute rest for body and stomach. The medicinal treatment in these cases would be adrenalin—five to ten drops in water, and gelatin, which also acts as a hemostatic. You can give a 10 per cent. solution of gelatin, a tablespoonful three to four times a day; subcutaneous injections of blood serum from man or horse—the latter is the easier to be obtained—are likewise beneficial. Then emetin hydrochloride given subcutaneously once or twice a day, in half grain doses, acts in a similar manner. I have found that very helpful in severe hemorrhages of the stomach and lungs. How it acts, I don't know, but empirically it does act. Then, if the pains are very severe, we should give opiates—a suppository of opium and belladonna.

In such cases you should not bother about the nourishment for the first day or so, for absolute rest is necessary in these cases. Then we institute rectal feeding, and first we have to see that the patient gets enough fluid, especially if he does not get it from the stomach—we all lose a great deal of fluid through expiration, perspiration, etc.—and we do that best by giving a 5 per cent. solution of grape sugar—say, two tablespoonfuls of sugar to a pint of water—and let it run in slowly (Murphy drip)—twice a day. The grape sugar increases the nutritive value of the water; sometimes we give it three times a day. The next day you begin with rectal feeding.

In addition to these water enemas of sugar or salt you try to introduce some additional nourishment. You may give five ounces of milk, a raw egg, and a teaspoonful of sugar with a little salt; beat it up well and inject it through the rectum, giving two or three such injections a day. The rule is that before you give such enemas the bowel should be washed out once daily, but in these cases of ulceration we don't give large enemas. We wash them out with a pint of water and let it come out, and a little later begin with these feeding enemas. That goes on for three or four days. An ulcer cannot heal that quickly. The rectal feeding may be prolonged for a week, but if done longer than that there is too much loss of flesh and the patient becomes exhausted. These feeding enemas are all right, but the nutriment from them is not all utilized, perhaps only about one-third of the amount is taken up by the body; the rest is lost from the system, and that is why in rectal alimentation there is no adequate nourishment possible. It is only a help and we cannot resort to it for a long time. It is only good for short periods of time.

Now what shall we do next? If you are dealing with strong, well-nourished individuals they will stand that treatment for a week or two and lose twenty pounds, and it will not do them any harm, but where you have to deal with thin and weak individuals there is danger of their becoming exhausted and dying, and we must resort to other means. After the rectal alimentation we start them in on the fifth day, say, with small amounts of nourishment by mouth, beginning with strained barley water, milk with barley water—a tablespoonful every hour. The next day, if there is no bad result, give a double amount; the third day give two ounces every hour, and so move up day by day until you reach six ounces. Then increase the intervals to two hours and increase the nourishment—milk, koumiss, barley water, 7 to 8 ounces. Then you begin to add raw eggs beaten up in milk, and run that up to eight eggs every day, and by that time you have reached a date two or three weeks after the hemorrhage, and you can have the patient sit up and give him soft boiled eggs and milk, and increase that diet day by day until you get him stronger and better. When you begin to feed you start in with the bismuth treatment, as in the ambulatory treatment, giving large doses of bismuth.

Now if you have to deal with patients who have run down a great deal or if the rectal feeding is not well borne—many patients have diarrhea—you try first a little opium with the enema, but if this will not go, and they continue to have the diarrhea, what will you do?

In these cases we can start in with duodenal alimentation. We can start even soon after the hemorrhage. I don't like to give it during the hemorrhage, but would not be afraid to use it two days later. In one case at St. Vincent's Hospital, at the request of the attending physician, I instituted it during the hemorrhage. The hemorrhage was so great that the patient almost died, and it could not be checked, and the patient could not stand rectal feeding, so I introduced it at the time of the hemorrhage, and in aspirating I got blood, but I left the tube in, and the patient got well. I recall another patient from whom I aspirated blood, but I simply emptied the syringe and introduced the food a little beyond the place of hemorrhage, and he also got well. Hemorrhage, therefore is not an absolute contraindication to the introduction of the tube, for it cannot do any harm, so far as I can see.

There was a patient in the German Hospital who was operated upon for a plegmon of his arm, and he had a big hemorrhage from the stomach at the same time. That complicated the case. He had a temperature of 103-104°, and he had a septicemia with streptococci in the blood. Dr. Willy Meyer asked if I would risk giving him duodenal feeding, as other-

wise nothing could be done for him. I said I would try, and as soon as the treatment was instituted so that he could be fed he braced up and got well. He had fever for two or three weeks, from the phlegmon and infection, but he got well. I have no doubt that the duodenal feeding saved his life. So hemorrhage is no contraindication to the introduction of the tube. It has to be done carefully. If you aspirate, you must do it slowly.

The principle of duodenal feeding is that the stomach and duodenum are kept at rest, including the ulcer-bearing area, and if you treat them this way you give the ulcer the best chance to heal up. You cannot keep the ulcer free from irritation if there is food in the stomach or duodenum. Say you give the patient milk; the milk causes gastric secretion all the time it is there, and the ulcer comes in contact with this irritating material, and there is no absolute rest possible with any kind of food in the stomach or duodenum. If you wish to carry out the principle of rest you must keep the stomach empty.

As I have said before, we can carry out some—although inadequate—feeding below the affected area with rectal alimentation, but this cannot be employed for two or three weeks, and the duodenal feeding is, therefore, the method of choice. From it we get the best results, for the principle of rest can be absolutely carried out. After the feeding is over you begin to give them liquid food, and then get on to the ordinary diet quite rapidly, except that heavy foods must be avoided.

We have just discussed the dietetic management of very mild and very severe cases of peptic ulcers and it remains, therefore, to detail the treatment of cases of medium severity or the average run of cases. Here the Laube rest cure plays the greatest rôle. Patient is kept abed for about two weeks on a liquid diet. Warm poultices are applied over the stomach during the day, while at night a Priessnitz (wet compress) is employed. I usually give milk, gruels, broths, raw eggs; about seven or eight ounces every two hours; at first four eggs, then eight eggs daily. On the tenth day semi-solid food is added, like farina, soft boiled egg, milk toast. On the fourteenth day some solid food is given—toasted bread with butter, scraped beef, or squab, mashed potatoes; at the same time the patient is allowed to be up half an hour to an hour. From now on the diet is quickly increased in such a manner that within another week patient is allowed to eat most foods, excepting highly seasoned, acid, or too greasy substances.

The Lenhartz diet differs from the one described in that meat and solid foods are given on the third or fourth day of treatment. I personally do not advocate this régime.

With regard to medication subnitrate of bismuth is our mainstay and used as above described. Nitrate of silver may also be tried for a period of two or three weeks, but no longer. It is given in 1 6 to 1 3 grain doses t.i.d., a.c. The patient must be cautioned not to prolong the use of this remedy indefinitely, as argyriasis is apt to develop. In case diarrhea appears the silver treatment must be suspended.

Scarlet red, gr. vii. ss., in wafers may also be employed, t.i.d., p.c., either alone or in conjunction with the other remedies.

Olive oil, one to two tablespoonfuls twice daily, and liquid paraffin, one-half to one tablespoonful twice daily, are likewise beneficial.

The alkalies may be given to combat hyperacidity and atropine to abate hypersecretion. The latter remedy, however, must be used with caution, and not for too long a time, as already stated above.

While the treatment in peptic ulcers generally is a strictly medical one, their sequelæ may require surgical intervention.

The indications for surgical intervention in peptic ulcers may be put as follows:

1. Perforation requires immediate operation.
2. Recurrent profuse hemorrhages (hematemesis or melena or both) endangering the life of the patient require a prophylactic interval-operation.
3. Frequent small hemorrhages, not being influenced by rational treatment, leading to an appreciable degree of constant anemia, demand operative intervention.
4. Cases with constant continuous hypersecretion, accompanied by intercurrent ischochymia, not yielding to treatment, should likewise be operated.
5. Severe pains, not influenced to a considerable extent by a repeated course of rational medical treatment, form a strong indication for operative measures.
6. Strictures of the pylorus leading to ischochymia are greatly benefited by surgical intervention (gastroenterostomy). Beginning benign stenosis of the pylorus can, however, also be treated tentatively by stretching.
7. Ulcer accompanied by tumor-formation and suspected malignancy should likewise be operated.

20 East Sixty-third Street.

X-RAYS AND RADIOACTIVE CHEMICALS IN THE TREATMENT OF GYNECOLOGICAL CONDITIONS.

By EMIL H. GRUBBÉ, B.S., M.D.,

CHICAGO, ILL.

During the past few years the *x*-rays, when used alone or in connection with radioactive chemicals, have produced such striking results in the treatment of gynecological diseases, particularly in fibroid tumors and cancer of the uterus, that medical literature is full of reports lauding this method of treatment. The number of these reports and the large list of cases benefited have established this treatment so well that it bids fair to supplant older and less effective measures.

Undoubtedly this is the most talked of subject in gynecology to-day, and its advent truly marks an era in medicine and surgery in more ways than one. Perhaps the most novel feature of the last Clinical Congress of Surgeons was the fact that two men were asked to come all the way from Germany to tell us how they treat cases of fibroid and cancer of the uterus by nonsurgical methods, *i.e.* *x*-rays and radioactive chemicals. This certainly was a very flattering as well as unique position for a nonsurgical treatment to occupy. Since that time many articles written by surgeons of highest repute have appeared commending in unmeasured terms the efficacy of this treatment. Indeed, results have been so positive that the method has obtained the respect of even the most radical surgeons. It seems that we have reached that stage in the treatment of gynecological cases where conservatism rules, and it is no longer considered an indisputable truth that the only method of treating cancer and fibroid of the uterus is with the knife. All conscientious practitioners know that in cancer of the uterus, at least,

the knife used either as a palliative or as a radical measure has given very poor results. This fact has constantly stimulated the profession to look for something better in other therapeutic fields. To obtain permanent results from their treatment has been their everlasting goal. The world is demanding results instead of palliation.

The treatment of fibroid of the uterus by means of the *x*-ray is not so very new, for, if I remember correctly, it was in the year 1902 that J. D. Gibson of Denver first used this method. The treatment of cancer of the uterus is even older than that. As far back as the year 1899 I treated this condition by means of the *x*-ray and the lead oxide speculum method, and a short time thereafter I used the cavity tube method for the purpose of concentrating the *x*-rays directly upon the uterus through the vaginal canal. In 1902 I read before the American Roentgen Ray Society a paper in which I reported two cases of cancer of the uterus which were cured by the speculum method of *x*-ray treatment. The following year I read before the Chicago Electro-Medical Society a paper in which I reported three cases of cancer of the uterus symptomatically cured by means of the cavity tube method of *x*-ray treatment. In the MEDICAL RECORD, Nov. 1, 1902, in a paper dealing with the *x*-ray treatment of cancer, I said, among other things, that: (1) "The *x*-ray has a pronounced effect upon internal cancers. (2) The *x*-ray has a selective influence upon cells of the body. Abnormal cells are affected more readily than the normal. (3) Hemorrhages and discharges are decidedly lessened and ultimately cease in the majority of cases. (4) Even in the hopeless, inoperable cases the *x*-ray prolongs life, makes the patient comfortable and the last hours free from pain. (5) The use of the *x*-ray is without doubt a highly valuable addition to the therapeutics of malignant disease and cannot demand too much attention from the progressive physician." Let me call your attention to the fact that statements such as the above appear in the present-day literature almost word for word as I made them years ago. It simply shows that now there appears to be an agreement of opinion regarding the properties of the *x*-ray, and what was said about its qualities years ago was not so far fetched after all. Those of us who have been pioneers in the *x*-ray field, those who have lived long enough to find their early statements fully confirmed, are glad to see that clinical experience and testimony from the best professional sources have finally come to our aid and proved that we were right. Our heritage has at last been acquired.

Neither is the use of the combination of *x*-rays and radioactive chemicals as therapeutic agents very new. I think I may claim to have done some pioneer work here, also, for at the International Electrical Congress in 1904 I read a paper entitled, "X-Rays and Radioactive Substances as Therapeutic Agents," in which I reported the results of several cases of cancer of the uterus under this combined treatment. This paper was published in the *Scientific American*. I have made these quotations and referred to this early work of mine in order to fortify the position which I shall take and to show that any opinions I may express further on in this paper have been obtained through extensive experience and mature judgment.

Radium.—This term should not be used, for nobody has any radium nor has any living being ever seen any of it. Radium is an element, and, like many other of the rarer elements, it has not been isolated in sufficient quantities so that we may hold it in the hand and look at it. Whenever radium is mentioned as being sold or used only the compounds of radium are referred to. This fact is not ordinarily known. The most common compounds of radium in use today are the bromide, chloride, sulphate, and carbonate, of which the bromide and chloride appear to be the best for practical therapeutic purposes.

Thorium.—This substance also is used as a compound, instead of in the elementary state. It is radioactive, but in some respects weaker than radium compounds. The most useful combination of thorium is known as mesothorium. For therapeutic use this is just as active as some radium compounds, but its life is only five and a half years, whereas the life of radium compounds is much longer.

Now, what is it in radium compounds, thorium compounds, and the *x*-rays which makes them useful in the treatment of identical diseases? It is the similarity of rays which these three agents give off. These rays have been called alpha, beta, and gamma. The alpha and beta rays do not penetrate the skin and are, therefore, used only for the treatment of superficial lesions. The gamma rays penetrate the densest of bodies, and, because of this property, they are available in the treatment of deep-seated lesions. It is the gamma ray of both the *x*-ray and radioactive chemicals which does the work when these agents are used in the treatment of gynecological diseases. The rays are identical, whether they be obtained from chemicals or from the *x*-ray tube. Right here I should state, however, that only 3 per cent. of the rays given off by the most powerful radium or thorium compounds available today are gamma rays, whereas in the *x*-ray the quantity of gamma rays is practically unlimited. Technically radioactive chemicals are, therefore, only a pocket edition of the *x*-ray. In other words, radioactive substances are very puny therapeutic agents when compared with the *x*-ray and the use of the former is, therefore, much more restricted than is that of the latter.

The radium enthusiasts tell us that they can make radiographs (shadow pictures, the same as *x*-ray pictures) through the thin parts, like the hand of the human body, with radium compounds after an exposure of from several hours' to two days' time. They consider this a remarkable phenomenon. Well, with the *x*-ray we have almost unlimited power in this direction, for we can make pictures *instantaneously* of not only the thinnest parts of the human body, but of the thickest parts as well. Photographically, then, the *x*-ray accomplishes in a second of time what radioactive chemicals can do only after many hours of exposure. Again, those who work with only radioactive materials tell us of the, to them, great ionizing property of these chemicals. They state that an electroscope can be discharged if the radioactive substance is brought in close proximity to, or made to touch, the instrument. It appears that these so-called investigators do not know that the power of ionizing the air, and, therefore, the ability to discharge an electroscope, which the *x*-ray possesses is so great that you don't have to come near or touch the instrument with the *x*-ray tube in order to discharge it; that these effects are so powerful and penetrating that we can send them through the human body, a stone or brick wall, and a hundred feet of space, and still show this ionizing

property to be of higher degree than that which is obtainable from the most concentrated radioactive materials in use today. Further argument need hardly be necessary to convince one of the relative position which these two measures should occupy in therapeutics. My own opinion, expressed several years ago, which has been borne out by others and by my own later experiences, is that radium and thorium compounds are adjuncts to the *x*-ray, but not necessary adjuncts, and I believe we could very well get along without them. All who have used and studied first hand the combined treatment have come to the conclusion finally that the *x*-ray is the superior remedy, and my prediction is that when the limitations of radioactive chemical treatment become more generally known and the enthusiasm which comes with all new things, especially when they are sensationally advertised in the newspapers, has subsided, that then the *x*-ray will be used alone rather than combined with radioactive substances in the treatment of gynecological cases. It seems to me that we do not need expensive radium or thorium compounds as much as we need to study and develop *x*-ray therapy. Remember, when I make these statements I am not biased in my opinions concerning the relative merits of these two therapeutic measures, for I have used and still use both.

The gynecological conditions which have been most favorably influenced by radiotherapy (I use the term in its broad sense, gamma ray therapy probably would be a better one) are cancer and fibroid of the uterus and ovaries. The variety of fibroid tumor which is most readily affected is the interstitial kind. At present it is questionable if the other kinds, *i.e.* pedicled, subserous, and submucous, are not best treated with the knife. Those patients over forty years of age who are just approaching the menopause age or who have passed it are most suitable for this treatment. In younger women the method is successful, but the results are not so pronounced nor as readily brought about as in older patients. This treatment is also indicated in those cases of fibroid in young women in which anemia, goiter, or heart disease preclude the possibility of performing a successful surgical operation with the knife. In cases which might be suitable for surgical treatment, but where the patient absolutely refuses the aid of the knife, and in those cases which are so far advanced that the knife offers no hope of eradicating the disease, if the *x*-ray does not cure the case it will always offer relief and is the best palliative we have today. The treatment is also of great service as a postoperative measure to prevent the recurrence of a malignant growth. Other menstrual disorders, especially menorrrhagia, yield to this treatment. It can be used to control the amount of blood and the duration of the period. For climacteric hemorrhage this treatment is particularly useful. It may also be used to produce an artificial menopause, *i.e.* sterility in young women in whom pregnancy is contraindicated.

The question of the effectiveness of this treatment for cancer has been very emphatically settled by several investigators, notably Ashoff, Gauss, and Krönig. More than two years ago in several cases in which exploratory laparotomy was performed on cases of undoubted cancer which had been subjected to massive doses of *x*-rays, they found upon making histological sections of the tissues so treated, not only decided degeneration of the cancer cells, rendering them incapable of further growth, but that these cells ultimately became actually replaced by connective tissue cells. We know now how radiotherapy cures these cases. All who attended the last Surgical Congress and saw Gauss' histological sections of specimens showing progressive changes in tumors must admit that this was one of the most emphatic demonstrations of the therapeutic qualities of an agent that has ever been brought to the attention of the medical world. It is, therefore, not necessary for me to emphasize the importance of these experiments and histological tests. They speak for themselves and must be of the greatest possible significance in convincing the medical profession of the soundness of radiotherapy in the treatment of the diseases mentioned.

It has been known and scientifically proven over and over again that the ovaries are very sensitive to the cumulative effects of *x*-rays. The function of these organs can be decidedly altered by exposure to the rays. As the exposures are continued, a progressive atrophy ensues, accompanied by destruction of the ova. This property of the ray suggested their use for the purpose of inducing the menopause artificially. Undoubtedly the *x*-ray has here a very useful field.

As to the technique for applying radiotherapy in these conditions, considerable difference of opinion exists among operators. Successful results have been produced with quite a variation in technique. However, if treatments are to be given from the outside, through the abdominal wall, all operators agree that the three factors to pay most attention to are: (1) That there must be a high enough vacuum in the *x*-ray tube to allow us to send the rays into the lesion; (2) that the vacuum be kept stable throughout the treatment; (3) that large quantities of electric current be passed through the tube. A high vacuum tube generates penetrating rays. Such rays are absolutely essential in order that the therapeutic qualities of the *x*-ray may reach the pathological tissue. The exact vacuum to be used in a given case depends largely upon the thickness of the flesh wall through which the rays are to be passed, the presence or absence of large quantities of fat, and the size and thickness of the tumor. In a general way, however, it may be said that very high vacuua are needed for all cases.

A very important condition necessary to success with this method is the keeping of the vacuum stable throughout the entire treatment. This can be accomplished by the use of a definite amount of electrical energy delivered to the tube at a constant voltage, a Bauer qualimeter, and heat dissipating media at the anode of the tube. Water-cooled or air-cooled *x*-ray tubes must, therefore, be used in this work. I have recently designed a tube in which the anode is kept cool by a constant stream of compressed air which is delivered at a pressure of from thirty to fifty pounds to the back of the heated surface of the anode. By means of a chimney arrangement the heat is driven away from the heated parts.

To prevent sparking of the patient due to condenser effects and also puncturing of the tube from the same cause the patient and apparatus must be grounded. In order to prevent as much as possible the local destructive effects upon the patient's skin, those rays which produce damage, *i.e.* alpha and beta rays—must be filtered out. This is done by interposing between the tube and the patient's body one or more sheets of aluminum having a thickness of from 1/16 to 1/8 of an inch. To aid in the concentration of the rays the tissues near the tube may be compressed by means of the compression cylin-

ders commonly used in radiography. This brings the active rays nearer the pathological tissue, and, therefore, causes them to act more energetically than would otherwise be the case. Compression of the skin is also utilized to squeeze the blood out of that portion of the tissues in direct line with the ray. This has been found to be an aid in preventing dermatitis. In addition, compression tends to keep the tube distance constant. All who have made radiographs know that a picture made with a small diaphragm is sharper than one made with a wide opening or none at all. The principle upon which the diaphragm works is that of concentration of *x*-rays. This same principle is available whenever we make use of the *x*-ray therapeutically.

My own technique is to divide the lower abdominal region into a few fields, usually from 4 to 8, each of which is exposed separately to the *x*-ray. Depending upon the size and location of the lesion, the external abdominal wall is divided into the areas to which and through which the *x*-rays will pass into the diseased parts. Each area is exposed from 5 to 10 minutes. Thus in a given case, depending upon the number of separate areas, the length of time for treating each area, and the time consumed in changing the apparatus about, a single treatment may consume from 30 to 120 minutes.

For the purpose of painless compression and definite localization of the rays I use what I call a deep tissue treatment localizer of my own design. This instrument consists of two $\frac{1}{8}$-inch thick plates of aluminum $8\frac{1}{2}$ and $9\frac{1}{2}$ inches in diameter, respectively. Between these aluminum plates is placed a combination metallic plate which I shall term the middle plate. It is so fixed that it revolves around a central axis which is fastened to the aluminum plates. One-sixth of the area of the middle plate is cut out, and through this opening the *x*-rays are allowed to reach the tissues which are to be treated. The middle plate protects all parts which are not to be exposed. By revolving the middle plate different sector portions of a circle are opened up to the *x*-rays, and thus in six separate exposures I can treat an area included in the size of the entire circle. By compressing and treating only a small field at a time, heroic doses of the rays may be given without much detriment to the skin. The patient receives the treatment while lying on the back. The localizer is placed upon the naked body and with the aid of a compression cylinder having a diameter of 7 inches the instrument is kept in a permanent position throughout the whole treatment.

It is asserted that the greatest number of deep penetrating or gamma rays are generated at the time when the *x*-ray tube first lights up. Therefore, a device for interrupting the electric current rhythmically is utilized by some operators. My own opinion is that the idea of the use of a "rhythmeur," as it is called, is a theoretic point which has very little bearing upon the ultimate effects of the treatment. Patients have been cured without the rhythmic interruptions of the circuit. I admit, though, that rhythmic interruption of the circuit has some effect in keeping the anode of the tube from getting too hot and thereby preventing the lowering of its vacuum.

In measuring the dosage of the *x*-ray, the most practical values are obtained by using from 3 to 5 milliampères of current for from 5 to 10 minutes for each field, the tube being at the proper distance from the surface of the body. When such large quantities of *x*-rays are given it is desirable to wait an appreciable length of time before giving another treatment so that cumulative effects may be studied. Fifteen days are usually allowed to intervene between treatments. As a rule, a series of treatments is necessary to produce symptomatic cures.

I am of the opinion that when this treatment is used to produce sterilization or artificial menopause, smaller doses of the ray should be used than in the treatment of fibroids or cancer. I have observed that diarrhea, fatigue, pains in the breasts, as well as in the region of the ovaries, are common while the patient is treated with heroic doses of the ray, while under smaller doses the cessation of the function of the ovaries is so gradually brought about that no disagreeable by-effects are produced. The best time to give the first sitting in menorrhagia, or fibroid, is immediately after a menstrual period. Menstruation usually is increased after the first two or three sittings; thereafter there is a gradual decrease, until it finally ceases entirely. Complete amenorrhea can usually be produced in from four to six months. All the symptoms which usually accompany a normal menopause follow the *x*-ray produced menopause, *i.e.* flashes of heat, headache, digestive disturbances, and general nervousness. In cases of fibroid, as a rule, the uterus becomes perceptibly smaller after the first two or three sittings. In cancer the effects of the treatment are seen in the rapid disappearance of the clinical symptoms of the disease. There is cessation of hemorrhage, suppuration, and foul-smelling discharges; the tumor becomes smaller and the patient gains strength and weight. I believe that symptomatic cures can be produced in all cases of cancer of the uterus if the treatment is begun before glandular involvement is present. In this connection it should be stated that when there is glandular involvement the affected glands should also receive *x*-ray treatment simultaneously with the tumor.

When the *x*-ray treatment is combined with radioactive chemicals, the latter is simply placed as near the cancerous growth as possible and left *in situ* from one hour to several days, the time depending upon the chemicals' strength and the nature of the pathological condition. I have found glass tubes shaped to fit the uterine cavity most suitable for holding the chemicals. These tubes can be kept in place by means of tampons.

I would not have the reader understand that the other older methods for administering *x*-rays are not now used. They are, especially the cavity *x*-ray tube method which allows us to treat such conditions as epithelioma of the vagina and uterus, more directly than the external method which I have described at length. More recently several European operators have introduced a combination of both the external and the cavity tube methods. Drs. Bumm and Wernekros use three *x*-ray tubes simultaneously in treating fibroid and cancer of the uterus. One tube introduced into the vagina is a cavity tube, the active part of which touches the uterus, while two ordinary tubes attached to compression cylinders are applied to the external abdominal wall either both in front or one in front and the other at the back. By means of a special mechanism all three tubes are excited by the same electric generator. This would appear to be rather a heroic manner of applying the rays, but then most of the patients who come for treatment need heroic therapeutic measures if we are to help them at all. Undoubtedly, rapid cumulative effects are necessary in these cases and such effects should be

produced in the shortest possible time consistent with safety.

The question of both *x*-ray and radioactive chemical treatment producing or increasing metastases has come up very frequently. If metastases occur in a given case I believe that they were present when the patient came for the first treatment, but were not discovered, or they have been produced by giving too small doses of *x*-rays or radioactive chemicals which instead of stopping the spread of the disease stimulated the cancer cells to greater activity and therefore caused the disease to spread. The ordinary weak applications—sample treatments I call them—which are most commonly given are not only worthless but are positively dangerous. Therefore inefficient dosage of *x*-rays or radioactive chemicals may be a cause of metastases.

The splendid results obtained with this treatment, especially in fibroid and cancer, place it far beyond other gynecological procedures. It has become so well known as an effective remedy in these conditions that some very able surgeons have practically adopted it as routine treatment. Drs. Bumm and Wernekros say it is a remedy which acts almost with the certainty of a specific and marks a new era in gynecological practice. Dr. Krönig, himself a surgeon and an authority on gynecological operative work, says that he has abandoned the use of the knife in these cases. Dr. Doderlein says that it is the treatment of choice, and, since its beneficial effects cannot be doubted, resort to other measures is unnecessary. He also reminds us that because of its painlessness, economy, and comparative safety, patients will welcome it when they will refuse other treatment.

Up to the present time medical literature records over 2,000 gynecological cases as favorably influenced by the radiotherapeutic method. Hundreds of operators are now at work treating cases and within a year or two reports will be forthcoming from these investigators. Then a much larger field can be surveyed and so the exact position of this treatment will be ascertained.

130 North State Street.

TREATMENT OF THE TOXEMIA OF PREGNANCY BY THE DUODENAL ENEMA.

By ELLICE McDONALD, M.D.,

NEW YORK.

Toxemia of pregnancy, on account of its unknown etiology, has been variously and ineffectually treated. The most popular theory as yet advanced has been that it is a phenomenon of antiphylaxis. This theory, however, has a number of opponents who maintain that the cause of toxemia of pregnancy is essentially intestinal absorption. Undoubtedly, from a practical point of view, this is true. When the intestinal elimination is improved the toxemia of pregnancy gets better, but unfortunately the revolt of the stomach and the constant vomiting makes it difficult to apply any medication to the intestines to cleanse them and promote excretion.

Toxemia of pregnancy has been variously described as reflex, neurotic, toxic, and other. These subdivisions are purely academic and serve no useful purpose. All forms of vomiting in pregnancy are toxic, although in the beginning there is undoubtedly some reflex stimulus. As reflex vomiting often occurs from other causes, such as eye strain, psychic shock, etc., so it is not unreasonable to suppose that it is the reflex element in the early part of pregnancy which causes some of the morning illness and vomiting. However, in the toxic conditions this is not a very great factor. The practical direct treatment is the elimination by means of the intestines and the addition of water to the blood and tissue. There is apparently in most toxic vomiting a dehydration of the body tissues. There is often probably kidney irritation and occasional hemolytic phenomena.

During the last 18 months I have treated twelve cases of toxic vomiting of pregnancy by means of a duodenal tube, which is a modification of the Jutte tube. The procedure is as follows: A small rubber tube about the caliber of 12 F, is thrust into the stomach after the pharynx has been anesthetized by a local anesthetic spray. Most patients are able to swallow the tube themselves after the first treatment, but at the first attempt, in order to maintain the patient's confidence, it is better to cocainize the throat and insert the tube with the patient sitting up in a chair. The tongue is depressed with the forefinger while the tube is thrust down with the other hand, the patient being advised to breathe deeply and slowly, in order to prevent any nausea. When the tube is down about 22 inches, 8 ounces of a solution of sodium chloride in amount a trifle stronger than the physiological solution, is injected by means of a syringe through the tube into the stomach. This usually effectually neutralizes the tendency to vomit. The tube is then thrust further down to about the length of 28 inches. The patient is then placed upon her right side in a semiprone position. The waist bands should be loosened. After a few minutes, suction is made by means of a vacuum bottle and syringe to withdraw some of the contents through the tube. When bile or intestinal juice is obtained, it is considered that the tip of the tube has passed the duodenum. It is needless to say that the stomach should be empty for several hours before the treatment is done. It is usually possible to pass the pylorus within five to seven minutes.

An injection is then made by means of a gravity can of a liter of a solution containing from four to six grams, by measure, of granulatar sodium sulphite. This solution has the effect of precipitating itself through the intestines; within thirty minutes from the time the last of the sulphate solution is introduced into the tube the first of it appears at the anus.

This "duodenal enema" does not cause pain or straining, and it does not irritate the anus as do saline cathartics. It washes everything before it and the resulting stool is highly colored with bile and has the raw smell of the juices of the small intestines. Any small solid particles such as the particles of orange taken immediately before the beginning of the treatment, may usually be recognized in the resulting stool. Any other salts than the sodium sulphate, such as magnesium sulphate, common salt, sodium carbonate, may be used, but I have found sodium sulphate the most efficient and effective in the toxic conditions. It may be possible that the high sodium content of the blood is responsible for this action. The purgative effect of the salt is not obtained. Apparently all that is necessary is that the solution used should be hypertonic to the blood. Sodium sulphate will not cause sulphur poisoning as will magnesium sulphate. If it is absorbed at all, the sodium molecule is taken and the sulphur molecule rejected, while, with the magnesium sulphate, the sulphur molecule is absorbed and the magnesium molecule rejected.

This treatment has had the most extraordinary effect on all the cases of toxemia of pregnancy which I have been able to treat. No patient has required more than a single treatment, as after the first general hygienic measures can be instituted, such as regulation of the bowels, drinking a large quantity of water, and a simple diet. Amongst the twelve cases no patient, save one, has had any vomiting after the treatment. In the beginning several patients had a number of treatments because I did not believe it possible that one treatment would cure them.

One patient in particular had a most severe attack of toxic vomiting and she was brought to me by her physician and carried into my office. Had I known that she was so ill I should not have requested that she be brought to me; I should have gone to her. She had vomited incessantly for six weeks. The odor of acetone on her breath was noticeable on entering the room. Her face was furrowed with dark rings around her eyes. The treatment was given with little difficulty and the duodenal enema passed through the gut to the anus within twenty minutes after the last of the sulphate disappeared, washing out her intestines completely. The odor of acetone immediately vanished from her breath and the dark circles under her eyes disappeared as though they had been washed off with a wet cloth. She returned to her home, ate her supper, and did not vomit thereafter.

This extraordinary result in toxemia of pregnancy encouraged me to try the treatment in other cases of toxemia and I have had uniformly good results. I have also used this method in a number of other toxic conditions with good results. It is useful in acute toxemias, diabetes, liver disturbances of various kinds, and other toxic conditions. It is possible, by means of reduction of the salt content below the tonicity of the blood, (for example, less than that of physiological saline), to pass all the solution through the kidneys instead of through the intestines. The first urine comes straw colored and very soon the urine is as clear as crystal. For this reason, this method is also useful in kidney conditions and I have treated two cases of pyelitis of pregnancy by this method with gratifying result. In both there was a considerable degree of toxemia. One patient had a temperature of 104° and pulse 120 and was rapidly going down hill. The temperature fell to normal the day following the treatment and did not rise thereafter, although the treatments were given on several succeeding days.

The results depend somewhat upon the skill of the physician. The duodenal tube should be of a very good quality of rubber, which is difficuut to obtain in this country. I have my tubes made in Paris with an apical as well as a lateral aperture and of the caliber of 12, 13, and 14 F. The tube is, as I have already stated, a modification of the Jutte tube. The only contraindication to the treatment is an acute or subacute abdominal intlammation. In fact, it is a good test of chronic appendicitis for any such chronic inflammation usually shows marked tenderness in the right iliac region during the treatment.

The results of this treatment in toxemia of pregnancy makes me believe that it is probable that the chief factor in the toxemia of pregnancy is intestinal stasis and intestinal absorption, whatever may be the direct cause of this. It seems possible that the chief locality of this absorption is in the upper part of the small intestine, more particularly in the duodenum; and in spite of the vast number of theories as to the etiology of toxemia of pregnancy, I would suggest another—that this poisoning may be due to absorption of the duodenal toxin, which also causes a poisoning in intestinal obstruction. This duodenal toxin has been shown by the experimental work of Maury Draper and Hartwell, who found that the duodenum actually secreted a poison which was responsible for a great deal of intoxication in intestinal obstruction. Hartwell recognizes as well that there was a condition of marked dehydration which was responsible for a great deal of the intoxication. It is possible that this duodenal toxin is one of the etiological elements in the toxemia of pregnancy. Certainly if the duodenum and upper intestines are cleared out, the toxemia seems to be immediately relieved.

Incidentally, the study of the intestinal action in these cases and in others that I have treated by this method makes me believe that in intestinal stasis the real factor at fault is the musculature and muscle tone of the intestines themselves and the lack of syphonage action of the stool passing the anus. I do not believe that kinks, membranes, or flexures have anything to do with intestinal stasis, or contribute, save in exceptional cases, to the causation of this condition. Lane's kink, Jackson's membrane, etc., are too commonly found at operations in cases that have not been troubled with constipation, to believe that they enter into the etiology of intestinal stasis to any degree whatever. The treatment above described will obviate any necessity for operations for intestinal stasis, inasmuch as most operations are ineffectual at the best. It should also be recognized that most cases of intestinal stasis are associated with a lack of development in other parts, such as gastroenteroptosis, etc., and that this quite frequently is only a part of the symptom complex of what my teacher Noble called "congenital hypoplasia," and, while it may be possible to operate upon the intestines, it is impossible to make bodies over and give new nervous systems. However, the simplicity of this treatment and the ease with which it can be applied by the patient herself give a reasonable hope of benefit in these cases of intestinal toxemia. Experiments in regard to intestinal disinfection by means of the introduction of various germicides have been undertaken by this method.

This method of treatment of the toxemia of pregnancy gives a reasonable hope of its cure in the early stages. The simplicity and ease of the treatment make it possible that it should be given with little if any discomfort. Its benefits are far reaching and may throw some light upon the etiology of the disease.

174 West Fifty-eighth Street.

THE VALUE OF EUGENICS IN HUNTINGTON'S CHOREA.*

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This disease has received considerable attention in Europe and this country under the names of Huntington's chorea, hereditary chorea, family chorea, adult chorea, and others, though if we may judge by the cases reported it is more prevalent in Amer-

*Read before the Psychiatric Society, Philadelphia.

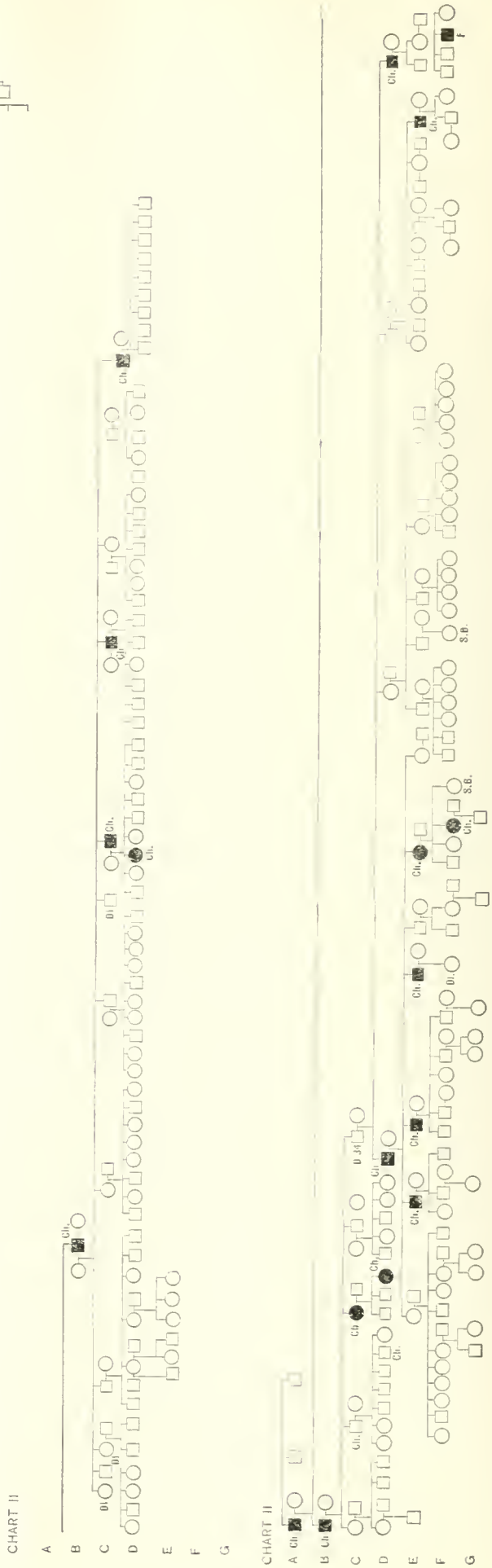
ica. Many cases find their way into hospitals for the insane due to the mental deterioration, which almost invariably accompanies the disease, but that it is far from being a common disease is indicated by a recent statement of Starr that he has never seen a case.

The earliest description we could find of this disease in America was in 1841, when C. O. Waters wrote of it as observed in south eastern New York, where it had the laity name of "megrums" or "megrim." He called attention to the marked heredity and said it was more common in the lower classes of society. He never knew a case of it to occur in a patient, one or both of whose ancestors were not, within the third generation at farthest, the subjects of this distressing malady.

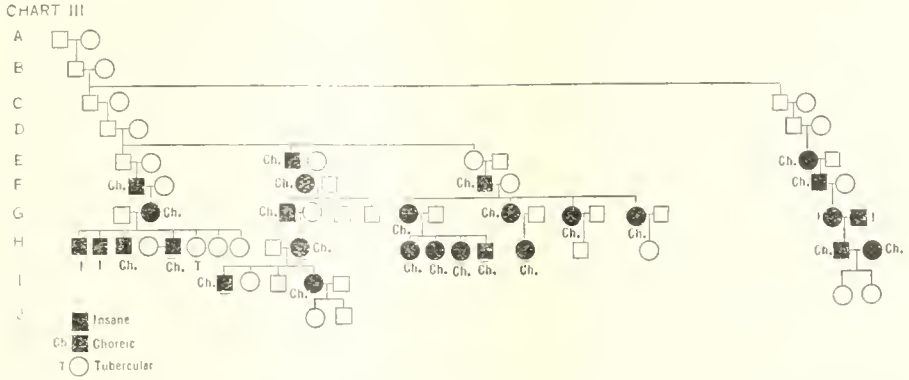
In 1863, Lyon, while house physician at Bellevue Hospital, New York, called attention to the disease and said that he had been familiar with it since childhood. He stated that the belief in the transmission of the disease from parent to child was so strong that marriage into these choreic families was forbidden under penalties of disinheritance and social ostricism. He also mentioned a tradition which ascribes the ultimate origin of the disease to a visitation upon those who reviled and mimicked our Saviour while undergoing crucifixion—that they and their children were ever after affected with choreal irregularities.

About 1872 Huntington described the disease as observed by himself, his father, and grandfather, who were practising physicians in the eastern part of Long Island. He used the name hereditary chorea and protested against calling it Huntington's chorea, but the name is still frequently used. He referred to the disease as occurring "almost exclusively on the east end of Long Island and that it obeys certain fixed laws." He found it more common among men than women and emphasized three characteristics: (1) The hereditary nature; (2) A tendency to insanity and suicide; (3) Its manifesting itself as a grave disease only in adult life. Of its hereditary nature he says: "When either one or both the parents have shown manifestations of the disease, and more especially when these manifestations have been of a serious nature, one or more of the offspring almost invariably suffer from the disease if they live to adult age, but if by chance these children go through life without it, the thread is broken and the grandchildren and greatgrandchildren of the original shakers may rest assured that they are free from the disease. This you will perceive differs from the general laws of so-called hereditary diseases, as for instance in phthisis or syphilis, when one generation may enjoy entire immunity from their dread ravages and yet in another you find them cropping out in all their hideousness; unstable and whimsical as the disease may be in other respects, in this it is firm, it never skips a generation to again manifest itself in another, once having yielded its claims it never regains them."

The study of the disease since Huntington wrote this description of it has confirmed his statement almost entirely and possibly added a few additional facts, which we shall try to bring out by reports



of some choreic families which we have had the opportunity to observe and by the aid of a few charts which we have prepared. We shall not take up the clinical picture of the disease, as it is more or less familiar to us all, and the pathology will



also be passed over as the findings, so far, have hardly been sufficient to explain the disease. We do wish to mention, however, a theory advanced by Dana, that the disease is a late development of a teratological defect, the brain being abnormal and the cells having the capacity to live only thirty or forty years. He compared it to hereditary ataxia, where there is a defective vitality of the sensory neurons of the spinal cord and after a period of years the decay begins. Gowers (1903) favored a similar belief, describing the condition as an abiotrophy.

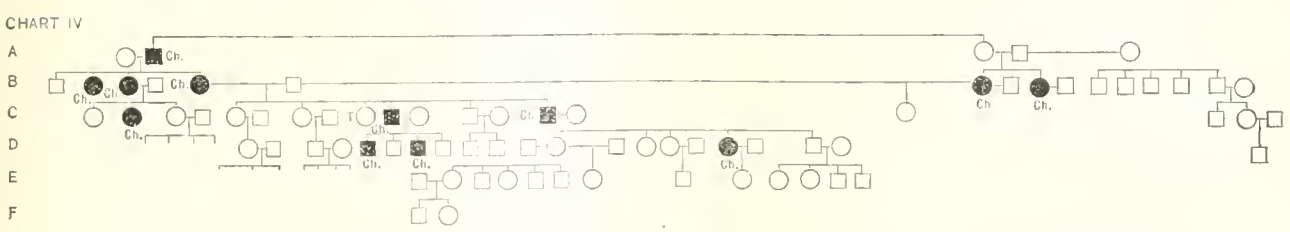
It has been said that the disease manifests itself earlier in females and that they are less frequently affected than males, and our experience has agreed with this. It is also said that the disease is more frequently transmitted through the female members, but this was not the case in the families we have observed.

I wish to emphazie the point that more knowledge of the disease may be obtained by exhaustive study of each separate family than by the grouping of several families for compiling tables. Menzies has made a study of two choreic families, and of twenty-five choreic members in one family he found the average age at onset to be 27.6 years and the age at death 43.7 years, while in the second family the average age at onset was 37.2 years and age at death 54 years; so we see there may be wide variation.

It is comparatively easy to trace the genealogy of a family which has such conspicuous landmarks to guide us and only occasionally have we seen attempts to conceal the facts. Most of the chronic families can be traced back to New York State, especially Long Island, or to the southern part of the New England States, though the original source of entrance to America is not known. In fact, we know of its presence in Germany, England, and Scotland and possibly other countries, so that it is not a disease of one nation.

It is not necessarily a disease of low mentality, and the members of some of our families have held positions of trust and respect, not to be obtained without some intellectual attainments.

CHART I.—(Littler, Bloomer, Allen family.) This represents one branch of a family of South Central Ohio, three members of which we have had the privilege to examine. We were able to obtain a history of thirty-three members. In the first generation, A 1, the only member we could trace was a choreic woman; she had three daughters, all of whom were choreic. B 1, 3, and 4; one of these, B 1, married and had seven children, five sons and two daughters. C 1 was a patient in a hospital for the insane. In his case the tremor began at 32 years of age and a few months after he came near drowning, having been carried down in a swift stream and lodging in some drift where he was rescued and resuscitated with difficulty. He died in the institution of bronchopneumonia at 42 years of age. C 2, his wife, was not choreic and came from apparently normal stock. None of her people were subject to nervous or mental diseases. Their two children, D 1 and 2, are nervous and especially so when ill, but have not yet reached the age of development of chorea. C 3 was also examined by me and later became a patient in a hospital for the insane. The onset in this case was at 40 years of age following an injury. One month before the tremors began the vehicle in which he was riding was struck by a trolley car and he was thrown to the street, receiving injuries which confined him to bed in a hospital for six weeks. I might say that there was no question of damages against the trolley company in this case. This man married a woman of normal stock and they have seven children, ranging in age from 11 years to 27 years, who so far are apparently normal. C 5, female, was choreic, had one child who has not been traced. C 7, female, was not choreic and died of tuberculosis, had one child apparently normal at 8 years of age. C 9, male, choreic and a patient in a hospital for the insane, has several children who have not been traced. C 11, male, not choreic at 50 years of age, and has a normal family of seven children. C 13, male, not choreic, died at 20 years of age of



typhoid fever. In this family the disease has been transmitted only through females. All of the second generation were choreic, and of the seven in the third generation, who have reached the age at which the chorea might be expected to develop, only one has escaped.

CHART II.—(Benedict, Longshore, Rose family.) Three brothers, A 1, 3, and 4, came from England to Connecticut some time prior to 1750. One moved to Pennsylvania and two to Ohio. The descendants of one brother, A 1, have been traced through seven generations and over 500 descendants have been recorded. The ancestor of this branch of the family moved to North Central Ohio about 1810 and was so choreic that he was believed to have been possessed by the devil. Of his twelve children, only two developed chorea and the disease has appeared only in these two branches of the families. On this account the other branches are not represented on the chart. Seventeen members have been choreic, twelve men and five women. From the chart it would appear that the disease skipped one generation to appear again, as C 10 did not have chorea, but at 34 years of age the man died of typhoid fever. Had he lived the disease may have become manifest. Three members have been patients in hospitals for the insane and other members are residents of Ohio, North Dakota, Iowa, Missouri and California.

CHART III.—(Park, Peck, Bliss, Andrews, Williams family.) This chart has been worked out from H 5, a male choreic patient in a State Hospital for the Insane, and except for that immediate branch of the family, I am much indebted to the Eugenics Record Office at Cold Spring Harbor, Long Island, whose field worker, Dr. Muncey, has done such excellent work in the study of this disease. A 1 was born in England in 1608 and came to New England about 1638, being one of the founders of the colony, and most of the descendants have resided in Connecticut. This family, whose members have shown more than average mental capacity, have produced a physician, H 5, who was a choreic; the onset being at 40 years, the course progressive with mental symptoms. Death occurred at 65 years of age, from arterio-capillary fibrosis. F 7 was the town clerk for 15 years and was a member of both branches of the State Legislature, but he died choreic and insane. H 19 is a mental scientist. H 18 was an educator, author, and editor; educated at Columbia University and later a professor in that institution, but was choreic and insane and a suicide. Of the forty-seven members traced, twenty-four were found choreic, ten males and fourteen females; the transmission has been about equal between two sexes. All the descendants of G 7 and 8 were choreic and are now dead. G 2, F 12 and 13 were sexually immoral. It will be noticed that G 12 and 13 were insane, though we do not know if they were choreic, but following the law of the disease one of them at least must have been choreic. Their son, H 18, was choreic and his wife, H 19, was choreic. She was a descendant of William Peck, a brother of A 1. They had two children, one of which died from an overdose of paregoric; the other, a nervous, though intelligent girl of 19 years, whose future, shadowed by a duplex inheritance, I am sure none of us will envy. There are now members of this family in Connecticut, Pennsylvania, Illinois and France.

CHART IV.—(Ricker, Schewell, Dingler, Miller family.) This family has been traced from C 14, who was our patient for seven years, dying at 66 years of age of arteriosclerosis. The onset of the tremor was at 40 years of age shortly after he had fractured both legs. Before coming to us he had killed his wife and attempted suicide. Our chart shows descent from a brother and sister, A 2 and 3, by the name of Schewell. From the brother fifty-one descendants have been traced, ten being choreic and equally divided between the sexes. From the sister, A 3, there came only three descendants, two being choreic and are now dead, the other died in infancy, so that this branch of the family is extinct. The disease has been transmitted about equally by the males and females. Four members died of tuberculosis, which is hardly a sufficient number in a family of this size to indicate a tuberculous tendency. It will be noticed that B 6, the father of our patient, married twice, his wives being first cousins and both choreic, though he came from normal stock, having six normal brothers and sisters. The immediate descendants of A 2 were a son who could not be traced and three daughters who were choreic. An interesting part of this chart is A 3 and her descendants. She was not choreic and marrying a normal man had two daughters, both of whom were choreic. Her husband, A 4, married the second time and had a line of normal descendants, except for two tuberculous. A 3, however, died at 40 years of age of cerebral apoplexy and we know that arteriosclerosis is also a somewhat characteristic finding in Huntington's chorea. The determiner must have been transmitted from A 3, as her two daughters developed chorea. Now the question will arise, did this woman transmit the disease to her offspring without herself being affected or would she have developed chorea later in life if she had escaped the apoplexy? Knowing Huntington's chorea to be an essentially dominant disease, I think we are justified in the belief that had she lived the chorea would have developed.

Is our present knowledge of this disease sufficient to formulate any laws of heredity, and from the standpoint of eugenics what should be our attitude?

1. It has been generally proven that to have Huntington's chorea, one or both of the parents if they live to past middle life must have been choreic. There has been one or two cases reported where this was not found, but it has also been said that these exceptions might bear closer investigation.

2. There is no positive law of anticipation in Huntington's chorea. We can not say positively what the result will be if a person takes a choreic mate. Nor in early life of the individual can we say chorea will or will not develop. In Chart I the second generation, consisting of three females, were all choreic and in the next generation of the same family there were seven born, five of whom lived to adult life and four of these were choreic. Some of the other families show an equally positive result. We have not seen a single case in which a choreic parent raised a family to adult life but what one or more of the children became choreic. You might say, "Yes, but if once it skips a generation the disease will not again manifest itself in that branch of the family," but who can say when or where it will skip.

3. Certainly in a disease whose transmission from parent to child is so marked as we find in Huntington's chorea, we can not emphasize the danger too much, and should advise always against marriage of these individuals.

A BRIEF OUTLINE OF THE CARBON DIOXIDE BATH AND ITS USES.*

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HYDROPATHY, or water cure, practised by empirics and charlatans, deservedly fell into disrepute and is near extinction. Even its name is etymologically incorrect. Hydrotherapy, the science of the use of water as a remedial agent, ranks today as a subdivision of therapeutics, equal in importance with electrical treatment or the administration of drugs. Yet it has never had the attention paid it which it merits, in spite of repeated examples of brilliant results published for generations in medical and lay periodicals, and in spite of emphatic statements by eminent teachers and clinicians, who have mastered its technique and applied its principles with physiological sagacity. Medical colleges, always slow to increase their administrative expenses by extending their curricula, have with great reluctance considered the creation of chairs of hydrotherapy. Dispensaries and clinics, in a very few cases, grudgingly establish hydrotherapeutic departments and then suffer them to languish, in some instances, because of insufficient consideration by the physicians serving in general medicine departments, and because of the peculiar defensive and offensive attitude toward any new suggestions which characterizes many institutional physicians and nurses.

Ernst Brand, of Stettin, Germany, published in 1861 the method he had devised of treating typhoid fever with baths of cold water at exactly prescribed temperatures, at regular intervals and for definite periods, and accompanied by friction. He claimed and proved that his method resulted in a great reduction in the mortality from this dread disease. Liebermeister, Jürgensen, Ziemssen and other established authorities approved, advocated and practised his method. Yet over twenty years of argument and objection followed, and the greatest reluctance was exhibited in many countries to the abandonment of the drug or "expectant" treatments of typhoid, with their customary mortality of 22 to 32 per cent., and the substitution of the Brand bath method, with its mortality of 3 to 8 per cent. To this day there are scores of unconvinced physicians of limited education, and hundreds of lay pundits, who are simply bursting with pseudo-medicine, learned from the man in the street and from the newspaper paragraph, who advise or insist that "other means" be tried first, while the recoverable typhoid sufferer is drifting and sinking into the tenacious clutches of death. Who can calculate how many hundreds of thousands of valuable lives, sure to have been lost under the drug or "expectant" treatment of typhoid, have been saved by the use of the Brand bath? And yet, it is opposed today in certain quarters.

What wonder, then, that the medical apostles of general hydrotherapy have been forced by want of interest, ridicule, or absolute hostility, to fight every inch of the way to recognition and ordinarily decent professional consideration?

Our own Baruch, the most eminent exponent of hydrotherapy in America, sadly disturbed the equanimity of several eminent delegates to a congress of physicians at London, England, in 1913, by advocating a certain form of hydrotherapy in insomnia. He was informed that drugs only were being considered in the discussion of hypnotics. While advocating the use of an American nostrum, they were unwilling to discuss a very natural and successful measure of demonstrated usefulness in securing sleep.

Dr. A. Vogl, medical director of the Bavarian army, wrote as long ago as 1896, "The insufficient education of medical men in physical therapeutics, especially in hydrotherapy, is a serious defect, which injures physicians in their earlier practice, and for which it is difficult to compensate later." He adds: "Hydrotherapy should be taught in its entirety, as Winternitz has done, upon a physiological basis. By lectures and clinical demonstrations it should be brought before the student just as other therapeutic agents and methods are offered to him as obligatory branches of study. When this is done, hydrotherapy will become the property of all physicians, and not be practised as a special and distinct method."

Germany was aroused and took an advanced position, years ago, in the teaching and practice of hydrotherapy, but America is still lagging behind. In spite of the teaching and example of Baruch, the American master; in spite of Jacobi, Brayton Ball, William H. Draper, James, H. P. Loomis, Peterson, and Gilman Thompson of New York, and Meigs, Wilson, Tyson, and Musser of Philadelphia, it must be said that the profession of neither city takes a real interest in hydrotherapy. It is but sporadically used and but superficially grasped, as even certain well-known textbooks bear witness; for in them the explanation of the procedures and their rationale are very meagre, and the suggested methods of prescribing are almost always so incomplete and ineffective as to suggest helpless ignorance of the practice of this very valuable form of treatment.

Hence poor people or those of limited means do not get hydrotherapeutic treatment in our cities, and the greater number of well-to-do patients are sent out of town to sanitariums or to foreign health resorts, where full equipment and skillful treatment are well nigh assured.

A well-known college clinic in New York has allowed its hydrotherapeutic equipment to be abandoned, interest in hydrotherapy having so far failed of realization that neither the general faculty nor the chiefs of other departments of the clinic have sufficient regard for it, and also young medical graduates who will interest themselves sufficiently to maintain the department, as assistant physicians, being apparently unobtainable.

It is amazing that very many physicians have never paid any attention to hydrotherapy and have not a single work on the subject in their libraries. Such physicians, naturally, when interrogated by patients or others, find it safer and easier to conceal their ignorance by deriding the practice, and thus the great public is denied information regarding a most valuable form of treatment. Yet a superficial acquaintance with the physiologic basis of hydrotherapy is easily obtained. Everyone realizes the peripheral stimulation that follows hot or cold baths, but few appreciate the fact that powerful hygienic, dietetic and therapeutic factors are thus available. Systematic repetition of stimulation or depression through the peripheral nerves results in a permanent condition, following tem-

*Read at the April meeting of the Saratoga County Medical Society.

porary reaction. Following the nerve stimulation, secondary effects in vascular territories occur through conveyed impulses, modifying function according to the change in the supply of nutritive material.

Among the most important thermic and mechanical effects of hydrotherapy are the vascular contractions and dilatations secured, and also the changes in the vigor and frequency of the heart's contraction, through the transmission of neural impulses to the muscular tissues, cardiac and vascular. Changes in the blood pressure; alteration in the constitution of the blood (leucocytosis as well as an increase in erythrocytes following the application of cold, with a moderate reduction in erythrocytes following heat, in general); increase in the normal metabolic activity; change in the functions of excretion and secretion, as clearly observed in the case of skin, kidneys, alimentary tract and glandular apparatus; all these are effected by proper hydrotherapeutic procedures when fresh, or sweet, water is employed.

Mineral Baths.—We turn now, in this rapid survey, to mineral baths, by which term we mean baths whose water contains a large proportion of solid or gaseous substances in solution. These substances excite a form of cutaneous reaction which differs from that noted in the baths prepared with fresh water. Water is absorbed, as in all baths at moderate temperatures, as shown in an increase of weight, but none of the dissolved solid constituents of the mineral water is absorbed, as demonstrated by the experiments of Winternitz and of Rohrig, Lehmann, Thompson, Rabateau and others. The gases permeate the skin, however, exerting an irritation upon the peripheral nerves, whence the distinctive chemical stimulation. This stimulation causes a dilatation of the peripheral capillaries, and an impression, through reflex influence, on the centers regulating the heart action as well as the nervous system, whereby increased oxidation results and metabolism is augmented. Osmosis to a varying extent is very probable, since, during a bath, the skin separates two saline fluids of different specific gravity, the blood and the mineral water. If no actual diffusion takes place, at least the blood and the intercellular fluid proceed toward the surface of the body, producing a peripheral hyperemia.

The carbonic dioxide bath is variously termed "acid," "effervescing" or "carbonated," and these names are properly used when the waters employed are highly charged with CO_2, and contain varying and even negligible quantities of solids, always excepting the special CO_2 baths used in the Nauheim system for treatment of certain heart conditions. In these, irritation of the skin by brine produces a slight initial hyperemia.

The results of the CO_2 baths are due to the following agencies: (1) The temperature of the bath; (2) the CO_2; (3) the radioactivity of the water; (4) the presence of special chemical irritants such as the calcium chloride and magnesium chloride in the Nauheim bath system.

The gas stimulates the skin, causing a rosy tint as it clings in minute bubbles to the entire submerged body surface. "The irritating effect upon the sensory centripetal nerves, as well as upon the heat nerves, is manifested in a sense of marked prickling, as well as a sense of intense heat, particularly in the genital region," says Kisch. "With the redness of the skin is associated contraction of the unstriated muscular fibers, which is especially marked in the scrotum and in the nipples. The tactile sensibility of the skin is materially increased. The stimulating effect of the carbon dioxide upon the sensory cutaneous nerves extends to the nerve-centers, and, through radiation and reflex action, through the entire nervous system; and thus induces a feeling of general well-being as well as an increase in all the nutritive processes."

The action of the CO_2 bath on the heart and vascular system is of prime importance. There have been wild enthusiasts who claim impossible results, as well as prejudiced pessimists, who shut their eyes to all testimony and refuse to believe the truth. Over 75 years of observation and study have resulted in the elaboration of a system of tremendous value in cardiovascular diseases, when carefully prescribed, properly applied and constantly supervised by a competent physician. The testimony of the orthodiagram is conclusive. The subjective symptoms of the patient three months or more after the termination of the CO_2 bath treatment are proof enough for the practitioner.

In the treatment of incipient arteriosclerosis, the CO_2 bath is employed with success. In many cases with marked sclerotic changes and a high blood pressure, the treatment has reestablished the circulatory equilibrium, relieved an engorged liver or congested kidneys, and reestablished in these organs a relatively normal circulation. In an engorged liver the poison generated during inactivity of the hepatic cells does the most harm. The CO_2 bath increases the capacity of the cutaneous vessels, and obstruction is removed from the internal organs through the distribution of a quantity of blood, thus lessening the demands made on the cardiac muscle.

In many forms of kidney disease the carbonic oxide bath is of service as adapted to the individual case, assisted by strict diet, proper exercise and out-of-door life.

Chronic muscular rheumatism, lumbago, and many forms of neuritis, are markedly and rapidly benefited. In addition to the carbonated baths, fomentations and douches of mineral water, with massage, are often of avail in obstinate cases. Articular rheumatism is most favorably influenced by the CO_2 baths, and the heart is protected from damage by very early treatment instituted shortly after the termination of the acute stage. Late cases of articular rheumatism, even of chronic character from the start, are ameliorated by the CO_2 baths. In many cases, pain, stiffness, and disability disappear without any other treatment.

In connection with dietetic control, as also passive and active exercises, CO_2 baths are beneficial in arthritis, the nutritional disturbance of joint cartilage. Probably a large measure of the success of the Saratoga bathing waters in joint affections is due to their radioactivity.

Obesity should receive such treatment as the condition of the heart, kidneys and joints indicates. Special diets should be prescribed according to the condition present, and reduction is secured by means of various water, electric, and other heat treatments. Suitable exercises, used passively and actively, following a course of close study of each case. In many instances, difficult breathing, swelling of the extremities, weak heart action, constipation, stiffness in the joints, etc., disappear as the treatment advances. In many cases dullness, apathy and irritability are removed very early.

Carbonic oxide baths are very useful in restoring poise, removing nervousness and irritability, and alleviating insomnia, as well as in building up tissue in the victims of neurasthenia, or "nerve fag."

In cases of chronic alcoholic or drug addiction, the CO_2 baths constitute a very important part of the rapid withdrawal method and in the constant care through which new tone and vigor are obtained. The skin is influenced to greater activity and general nutrition improves rapidly with the baths as adjuncts to the ordinary treatment.

Exhaustion, following acute disease or surgical operation is an indication for the employment of careful, graduated CO_2 baths.

Elimination is secured by placing the patient in a bath at 98°, and heating it up gradually, while he is in the tub, to 110° or less, or to 112°, if reduction is the object. Following withdrawal from the tub, a spray at 105° to 85° will check the perspiration, or a hot pack will encourage it if desired. It is followed usually by out-door exercise. The duration of the tub bath should be from ten to twelve minutes.

The sedative, or calmative, bath should be administered at the temperature of 98° to 100° and continue for eight or ten minutes, though some patients should not be subjected to over 95° of the CO_2 bath. A spray at the temperature of the bath and then cooled rapidly to 85° should follow emergence from the tub.

For a tonic effect the bath is administered at 75° to 85° for two to five minutes, with friction.

Radioactivity.—The split products of radium, resulting from its decomposition, are called the alpha, beta and gamma rays. The alpha rays are atoms of helium in very rapid motion. After these atoms are separated, or projected, the residual radium is in gaseous form and is termed radium emanation, or niton. During the change into niton, beta rays are evolved. These resemble negative electricity and are the chief therapeutically active rays. They have the same penetrative power as the Roentgen rays, and resemble the cathode rays projected within the Roentgen tube. The gamma rays penetrate to a great depth, and are also of therapeutic value, but are less understood than the beta rays.

Radioactivity is efficacious in inflammatory conditions, gout, rheumatism, myalgias, neuralgias, sciatica, etc., apparently because of its power to cause decomposition of uric acid compounds and other products of defective or perverted metabolism, and perhaps because of its effecting increased activity of enzymes and ferments, and because of its bactericidal properties.

Some mineral waters are radioactive for a very brief period, because they contain merely radium emanations, while others are active for a very long time because they contain dissolved radium salts. All of the twelve Saratoga waters tested showed radioactivity. Of this feature the following statement is made, concerning five of these waters, by Messrs. Moore and Whittemore, of the Bureau of Mines of the U. S. Department of Agriculture: "The very large proportion of the radioactivity due to dissolved radium salts is quite exceptional, and * * * it is reasonable to suppose that this statement applies to those not examined for dissolved radium salts."

The residues, sediments, or material deposited by the water about the outlets of eight of the springs, are also radioactive, which fact is further evidence of the presence of radium salts.

Under State supervision, CO_2 baths are now administered in two bathhouses with limited facilities, now existent in Saratoga Springs. Fuller opportunity for proper and most comfortable administration of the CO_2 bath in all varieties, and with skill and exactness, will soon exist for the physicians of the State and of large parts of the country, when the State of New York develops its great plan for the erection of a complete Spa and health resort at Saratoga Springs, comprising the building of bath houses and a central drink hall, instituting schools for the training of attendants in hydrotherapy and massage, and enhancing the present conditions and environment of the village, in order that the visiting patient may find rest, peace, diversion, "the soft influences of Nature," and skillful medical care and direction, conscientiously and scientifically provided.

GENERAL DIAGNOSIS AND TREATMENT OF DISEASES OF THE PANCREAS.

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It is due to the progress made in surgery on the one hand and in physiological chemistry on the other that we owe our advancement in the diagnosis and treatment of diseases of the pancreas. We need only compare the splendid monograph of Oser in 1898 with the newest compiled works of Albu, Frank, Müller and others to appreciate what has been accomplished in that direction. The foundation to the studies of the diseases of the pancreas was laid by the classical experimental work of Pawlow in 1898.

In order to arrive at a diagnosis it is essential to study the patient from the standpoint of the functional derangement of the pancreas and the subjective complaints. In the former we demonstrate by laboratory methods the degree of disturbed physiological function of the pancreas either in its internal or external secretory property; in the latter we study the symptom complex the patient presents. In order to understand the pathological significance of the pancreas it is essential to review briefly the physiological function of pancreatic secretions.

The pancreatic juice is best obtained either by injecting secretin into the blood or by a permanent or temporary fistula as advised by Pawlow and Heidenhain. The pancreas has in most cases two ducts, an upper one that opens along with the bile duct, and an opening lower down. In the dog the lower duct is larger; in man and in the cat the upper one is larger. To establish a pancreatic fistula we cut out a small piece of the duodenal wall and make it so that the papillæ of the lower duct should open in the middle of the mucous surface. The integrity of the gut is restored by suturing in a single line of stitches the margins of the wound in the duodenum, and the excised piece is brought to the surface and stitched in the middle of the abdominal wall so that the greater part of the pancreatic secretion will escape by the fistula, and be collected by the insertion of a cannula into the duct, or by attaching a glass funnel below its orifice. Care must be taken not to allow any of the juice to come in contact with the abdominal wall, because of its proteolytic property. In order that the con-

tinuous flow of pancreatic juice should not seriously affect the animal's health, milk must be given to the animal freely with the addition of sodium bicarbonate, in order to replace the loss of that salt. On a fasting stomach there is no flow. One to one and one-half minutes after food is given the flow begins, and it is at its maximum when the food passes from the stomach to the duodenum, ending after two and one-half to three hours. Four-tenths per cent. hydrochloric acid increases the secretion of pancreatic juice; carbohydrates likewise increase secretions; oils also stimulate the secretion but not to the same degree as the acids and carbohydrates; proteids have but little effect, and alkalies have none. Weak acids affect the flow of pancreatic juice only when directly introduced into the duodenum, or into the upper loop of the small intestines. This latter action is undoubtedly caused by a hormone in the small intestines, called secretin. In order to produce secretin the mucous membrane of the small intestine is ground up with 4 10 per cent. HCl, neutralized while boiling by the continuous addition of drops of NaOH. The coagulable proteins are precipitated, and the filtered solution contains the secretin. This solution is only stable in an acid medium. In the process of digestion the following takes place: The acid chyme enters the first portion of the duodenum, and a certain amount of secretin is produced at once. The secretin is carried by the blood stream to the cells of the pancreas exciting secretions of the alkaline pancreatic juice. As soon as sufficient juice has been secreted to neutralize the acid chyme, the formation of secretin and the further production of pancreatic juice cease. The amount of pancreatic juice secreted during digestion depends on the quality and quantity of the food taken, and the time it remains in the stomach.

The alkalinity of the pancreatic juice corresponds to n 10 to n 7 sodium bicarbonate, or it is as alkaline as the gastric juice is acid. It contains a nucleoprotein which diminishes as secretion proceeds, and becomes richer in alkalies. The most important constituents of the juice are the ferments or their precursors.

The ferments of the pancreatic juice are trypsin, steapsin and amylopsin. The proteolytic property of trypsin is brought about by what is known as enterokinase in the succus entericus and it has a greater action on the proteins than the pepsin, namely, it splits the proteins into aminoacids. Only a small part of the proteins is not attacked. Trypsin acts not only in an alkaline medium, but also in a slightly acid and acts best in a neutral medium. The neutralization is brought about by the acid secretion of the stomach coming in contact with the alkaline secretion of the duodenum during the process of digestion. Pancreatic juice causes milk to clot; this is probably not due to a rennin in the pancreatic juice, but is the first stage of proteolysis. The second ferment of the pancreatic juice is amylopsin, which acts on the starch molecule, converting it into dextrose and glucose.

The fat-splitting ferment of the pancreatic juice, steapsin, is active in an alkaline, neutral, and slightly acid solution. The steapsin breaks up the fats into palmitic, stearic, oleic acids, and glycerine. In an alkaline medium the fatty acid unites with the alkali to form soap. Lipolysis is four to five times stronger when bile is added. The above described secretion of the pancreas is known as external secretion.

Besides the external secretion of the pancreas the important quality of internal secretion comes into consideration. By means of the latter, the carbohydrate metabolism, the burning of the sugar, the relation of the secretory function of the pancreas with that of the thyroid and chromaffin system, and by a neurochemical property (Ehrmann, Albu, and Bickel) influencing the metabolism of proteids and fats, are brought about. It is the credit of v. Mehring and Minkowsky to have demonstrated the importance of the internal secretion of the pancreas and to have shown that removal of the pancreas causes fatal diabetes. Sandmeyer demonstrated that a partial extirpation of the pancreas causes curable diabetes, but if the organ continues to undergo degenerative changes diabetes progresses and death results. Minkowsky demonstrated that in a depancreatized dog, even part of the protein is converted into sugar. Embden and Salomon even showed that the end products of the proteins, the amino-acids, glycocol, alanin, and tyrosin increase the sugar contents in the animal. Of the fats it is the glycerine that adds to the sugar formation in pancreatic diabetes (von Norden). All carbohydrates certainly increase the sugar formation with the exception of levulose, part of which is deposited as glycogen in the liver and the muscles. In pancreatic diabetes the external temperature has a decided influence on the formation of sugar, cold increases, warmth diminishes, sugar formation. Minkowsky and v. Mehring explain the occurrence of diabetes by the loss of the external secretion of the pancreas, failing to regulate the sugar metabolism. They proved that when a piece of pancreas was transplanted into a depancreatized dog diabetes was prevented. According to many authors the lesion is in the islands of Langerhans; this is, however, not a settled question yet. Many authors observed diabetes in sclerosis, atrophy, or fatty degeneration of the island of Langerhans. others again found the islands extensively diseased without any diabetes. The process of glycolysis by the pancreas is still in dark. Albu maintains that the process exists in the parenchyma of the cells. Lépine explains that glycolysis is brought about by the blood carried to the lymph and thence to the pancreas, especially to the islands of Langerhans. This acts on the preferment, which according to O. Cohnheim is a hormone in the muscles causing glycolysis. Be this as it may, so much is certain, that the internal secretion of the pancreas has a decided influence on carbohydrate metabolism. The result of the relation of th eother organs of internal secretion to that of the pancreas has been utilized to demonstrate a loss of function of the pancreas, and hence this must be touched upon briefly. Loewi showed that adrenalin which stimulates the sympathetic system causes mydriasis in animals without a pancreas, while in those with a pancreas, where the antagonistic action of the pancreas on the suprarenal body is present, no mydriasis occurs. The cases cited by Glässner and Schwartz, as well as the fact that in human beings with diabetes a 1:1000 adrenalin solution 1 drop into the eye causes mydriasis, demonstrate the relation of the pancreas to the suprarenal body. The relation of the internal secretion of the thyroid to that of the pancreas is shown by the frequensy of alimentary glycosuria and the not infrequent occurrence of fatty diarrheal stools in Graves' disease.

From what has been said above it would seem very probable that derangement in the physiology

of the pancreas would manifest itself so easily and be readily demonstrated by the disturbed action of the ferments and the deranged carbohydrate metabolism. This can however only be done in a certain number of cases by the methods to be described below. In a number of other cases the pancreas may be quite diseased and all our functional tests should still be negative. This is to be explained as follows: (1) The pancreas has two ducts and in case of a closure of one the second one is still allowing the secretion to escape and be active. (2) Even if both are occluded the erepsin of the small intestine discovered by O. Cohnheim acts on the proteids, the bile on the fats, the ptyalin on the starches, and the bacterial action on digestion replaces the digestive functions of the pancreas. For the erepsin to be active it is essential that the gastric secretion should be perfect. (3) As long as a small part of the pancreas is not diseased it is liable to assume the function of the entire pancreas. (4) It is not improbable that there is at times accessory pancreatic gland in the upper part of the small intestine. (5) On this I lay particular stress, the negligence to carry out the laboratory tests early in pancreatic disease before compensatory action has had time to take place. I am certain that just as soon as we shall learn to look for pancreatic disease by all known methods as well as we do to-day for gastrointestinal diseases, diagnosis of disease of the pancreas will become the rule and not the exception.

Diagnostic methods demonstrating the efficiency of the external secretion of the pancreas.

The original assertions of Brugsch, Hesse, Rosenberg, and others that in disease of the pancreas the N. loss is increased from the normal 7-8 per cent. to 20 per cent. has not been confirmed by other observers. It is different, however, with the finding of muscle fibers in the stool (creatorrhea). In severe cases muscle fibers are found macroscopically, in milder cases only by the aid of the microscope. In order to facilitate the finding of muscle fibers in the stool, Albu and Adolf Schmidt have devised a special meal for that purpose. The former uses one-quarter of a pound of broiled or boiled calf's thymus and examines the stools for muscle fibers, the latter gives one-quarter of a pound of lean, slightly broiled steak and follows this with a capsule of charcoal in order to recognize the stool. It is essential in case we find muscle fibers to rule out achylia gastrica, increased peristalsis of the small intestines as a result of catarrh, or the excessive intake of meat, and the fact that some people will not fully digest slightly broiled meats. Sahli gives a gelatodurat capsule hardened with formalin and filled with iodoform, salicylic acid 0.15, or methylene blue 0.02, and looks for the respective chemicals in the sputum and urine in four, six, to eight hours. He bases his test on the principle that such a capsule is only acted upon by the pancreatic juice. The investigations of all other observers on the subject agree that the test is unreliable. A modification of the Sahli capsule was suggested by Müller and Schlecht. They base their idea on the fact demonstrated by Ury, that the stool contains an active ferment, Müller and Schlecht therefore place the formerly hardened gelatodurat capsule filled with charcoal in a stool of the patient who received a laxative the night before. The stool with the capsule is placed in an incubator at a temperature of 100° F. and examined from between two to twenty-four hours. If after twenty-four hours the capsule is not opened, they conclude that trypsin is absent. The method of Müller and Schlecht with the serum plates is too complicated for practical purposes, and hence omitted here.

More important and readily carried out, therefore applied in most clinics, is the O. Gross casein method. It is based on the fact, that the digestive products of casein brought about by trypsin are not coagulated any more by dilute acetic acid. The method to be described also serves for the quantitative determination of trypsin. Method: 5 grams of feces are thoroughly rubbed up and treated with 45 c.c. of 1 per cent. sodium carbonate sol., and rendered neutral with sodium bicarbonate. Now the feces sol., is filtered until all clear. 1:1000 neutral casein sol. which is prepared as follows: 1 gram casein is dissolved with 1 10n NaOH, and to make it neutral 1 10n HCl is slowly added and now filled with distilled water up to one liter. In order to prevent decomposition of the casein sol., a few drops of toluol are added. Test: To each of 8 test tubes are placed 10 c.c. of the neutral casein solution. Now we place in the first tube 1 c.c. of the feces, in tube 2, 0.5, in the third tube 0.2, and the fourth tube receives 0.1. The rest is again diluted with distilled water in the dilution of 1:10 and the other four tubes receive now as much of the newly diluted solution as the first four tubes did of the first solution of the feces. The tubes are now placed in an incubator at a temperature of 100° F. for 24 hours. After that time we test the tubes for cloudiness with a 1 per cent. acetic acid sol. In the presence of trypsin the tubes remain clear on the addition of the 1 per cent. acetic acid solution, if trypsin is diminished the acetic acid solution causes cloudiness only in the first tubes, and when absent it renders all the tubes cloudy. The stool to be examined is to be obtained after a laxative.

The method of Volhard is intended to demonstrate trypsin in the stomach contents. The patient is given 200 c.c. of olive oil or 250 c.c. of sweet cream. This breakfast is preceded one-half an hour before by 0.5 gram of calcined magnesia, and 0.5 gram of the same powder one-half an hour after breakfast. The stomach contents are aspirated 45 minutes after, and allowed to stand. The lower layer is examined for trypsin. The best method is the one of Abderhalden and Schittenhelm, known as the silk peptone test. One-half gram of 0.5 peptone is dissolved in 1 c.c. of the gastric juice to be examined. A mildly concentrated sodium bicarbonate solution is added to render the contents weakly alkaline. Some of the gastric contents are boiled to destroy the trypsin, to which 0.5 peptone is added. Both tubes are placed in the incubator at a temperature of 100° F. and examined 24 hours later. If much trypsin is present there are enough tyrosin crystals found to be visible to the naked eye, if trypsin is diminished tyrosin is found microscopically, and if trypsin is absent tyrosin is not found at all. The method is a very useful one and is recognized by such authorities as H. Strauss, Ehrmann, Albu, Frank, Hemmeter, Friedenwald, and others. This method is, however, also not fully conclusive because regurgitated erepsin into the stomach is liable to produce tryosin crystals, and, as shown by Michailow, gastric diseases, like pyloric stenosis, cancer of the stomach, and even the swallowed mucous of the pharynx rich in leucocytes is liable to interfere with the test.

Adolf Schmidt uses the nuclein test with the idea that nuclein is only digested by the nuclease of the

pancreas (Iwanoff). For the test small pieces of meat hardened in alcohol and colored with hemotoxylin and placed in gauze bags are given to the patient and the stools examined for nuclei. If nuclei are found in excess, the pancreatic function is considered deficient. Brugsch has lately modified the test by giving a thymus capsule stained with iron hemotoxylin and hardened in lycopodium.

The test for trypsin by the Mett's albumin tubes is undoubtedly very valuable and recently pointed out by Lifschutz of Charkow to be the most reliable. It may be used either in the stomach contents after a Volhard oil breakfast or in a specimen of feces obtained after the laxative. The test is carried out in the same manner as it is done for the determination of the presence of pepsin with the exception that pepsin is determined in an acid medium and for trypsin we must examine in an alkaline medium.

Disturbance of the Digestion of Fat.—The occurrence of fatty stools in diseases of the pancreas has long been recognized. It must not be forgotten, however, that closure of the choledochus by stones, inflammation, or tumor of the gall bladder, disease of the small intestines, increased peristalsis of the gastrointestinal tract may give rise to fatty stools. We should only attach importance to the finding of fat in the stools when there is an associated creatorrhea, also when jaundice is accompanied by stasis in the gall bladder, and tumor, cholecystitis, or growth of the gall bladder can be ruled out. The staining of the stool with sudan III brings out the fatty crystals and fatty needles more clearly even when small quantities of fat are present. Heating converts the needles and crystals into droplets of fat. If there is excessive fat in the stool, the characteristic clay color results. The stool should not be mistaken for the acholic stool which can be avoided by shaking the stool with ether, and the known bichloride test. In very severe cases the excessive fat in the stools makes the same look buttery. Albu and Ehrmann have lately pointed out that when a pancreatic preparation is given to a patient who has fatty stools as a result of a disease of the pancreas, the fat in the stool diminishes but the muscle fibre is uninfluenced. The tests to demonstrate fat disturbance are those of Winternitz and Ehrmann. Winternitz bases his test on the fact that the ethylester of the higher fatty acids depends chiefly on the steapsin in the pancreas, the bile alone is not able to change the ethylester. He uses 3 to 4 c.c. monoiodbehen ethylester with milk; after 3-5-10 hours he examines the urine and saliva for iodine. If iodine is set free he concludes that the pancreas functionates normally. Ehrmann gives the patient 30 grams of rice with 75 grams palmin and ¼ liter warm water and some salt. Two to two and a half hours after the meal is taken the stomach is emptied by the stomach tube. The fatty contents of the stomach are determined by the following solution: Petroleum ether 90.0 c.c.; benzole ad. 100.0 c.c.; 10 c.c. of the filtered stomach contents are shaken with 10 c.c. of the solution; then the fatty part is treated with 3 per cent. cupric acid solution. The fatty part colors emerald-green and the intensity of the color indicates the quantity of fat present.

Disturbance of the Digestion of Carbohydrate in Diseases of the Pancreas.—To determine the disturbance of diastase the method of Wohlgemut is used. To 5 grams of rubbed up feces is added 20 c.c. of 1 per cent. NaCl solution. We use eight test tubes, into each of them 5 c.c. of 1 per cent. starch solution is placed. Now we add to each tube the same quantity of the feces solution, as it is done in the determination of trypsin. The tubes are placed into an incubator at a temperature of 100° F. After 24 hours we test the sol. with a drop of a 1:10 lugol solution. If the starch is not completely digested, we get a blue color; where erythrodextrin is present the color is red.

The newest and the one that seems to be most promising method to obtain directly pancreatic juice is the duodenal tube devised by M. H. Gross of New York, Hemmeter of Baltimore, Einhorn of New York, and lately modified by Palefski of New York. The method is simple and especially with the Gross tube most easily accomplished, and it is to be hoped that in the near future it will be as frequently used for the diagnoses of pancreatic diseases, as the stomach tube is to-day for gastric diseases. There are already important publications by the above named authors, and by Crohn of the Mount Sinai Hospital of New York.

Disturbances of the Internal Secretion of the Pancreas.—Knowing from physiology the relation of the pancreas to carbohydrate metabolism, we should never neglect to examine the urine for sugar, acetone, and diacetic acid. In cases where sugar is not found in the urine and we still have reason to suspect a disturbance in the pancreas we should test the tolerance of the patient for sugar by giving him 100-150 grams of sugar and see whether alimentary glycosuria is produced. Adrenalin mydriasis as a diagnostic means was already mentioned. The Cammidge test is complicated and not conclusive and has practically been given up.

All the methods outlined above have their shortcomings because the digestive action of the pancreas can be carried out by the smallest healthy portion of pancreas left, the ptyalin, the gastric juice, the erepsin, and the bacterial action, but it is still our duty to carefully examine by all recognized methods for pancreatic deficiency if we expect to make the desired progress in the functional diagnosis of diseases of the pancreas.

Symptomatic Diagnosis.—It will not be possible for me to give a detailed description of all the diseases of the pancreas. An attempt will be made to give a short description of the symptoms characteristic to all the diseases of the pancreas with a brief outline of the symptoms present of the special diseases of the pancreas; the former will come under the heading of general symptomatology, and the latter under special diagnosis.

General Symptomatology.—The general symptoms are those of digestive disturbances and are not characteristic. Only a limited number of symptoms may lead one to suspect a disease of the pancreas. Such are: pressure and pain in the epigastrium with a repugnance to meat. Vomiting is likewise a frequent symptom upon which some authors lay particular stress. Pancreatic juice has been observed in the vomitus by some. The constant presence of bile in the vomitus is a characteristic feature, provided biliary diseases and regurgitation through the pylorus can be ruled out. Ptyalism is considered by some a pathognomonic symptom, because there is a relation between the pancreas and the salivary glands, the latter assuming vicarious function in pancreatic disease. Pain in the epigastric region is not diagnostic. The kind of pain, however, namely, its sudden onset, its extraordinary severity, and the inability to touch the part during the attack may awaken suspicion. The seat of the

pain is almost always around the umbilicus and radiates to the left hypochondrium. The light clay colored voluminous stools containing fat and muscle fiber are very suggestive.

Objective Symptoms.—In most cases there is a marked loss of weight. This is so important that we should carefully inquire as to whether our patient lost weight, because the disease affects mostly obese people, and, therefore, a considerable loss of weight may not be obvious. Of course, there are exceptions to the rule and a case of advanced sarcoma of the pancreas is reported in literature where the patient had lost no weight. Icterus is a symptom that must be dealt with in detail, because it occurs in other diseases as well. In pancreatic diseases it comes on either suddenly or gradually, and is the result of pressure on the ductus choledicus by an inflamed head of the pancreas or a tumor. In stones and inflamed pancreas icterus is intermittent; in tumor it is persistent and progressive. Icterus plus stasis in the gall bladder which on palpation corresponds to a hydrops of the gall bladder should lead us to suspect a disease in the pancreas. In two cases that I had occasion to observe at the Har Moriah Hospital the icterus and large gall bladder were very marked. Of course we should carefully rule out a tumor of the gall bladder itself, or stones lodged in the gall bladder and also in the common duct, the former giving rise to a large palpable gall bladder, and the latter to jaundice. Hepatitis with inflammation of the biliary passages must likewise be excluded. The Mayos, Kehr, Borchard, and others have demonstrated lately that not only in diseases of the biliary passages is the pancreas often found secondarily diseased, but in diseases also of the liver, especially in atrophic and hypertrophic cirrhosis. It is interesting to note that observers like Oser, Mayo Robson, Kehr and Carrot, Borri as well as Michailow, arrived at the conclusion that many cases of catarrhal jaundice are not due to biliary disease but to a disturbance in the pancreas. Carrot who studied these cases most carefully, states as follows: "The finding of fat and muscle fiber in the stool, the absence of trypsin and presence of biliverdin in the stomach contents after an oil breakfast speaks against a pappillitis catarrhalis, but rather for what Carrot terms acute angiopancreatitis, and which responds favorably to the use of laxatives." A bronze coloration of the skin has been observed by many, Albu found several times interstitial changes in the pancreas in bronze diabetes. This explains to us more than anything else the reason for finding sugar in the above disease.

The aid of palpation in the diagnosis of diseases of the pancreas is still unsatisfactory. Some observers, especially Hausman with his skillful palpation, claims to be able to feel even a normal pancreas in 0.5 per cent. Adolf Schmidt states that he never felt a normal pancreas, and many competent authorities agree that even an inflamed pancreas can only be made out in very thin persons. It was the experience of the writer that even in cases where every sign and symptom pointed to a tumor of the pancreas, no mass outside of the large gallbladder could be felt. The most easily palpated ones are the cystic tumors of the pancreas, but even here one can readily be misled by the fact that at one time the mass may be felt and at another not, like in a case cited byAlbu, who attributed it to the fact that the cyst emptied and refilled at intervals. The case of pancreatic cyst seen by me was so large and filled out the entire left hypochondrium that I mistook it for an ovarian cyst; even at the operation by A. V. Moskowitz, the origin of the cyst was determined with difficulty. A case of pancreatic cyst also discovered at operation as a result of trauma was reported by the late A. E. Isaacs. Recently I have had occasion to see a case in the service of Geheimrat Kraus in a woman forty years of age with a typical history of ulcer of the stomach in whom, in addition to the ulcer, a mass was felt in the left of the abdomen. The most painstaking examination could not establish an exact diagnosis. At the operation by Hildebrand a chronic ulcer of the pylorus and a cyst of the pancreas with a very thick capsule were found. Repeated examination for the presence of glucose in the urine should not be neglected, maltose has also been found by Rosenheim and Flatow. Alimentary glycosuria, the adrenalin mydriasis, and the other functional tests as described above should be applied.

Special Diagnosis.—Pancreatic apoplexy, and acute hemorrhagic pancreatitis have so many symptoms in common that they should be described together. They come on suddenly with severe abdominal pains, distension of the abdomen, absolute constipation, marked tenderness and rigidity of the upper quandrant of the abdomen, no leucocytosis and absence of temperature. The symptoms simulate a great deal ileus, general peritonitis, and perforation of abdominal viscus. I was once very much impressed by a correct diagnosis made by Dr. Leo Buerger at the Har Moriah Hospital because he paid particular attention to the rigidity, distention, and marked tenderness of the upper quadrant of the abdomen, in addition to the shock of the patient. It seems to me that in the future we ought to make use in the above-named diseases of the Noguchi Wohlgemut test which consists in examining the urine for diastase as suggested originally by them for rupture of the pancreas.

Abscess of the Pancreas.—This disease is not infrequently met with. Numerous cases have till now been reported by American, English, and German authors, notably amongst whom are Musser, the Mayos, Moynihan, Brugsch, and others. This disease, although setting in abruptly, is preceded by some gastric symptoms like pressure in the epigastrium, slight icterus, nausea, and irregular temperature and the positive functional tests in the stomach contents and stools as well as the presence of sugar in the urine will lead one to a correct diagnosis. A case that I saw operated by Hildebrand was diagnosed correctly by Brugsch because he pair particular attention to the laboratory examinations of stomach contents and stools. A palpable tumor is a rare occurence, but it has been observed by some.

Cirrhosis Pancreatica.—The symptoms are those of intermittent gastric disturbances, slight icterus, pain varying in severity in the upper portion of the abdomen and the positive stool examinations as well as the occasional finding of sugar in the urine and the positive test for alimentary glycosuria.

Fat necrosis of the pancreas has all the symptoms of hemorrhagic pancreatitis with the exception that the acute symptoms subside and there are free intervals. Many authors found necrosed tissue of the pancreas in the stools.

Stones of the pancreas give rise to symptoms when the ducts become obstructed and parenchymatous changes take place in the pancreas. The disease is often associated with cholelithiasis and fre-

quently leads to atrophy, abscess, and fat necrosis. The colicky attacks are not easily differentiated from renal and biliary colic. The differential points are the following: even in the intervals there is always some pressure pain in the region of the stomach, the pains radiate to the left hypochondrium and there is more severe bilious vomiting. Above all, diabetes is more frequent in this affection than in any other pancreatic disease, or, there is at least glycosuria present during the attacks. There is no bile, urobilin or urobilinogen in the urine. Eichhorst lays stress on the presence of salivation in this affection.

Cysts of the pancreas are quite frequent and of practical value, as surgical interference leads in this affection to better results than in any other disease of the pancreas. They are palpable after they have attained the size of a plum; they are likely to grow and contain many quarts of fluid. Objectively, there is a mass above the umbilicus not movable with respiration and of a smooth and elastic character by insufflation of the stomach and intestines, disease of these organs can be excluded. Sometimes the swelling may entirely disappear by emptying itslf into the intestines and reappear when they refill. (Albu). If the cysts sit at the head of the pancreas they may cause jaundice by pressure on the ductus choledochus or hydrops of the gall bladder by pressure on the cystic ducts or both by pressure on both ducts. There may also be pyloric or duodenal stenosis on account of pressure. Disturbed intestinal absorptive power may give rise to emaciation. On the other hand, creatorrhea, steatorrhea, diabetes, alimentary glycosuria, and absence of trypsin are but seldom observed in this affection.

Carcinoma of the Pancreas.—This is the most frequent of pancreatic diseases, very often primary, sometimes secondary. The symptoms may be divided into: (a) Where there was no symptoms during life and the disease was accidentally discovered at autopsy, the disease involving but a small part of the gland. (b) Where there is severe digestive disturbance, rapid emaciation and cachexia, which are no characteristic signs of pancreatic disturbance. (c) Cases with fat stools, positive specific reaction, acetonuria, and glycosuria. (d) Cases where compression of the ductus choledochus leads to jaundice, and where there is at the same time compression of the cystic duct leading to hydrops of the gall-bladder. (e) Cases where compression of the pylorus or the beginning part of the duodenum gives rise to symptoms of pyloric obstruction.

Syphilis of the pancreas occurs either in the form of gumma or as interstitial changes. The diagnosis is clinically only possible when there is evidence of disease of the pancreas plus syphilitic manifestations in other parts of the body and a positive Wassermann. Tuberculosis of the pancreas was observed by many in association with tuberculosis elsewhere.

Atrophy of the pancreas is more of pathological and anatomical interest, because its recognition in life is not yet established. A few cases have been reported in the literature in which severe diabetes, with marked digestive disturbances, especially with bulky clay-colored voluminous stools were present, which led to a diagnosis during life.

I must in brief make reference to the pancreatic diarrhea described by Ehrmann, which is to be differentiated from the diarrhea of intestinal origin and that due to achylia gastrica. He found that in this form of diarrhea trypsin is frequently absent in the stools, steapsin diminished in the stomach contents and pancreon has a favorable influence.

Prognosis.—It is as yet quite difficult to be very definite as to the prognosis of pancreatic affections. It is certain that the medical diseases of the pancreas are frequently well influenced by treatment and some even entirely cured. Of the surgical affections the hemorrhagic pancreatitis and apoplexy of the pancreas, necrosis, cancer, and sarcoma of the pancreas are the most unfavorable. Abscess of the pancreas is more favorable, the same is true of stones, most of all are the cysts.

Etiology.—Of the real etiological factor but little is known. From surgical and post-mortem statistics we learn that trauma syphilis and above all diseases of the gastrointestinal tract, the liver and biliary passages are predisposing factors. So frequently is the pancreas found diseased post-mortem that surgeons are inspecting the pancreas now whenever they operate on the stomach, duodenum or biliary passages. Gallstones predispose to disease of the pancreas in the following manner: they cause pressure on the ductus choledochus, which in turn obstructs the pancreatic duct, producing stasis in the pancreas which leads to bacterial invasion. As the result of infection the nonactivated ferments become active, leading to destruction of the pancreas. It is reasonable to assume that trypsin causes the hemorrhagic form and steapsin fat necrosis. Duodenal ulcer causes pancreatitis by extension. Arteriosclerosis and alcoholism are predisposing factors, the latter surely by its primary toxic action on the liver. Stones of the pancreas are due to obesity, diathesis and atony of the bowels. Abscess of the pancreas is often the result of suppurative processes in other organs of the abdomen or in pyemia. In the case of Brugsch mumps preceded the disease.

Treatment is divided into medical and surgical. To the former belong chronic pancreatitis, catarrh of the pancreatic ducts, and the cases of pancreatic diarrhea. Our treatment must be directed to the outcome of the functional tests, the results of the urinary examination and the condition of the digestive organs. The most important consideration is the dietetic one. In cases where muscle fibres and fat are found in the stools we should give meats very sparingly, well cooked, and finely chopped. The white meats and soft fish are to be preferred. Vegetables, such as spinach, carrots, spring beans, asparagus, mashed potatoes are allowed. Fats should be avoided and even milk given only well diluted or butter milk kephyr zoolak should be substituted.

Carbohydrates should be used sparingly, even in cases where there is no sugar in the urine. If there is sugar in the urine, the dietetic problem becomes still more complicated as pancreatic diabetes is usually of a very severe nature and associated with acetone and diacetic acid. We must therefore not interdict all carbohydrates, vegetable, and oatmeal days should be instituted at regular intervals, and large doses of bicarbonate of soda given internally. A few words yet about the congenial idea of Wohlgemut as to the diet which is important in many forms of the disease, especially when we want to limit the secretions of the gland. Based on the findings of Pawlow that CH causes in the fistulous dog the greatest flow of pancreatic juice, Wohlgemut advises a strict antidiabetic diet with large doses of bicarbonate. He succeeded to

cure a fistula that followed an operation for a cyst of the pancreas that persisted for one and three-quarters of a year and prevent a fistula in another case.

Of drugs there is nothing specific. Laxatives are recommended by many, and the one that is of service is calomel. It should be used at least once a month in divided doses up to 0.3 gram. Of the ferments the only ones that enjoy some reputation are pancreon and pancreatin in doses of 0.5 gram t.i.d., the former is preferred because its acts in an acid and alkaline medium. Where the bronze color is marked we may try adrenalin solution 1:1000, 10 drops t.i.d.

Tonics are also of value, and the same is true of advising the patient to spend some time at one of the spas like Saratoga Springs, Carlsbad, Kissengen, and so forth. Where syphilis is suspected specific treatment should be instituted. For the outcome of surgical diseases the earlier the diagnosis is made and surgical intervention practised the better the results. Until now operative results have already yielded quite a percentage of recoveries and it should be the duty of every practitioner to have such cases operated on as early as possible.

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Medicolegal Notes.

Administration of Narcotics Causing Death—Involuntary Manslaughter.—It is a penal offense to give, furnish, or sell any of the narcotic drugs mentioned in the Georgia Statute, Acts 1907, p. 121, Civ. Code 1910, § 1651, namely, cocaine, alpha- or betaeucaine, opium, morphine, heroin, chloral hydrate, or any salt or compound thereof, except upon the prescription of a lawfully authorized practitioner of medicine, dentistry, or veterinary medicine. This statute was intended, not only to prevent traffic in such drugs, but also to lessen the evils consequent upon the habitual use of such narcotics. Where a person, in violation of the statute, administers, by means of a hypodermic syringe, morphine to another in such quantity as to cause death, it is held that he commits an unlawful act, and a conviction of involuntary manslaughter in the commission of an unlawful act would be authorized. It would be no defense that in the administration of the drug the intent was not to cause death, but to alleviate pain.—Silver v. State, Georgia Court of Appeals, 79 S. E. 919.

Admission of Licentiates of Other States—West Virginia Regulations.—Section 9, Chapter 150, of the West Virginia Code 1906, as amended and re-enacted by chapter 66, Acts of 1907 (Code Supp. 1909, c. 150), vests "the State board of health of West Virginia" with discretion to make reasonable rules and regulations respecting the granting of licenses to medical licentiates of other States with whose licensing authorities it has established reciprocal relations, and to refuse to grant licenses to those who have not complied with such rules and regulations. In an action of mandamus to compel the board to issue to the applicant, a licentiate of the State of Maryland, a license to practise within the State of West Virginia, it was held that a rule or regulation which requires a foreign medical licentiate to reside and practise his profession in the State which licensed him for one year before making application in West Virginia is reasonable, and the failure of the applicant to comply with it will justify the State board of health in refusing him a license. The year's practice in the foreign State must be in compliance with its laws. The interpretation given by the said board to a rule or regulation adopted by it will be followed by the court. Thomas v. State Board of Health, West Virginia Supreme Court, 79 S. E. 725.

Failure To Effect a Cure No Inference of Negligence.—In an action for alleged malpractice consisting of careless and negligent diagnosis and treatment of the plaintiff's dislocated shoulder, it was held that negligence could not be inferred or presumed from the failure to effect a cure, and that the condition of the plaintiff's shoulder subsequent to the plaintiff's treatment did not of itself establish an inference that the plaintiff had been negligent in his treatment.—Hoffman v. Watkins, Washington Supreme Court, 138 Pac. 664.

Practising Medicine without a License—Penalty.—A statement of claim for a second conviction for practising medicine without a license stated that the claim was for $200 for a penalty as provided for a subsequent offense of a violation of chapter 91, paragraph 13, Hurd's Illinois R. S. 1911, that it was the contention of the plaintiff that the defendant had practised medicine as defined in section 7 of said act without a license as provided for in sections 2 and 3 of the act, that the offense was committed in Chicago on or about a certain date, and that the defendant had been previously convicted of the offense. It was held that the statement was sufficient on which to base the claim.—People v. Fairfax, 181 Ill. App. 436.

Homicide—Negligent Operation by Physicians as a Defense.—On a trial for homicide it appeared that, as the result of the wound inflicted by the accused, hospital physicians performed an operation with a view to improving the condition of the patient and saving his life. This was unsuccessful, the patient dying within a few hours. There was no claim by the defense that the deceased had recovered from his wound at the time of the operation, or that there was any evil intent in performing the operation, or that it was performed for any other purpose than an attempt to save life. It was held that it was not available as a defense that the operation was not performed in such manner as a reasonably prudent doctor would have performed it.—State v. Gabriella, Iowa Supreme Court, 144 N. W. 9.

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IMMODERATE SMOKING AND THE CARDIO-VASCULAR SYSTEM.

THERE is abundant clinical evidence that excessive smoking causes certain neuroses of the heart and is a potent factor in the production of arteriosclerosis. The experimental study of the effects of nicotine when injected into rabbits has shown that this alkaloid gives rise to the various changes of arteriosclerosis. This knowledge is not likely to deter the confirmed smoker. Nevertheless, it furnishes a rational argument for the restriction of this form of indulgence.

A comprehensive study of the effects of tobacco upon the heart and blood vessels is contributed by J. Pawinski to the *Zeitschrift für klinische Medizin*, Vol. 80, Nos. 3 and 4. In studying the causes of arteriosclerosis as revealed in 3,156 cases with a known etiology, the author found that immoderate addiction to tobacco occupied the second place, the first being obesity. A history of excessive smoking was recorded in 29.8 per cent. of the cases. There were 1,075 cases in which sclerosis of the coronary arteries was the most pronounced type of the disease, and in these cases tobacco came first in importance as an etiological cause, contributing to 41.9 per cent. of the cases, while obesity, alcohol, psychic manifestations, and syphilis came next in order, accounting for 26.3, 21.3, 13.3, and 10.3 per cent. of the cases respectively. In the 2,081 cases of arteriosclerosis in which the coronary arteries were not affected, the figures were as follows: obesity, 25.9; smoking, 23.3; alcohol, 23.3; syphilis, 13.3, and psychic causes, 6.1. The significant fact gleaned from these statistics is that of those patients who suffered from angina pectoris about one-half had been inveterate smokers, whereas in the cases of arteriosclerosis without angina pectoris only one-quarter of the patients had been addicted to tobacco. The above figures applied to cases in which in addition to the main etiological cause there were other associated factors. The figures were much smaller when the causes were not combined. For instance, when smoking was the only possible etiological factor it accounted for 19.4 per cent. of the cases of coronary sclerosis instead of for 41.9 per cent. The ratio of the simple to the combined factors was 209:248. On the other hand, in the remaining vascular territory the ratio of the tobacco factor alone to this factor combined with others was 316:370. From these data the important conclusion is drawn that tobacco has a certain, possibly a specific affinity for the coronary arteries and may probably be compared to the psychic factor, which plays an important rôle in the pathogenesis of angina pectoris. The factor which, in combination with tobacco, appears to be most frequent in the etiology of arteriosclerosis is alcohol; and this is particularly the case when this condition is generalized.

Nicotine is a powerful poison which approaches cyanogen very closely in its virulence. The fatal dose for human beings has not been determined, but doses as small as 0.001 to 0.003 gram cause serious symptoms of poisoning. In addition to nicotine, tobacco leaves contain a nitrogenous substance, nicozyanine, related to camphor, and resembling nicotine very closely in its action. In addition these leaves contain volatile oils, nitrogenous substances, fat, organic acids, starch, sugar, pectin, and cellulose. The much-disputed question whether tobacco smoke contains nicotine has been decided in the affirmative by the investigations of Zulinski and Zebrowski. Tobacco smoke contains in addition two other bases belonging to the pyridin groups, namely, pyridin and collidin. Pyridin is formed chiefly if the tobacco is smoked in a pipe and irritates the mucous membranes; collidin is formed chiefly when the tobacco is smoked in cigarettes and has a milder action.

Claude Bernard was the first to prove that nicotine is a poison to the vagus nerve. Traube showed that nicotine has an action closely allied to that of digitalis, both substances exciting the neuromotor apparatus of the heart. Recent investigations have shown that nicotine has a pronounced action upon the muscle fibers of the heart. Besides it has a marked action upon the blood vessels, causing a considerable rise in the blood pressure. This is the result of a stimulation of the vasomotor center in the medulla oblongata and the vasomotor apparatus in the wall of the blood vessels. The vessels chiefly of the lower extremities and of the abdominal cavity are contracted, but the cerebral vessels are dilated. Following a period of increased blood pressure there is a reduction of the pressure below the normal.

Langley and Anderson have shown that nicotine is a potent poison for the cells of the entire vegetative nervous system, including both its sympathetic and its autonomous divisions. In this respect nicotine is unlike other exogenous poisons, whose specific action is more restricted. For instance, suprarenal extract exerts its influence only upon the endings of the sympathetic nerves, while atropine and muscarine act only upon the peripheral ends of the autonomous nerves. Pezzi and Clerc studied the action of nicotine upon cardiac rhythm and attributed the irregularities in the latter induced by this alkaloid to its excitation of the vagus center. In this connection the experiments performed by Otto on rabbits are of eminent clinical significance. He found that the most marked changes occur in the coronary arteries and its branches, and consist in a considerable thickening of the intima and in a pronounced degeneration of the media. Besides, the heart

muscle undergoes parenchymatous and interstitial changes. The investigations of Adler and Hensel of New York must not be forgotten, for these observers succeeded in producing atheromatous changes in the aorta by means of intravenous injections of nicotine.

The functional disturbances of cardiac activity which are attributed to the effect of nicotine are similar to those that result from other causes, such as brain-fag, neurasthenia, hysteria, etc., with this difference: in the former the disturbances of rhythm are particularly the occurrence of intermissions caused by extrasystoles. In men these disturbances occur after about ten or more years of indulgence in smoking. A persistent irregularity is more rarely observed occurring particularly in habitual cigar smokers who also eat and drink to excess, and in obese individuals. The sensory neuroses of the heart resulting from tobacco are more common in women than in men. Precordial anxiety and bradycardia occur only in those who smoke greatly to excess, and paroxysmal tachycardia occurs in those who inherit an unstable nervous system. Attacks of false angina pectoris are also attributed by the author to immoderate smoking. The sclerosis of the vessels of the lower extremity is another sequence of this habit. It gives rise to intermittent claudication, which in certain respects is regarded as a peripheral form of angina pectoris. The so-called angina abdominis is likewise attributed to the same cause.

REPRODUCTION AND RACE BETTERMENT.

In a discussion on Reproduction and Race Betterment, published in the Pennsylvania Health Bulletin for February, 1914, Dr. Samuel Dixon, Commissioner of Health for that State, points out that society absolutely requisite for the continuance of our present civilization is divided into domestic and civil. Dealing with the former the hygiene of married life must be considered and this brings up the point with regard to the suitable age and conditions of life at which the bonds of matrimony may be assumed. The writer lays down the following rules as to marriage: First, a man should not marry unless into a family with a history of reasonable longevity, free from hereditary disease. He should not marry a woman advanced in life, delicate, feeble, or afflicted with any inherited deformity. The age most proper for women in this climate is nineteen or twenty years and for men twenty-four or twenty-five years. Women of a nervous temperament, those who are extremely irritable, hysterical, subject to convulsions, or to epilepsy from organic disease, ought to avoid matrimony. In this country matrimonial contracts between the sexes before the ages of twenty-five and nineteen respectively, are contraindicated because, as a rule, previous to these periods of life, the body is not fully developed, the different functions are not perfect, and the sexual organs being only in progress of their growth, any offspring developed by them in their immature condition, must be deficient in vital power.

The author states that according to an eminent authority, the principal sources of degeneracy, which appear at present to be most active in the world in their influence for evil on large masses of mankind may be grouped as follows: (1) Degeneracy from toxemia, or from the abuse of alcoholic fluids, opium, preparations of Indian hemp, preparations of coca, tobacco, and the like; also from the effects of lead, mercury, arsenic, and phosphorus, and from the use of unwholesome vegetable food, such as diseased rye, maize, wheat, and the like. (2) Degeneracy from the persistent pernicious influence of malaria. (3) Degeneracy from certain peculiar geological formations, soil, and water, as seen in the development of goiter. (4) the generations which follow the one which has and then afflict large populations, profoundly influencing the system, and engendering those morbid temperaments whose types are fully expressed in those generations which follow the one which has suffered from such epidemic pestilences. Many such epidemics act like toxic agents on the nervous system. (5) Degeneracy from the effects of the great town system, as it is called. The chief elements of such degeneration are unhealthy situations, a noxious local and general atmosphere, insufficient air, insufficient and improper nourishment, deleterious avocations, moral and social misery, and crime. (6) Degeneracy from fundamental morbid states, congenital or acquired, as seen in imperfect cerebral developments, deaf-mutism, blindness, constitutional diseases and diatheses, implanted, hereditary, or acquired, such as syphillis and scrofulosis. (7) Degeneracy from mixed causes, from consanguineous marriages. It will be gathered from a study of the above conclusions that heredity and environment would appear to exert almost equal influences upon the production of degeneracy. Probably, this is indeed the case.

SYMPTOMS OF UREMIA AND THEIR INTERPRETATION.

The symptoms of uremia are diverse and varied owing perhaps to the fact that more than one poison is concerned in the production of this complex. Dr. H. B. Anderson read before the Academy of Medicine, Toronto, on April 7, 1914, a paper on the subject which was published in the *Journal of Preventive Medicine and Sociology* for July. He pointed out that uremia has been classified clinically as (*a*) fulminating, (*b*) acute, (*c*) chronic, and (*d*) latent. In the first variety, the symptoms develop in their severest form with alarming rapidity and without previous warning. This variety is most frequent in recognized cases of granular kidney. The acute cases develop suddenly, but in cases in which other phenomena, such as albuminuria, greatly reduced quantity of urine, urea in the blood, or other evidence of impairment of renal function, would put one on one's guard as to the probable development of uremia. In the chronic type of uremia, gastrointestinal symptoms are often a marked feature, though headache, twitchings, cramps in the muscles, especially of the calves, general restlessness, pruritus, impairment of sight

or hearing, delirium, and eventually convulsions or coma, may appear.

The latest type, described by Sir William Roberts, occurs especially in double calculous pyelitis, with occlusion of both ureters, and consequently complete anuria. It has also developed where a compensatorily hypertrophied kidney has been removed, the other kidney being functionally inactive from disease. Apart from the nervous manifestations of uremia, the gastrointestinal are the most important and next to the alimentary tract the skin offers the most efficient route for the elimination of the poison. Frequently, the sweat of an uremic individual has a urinous odor. The respiratory system also exhibits evidence of the toxemia. Two abnormal types of breathing may be manifested: (1) A peculiar hissing type, sometimes called "goose-breathing"; this is a rare symptom. (2) Cheyne-Stokes breathing. The blood pressure is frequently though not invariably high, and Anderson insists upon its serious significance.

While so great importance is not now paid to uranalysis as formerly it is an error to consider this mode of diagnosis as of small moment. Generally speaking a more favorable view is taken of uremic symptoms than used to be the case, and much depends on the patient's general condition. The purely renal aspects of the case are not considered of altogether supreme moment.

The Relation of Movable Kidney to Chronic Appendicitis and Cecum Mobile.

As is often the case with movable kidney, an unusually mobile cecum may exist without giving any symptoms. Usually, however, it is only after a considerable amount of experience that the fact is sufficiently impressed upon a surgeon that the degree of mobility *per se* may bear very little relation to the severity of the symptoms. A slightly movable kidney may be accompanied by the entire chain of reflex digestive and nervous phenomena in one case, while there may be mobility to an extreme degree in another with no subjective symptoms whatever, and the loose kidney may be discovered quite by accident in the course of a routine examination of the abdomen. Many years ago Edebohls became impressed with the frequency of chronic appendicitis as a sequel of movable right kidney and finally published the results of his observations in a paper entitled "Chronic Appendicitis the Chief Symptom and Most Important Complication of Movable Right Kidney" (*The Post-Graduate*, February, 1899). The attention of surgeons once having been drawn to this sequence, confirmatory reports soon appeared in abundance. The coexistence of movable kidney and ptosis of other viscera has long been recognized; and since gastrointestinal derangements are a frequent result, these patients have been subjected to nearly every conceivable method of treatment. In 1901 Lane began removing the colon for the relief of chronic intestinal stasis due to ptosis of the hollow viscera. This procedure was so revolutionary that a storm of protest was at first aroused; but later many investigators undertook experimental and clinical work along this line. Among these, Coffee made an extensive study of the principles underlying the surgical treatment of gastrointestinal stasis and allied conditions, and called attention to the fact that in a very large number of cases where there is not a general enteroptosis but the right kidney is abnormally movable, there is also defective fusion of the cecum and ascending colon, with resulting prolapse and often dilatation of this portion of the gut. He therefore pointed out that in symptom-producing cases not only should the kidney be fixed and the appendix removed but the cecum and ascending colon should be firmly anchored.

A Study of Baseball.

The manner in which a people play is typical of their temperament, and therefore baseball may truly be termed the national game because it typifies the American temperament in the same way as cricket is typical of the English temperament; or, at any rate, it used to be so. Arthur Macdonald of Washington has published an article on the scientific study of baseball in the *American Physical Education Review* of March, 1914. The writer, who appears to have a very accurate knowledge of baseball, considers that the game is one of the greatest moral tonics for boys and young men that exists. It directs the surplus physical energy of youth into the right channel, for otherwise the energy might be employed in wrong ways detrimental to moral and physical life. The author discusses the anthropological features of baseball and has succeeded in composing an article interesting and to some extent instructive. All healthy games are beneficial and for this reason, he says, baseball properly conducted is to be heartily commended.

News of the Week.

Diagnosis of Cancer.—Because of a recent suggestion that the New York City Department of Health undertake the provision of laboratory facilities for the microscopical diagnosis of cancer, Dr. Harvey R. Gaylord, director of the State Institute for the Study of Malignant Disease at Buffalo, has written to the Commissioner of Health assuring him of the willingness of the Institute to undertake the diagnosis of all material from cases of suspected cancer sent to it from New York City. As the Institute is already equipped for such work and is prepared thus to cooperate with physicians throughout the State the City Health Department will take no further action in the matter.

The Boylan Law.—In response to repeated inquiries as to the duties of physicians under the Boylan law, the Health Department announces that prescriptions for chloral, opium, or any of its salts, alkaloids, or derivatives, or any compound or preparation of any of them may be written on ordinary prescription blanks. The prescription, however, must be dated, and must bear the name, address, office hours, and telephone number of the prescribing physician, and the name, age, and address of the person for whom the drug is prescribed. Physicians should also keep a record of all instances in which they personally administer any of the above mentioned drugs.

Rockefeller Gift Completed.—Title to the property of the Rockefeller Institute for Medical Research, New York, was transferred on July 6 by Mr. John D. Rockefeller, junior, to the corporation of the Institute. The property is the largest used by a medical institution in this city; it cov-

ers three full blocks, reaching from the north side of Sixty-fourth Street to the south side of Sixty-seventh Street, and from Avenue A to the East River, and is worth more than half a million dollars.

Care of Drug Users.—Under the Boylan law, which went into effect in New York on July 1, and provides for the commitment of habitual drug users to State, county, and city hospitals, the resources of the city will probably be taxed to the utmost. There are at present accommodations in the New York hospitals for not more than 100 such cases, and these provisions are only temporary. At a conference held on July 7 by those interested in the situation it was decided, therefore, to make use of the farm colony of the Department of Charities on Staten Island, where it will be possible to care for 150 patients, and at the same time it was agreed to urge upon the Board of Aldermen the desirability of providing structures on the city's farm for inebriates in Orange County, so that drug users can be treated there also.

Interborough's Medical Staff.—As the Workmen's Compensation Law, which has gone into effect in New York, requires that an employer shall provide an employee who has been injured while in his service with medical care and attendance, the Interborough Railroad Company of New York has made arrangements by which the workers on the elevated and subway lines will receive the best medical care possible. If necessary, the injured employee will be visited at his home by the company's doctor, who if it is thought wise will order his removal to a hospital where he will be placed in a "semi-private ward" and be permitted many liberties denied to the regular ward patients. It has also been arranged that some of the employees of the company shall be trained in first-aid work by the surgeons of the Interborough, so that immediate attention can be given to an injured person.

German Census.—According to the Imperial Statistical Office, Germany now has 67,812,000 inhabitants, the gain in the year being 831,000. Since 1904 the population of the country has increased by 8,337,000 or 14 per cent., while during the preceding decade the increase was at the rate of nearly 16 per cent.

Cornerstone Laid.—Impressive ceremonies attended the laying of the cornerstone of the new medical building of the National Jewish Hospital for Consumptives at Denver, Col., on June 28. The building is the gift of Mr. Samuel Grabfelder and will cost approximately $40,000. It will be a two-story brick and stone structure, and will contain a bacteriological laboratory, a drug room, quarters for the animals used in experimental work, etc.

Affiliation of Journal and Medical Society.—The *Boston Medical and Surgical Journal*, with its issue of July 2, 1914, began an official affiliation with the Massachusetts Medical Society, and will hereafter be the organ of the society. Such an association has been contemplated for some time past, and was consummated last month when a formal affiliation was voted by the councillors of the Medical Society. Dr. Walter L. Burrage and Dr. Frederick T. Lord have been appointed editors of the society to act in association with the editorial staff of the *Journal*, and an additional advisory board of four from the society will shortly be appointed to act with the three owners and Dr. Robert B. Osgood in relation to matters of policy and conduct of the paper. Such a union gives promise of a wider influence both for the society and for the journal in all matters pertaining to the progress of medicine, not only in Massachusetts but throughout all New England.

Civil Service Examination.—The United States Civil Service Commission announces an examination on August 10, 1914, open to both men and women, for the purpose of filling a vacancy in the position of expert on Sanitation in the Children's Bureau, Department of Labor, Washington, at a salary of $2,800 a year. The holder of the position will act as adviser of the Bureau in matters requiring knowledge of hygiene, and, in cooperation with other experts, will conduct investigations into dangerous and injurious occupations, the social factors responsible for high infant mortality, and other matters involving health. Competitors will not be assembled for examination but will be rated according to the following schedule: Education, 40 weights; experience, 40; publication of thesis, 20. Graduation from a recognized medical school, and at least three years' specialization in the hygiene and diseases of childhood or three years' experience in sanitary inspection work are prerequisites, and applicants must be between twenty-five and fifty years of age. Persons desiring to take the examination should apply at once to the United States Civil Service Commission, Washington, D. C.

Pennsylvania State Examinations.—As a result of the recent examination held by the State Board of Medical Examiners, sixty-five out of seventy-eight applicants have received licenses to practise medicine in the State of Pennsylvania.

Philadelphia Polyclinic.—The following changes and additions to the staff have recently been made: Dr. Thomas B. Holloway has been elected professor of ophthalmology in succession to Dr. James Thorington, resigned, and Dr. Charles R. Hood has been appointed associate professor of ophthalmology, and Dr. George S. Crampton, lecturer on refraction.

City Death Rate.—For the week ending July 4 the Health Department recorded the lowest death rate in the history of New York, 10.84 per 1,000 of population, representing a total of 1,160 deaths. The lowest previous record was 11.42 per 1,000, and for the corresponding week of 1912, the death rate was 12.54 per 1,000, while in 1901, when there was intense heat during the same period, the rate was 40.82. The decrease this year occurred in all the age periods, the number of deaths being 37 less among the infants under 1 year of age, 51 less among those between 1 and 5, 30 less between 5 and 65, and 13 less over 65 years. The death rate for the first 27 weeks of this year was 0.30 less than that for the same period last year.

The Plague in New Orleans.—The fifth case of bubonic plague was reported in New Orleans on July 12, the patient being a negro woman who was employed in a restaurant within two blocks of the house where the first case was found. Although approximately 4,000 rats have been examined in New Orleans since the first appearance of the disease, no infected ones have been found.

Rats Free from Plague.—The New York Department of Health reports that during the last few weeks a number of rats of the varieties known to be carriers of the plague bacillus, have been captured along the water front of New York and

examined; and that all of them have proved to be free from the infection.

Smallpox on Steamship.—Because of the occurrence of a case of smallpox in the steerage the Hamburg-American steamer Batavia which reached New York on July 5 was detained at Quarantine. The patient was sent to Swinburne Island and 77 passengers were transferred to Hoffman Island for observation.

Home for Babies.—The Haven, a new home for babies at Far Rockaway, L. I., will be opened early in August to care for the children of mothers who are ill in hospitals or are convalescing. It will have accommodations for 15 children and will be supported by voluntary subscriptions.

Personals.—Dr. ELMER B. COOLEY of Danville, Ill., has announced his candidacy for the Republican nomination for Congress from his district, in opposition to Joseph G. Cannon.

Dr. JOHN WALTER PERKINS, professor of surgery in the University of Kansas, has been elected chief of staff of the new St. John's Hospital at Salina, Kan.

Dr. OSCAR TEAGUE has been appointed by the Health Officer of the Port of New York, to serve as director of the new bacteriological laboratory recently completed at the Quarantine Station. Dr. Teague has had a wide experience in the diagnosis of plague, cholera, and other quarantinable diseases, which will make him particularly valuable in his new post. He served in the Bureau of Science at Manila for several years, and in 1911 was sent to Mukden as the American delegate to the International Plague Conference.

Gifts to Charities.—Mount Sinai Hospital, New York, receives $1,000 by the will of the late Isidore Wormser, Jr., of this city, and a like amount by the will of the late Adolph Magnus also of New York. By the latter will also the sum of $1,000 is bequeathed to the Montefiore Home, New York.

The Lying-In Hospital and St. Rose's Home, New York, receive bequests of $5,000 and $3,700 respectively by the will of the late Miss Lilla Gates.

Through a recent decision of the Appellate Division of the Supreme Court of New York, the Sea Breeze Hospital loses a bequest of $50,000 given to it in the will of the late Mayor Smith Ely of this city. The codicil containing this and other charitable bequests was signed by Mr. Ely only eight days before his death and was, therefore, declared by the Court to be invalid.

XIV^e Congres Francais de Medecine.—This congress will meet in Belgium on September 30 to October 1, 1914, under the presidency of Dr. Henrijeau, professor in the Faculty of Medicine at Liége. At the general sessions of the congress, the following subjects will be discussed: Syphilis of the heart and vessels; vaccine therapy, especially that of cancer and of typhoid fever; therapeutic value of artificial pneumothorax; lipoids in pathology. Further details may be obtained from the Secretary-General, Dr. René Verhoogen, professor in the Faculty of Medicine, Brussels.

Medical Society Elections.—AMERICAN MEDICAL EDITORS' ASSOCIATION. Annual meeting at Atlantic City, N. J., June 22, 1914. *President*, Dr. H. Edwin Lewis, New York; *First Vice-President*, Dr. H. D. Holton, Brattleboro, Vt.; *Second Vice-President*, Dr. W. M. Brickner, New York; *Secretary-Treasurer*, Dr. Jos. MacDonald, Jr., New York.

FULTON COUNTY (N. Y.) MEDICAL SOCIETY: Annual meeting at Hickman on June 23. Officers elected: *President*, Dr. John W. Naylor, Cayce; *Secretary-Treasurer*, Dr. Seldon Cohn, Fulton.

DALLAS (TEX.) MEDICAL AND SURGICAL SOCIETY: Annual meeting on June 27. Officers elected: *President*, Dr. O. M. Marchman; *Vice-Presidents*, Dr. J. H. Black and Dr. John R. Worley; *Secretary*, Dr. Frank A. Pierce; *Treasurer*, Dr. J. N. Coble.

National Mouth Hygiene Association.—At the concluding session of the annual meeting of this association held in Rochester on July 11, the following officers were elected: *President*, Dr. Harvey W. Wiley, Washington; *Vice-Presidents*, Dr. W. A. Evans, Chicago; Dr. Oscar Dowling, New Orleans; Dr. William R. Malone, New York, and Surgeon-General Rupert Blue, Washington; *Secretary-Treasurer*, Dr. G. Ebersole, Cleveland.

Obituary Notes.—Dr. ARTHUR FRANCIS EIFE of New York, a graduate of the New York Homeopathic Medical College and Hospital in 1881, and a member of the New York State Homoeopathic Medical Society, and the American Institute of Homeopathy, died at his home in Elmhurst, L. I., on July 7, aged 52 years.

Dr. JAMES HOWARD WILKES of Columbia, Tenn., a graduate of the University of Nashville, Medical Department, in 1862, assistant surgeon in the Confederate Army during the Civil War, and a member of the Tennessee State and Maury County Medical Associations, died at his home on June 20, aged 83 years.

Dr. GORDON CHITTOCK of Jackson, Mich., a graduate of the Rush Medical College, Chicago, in 1851, died at his home on June 23, aged 87 years.

Dr. WILLIAM GOVANS RIDOUT of Annapolis, Md., a graduate of the College of Physicians and Surgeons, New York, in 1866, died at his home on June 30, aged 77 years.

Dr. EDWIN DARLING of Vail, Ia., died at his home on June 20, aged 75 years.

Dr. PAUL SHERMAN of Shawneetown, Ill., a graduate of the College of Physicians and Surgeons, St. Louis, Mo., in 1888, and a member of the American Medical Association and the Illinois State and Gallatin County Medical Societies, died at his home from nephritis on June 16, aged 39 years.

Dr. NAPOLEON B. MORRISON of Wilmington, Del., a graduate of the Jefferson Medical College, Philadelphia, in 1857, died at his home on June 26, aged 80 years.

Dr. MICHAEL JOSEPH BROWN of Philadelphia, a graduate of the Jefferson Medical College, Philadelphia, in 1896, died at his home on June 26, aged 70 years.

Dr. HENRY PATTERSON, a graduate of the University of Pennsylvania, Department of Medicine, Philadelphia, in 1879, died at his home in Wilmington, Del., on June 30, aged 60 years.

Dr. D. E. MCEACHERN of Statesboro, Ga., a graduate of the Medical College of the State of South Carolina, Charleston, in 1894, and a member of the Medical Association of Georgia and the Bulloch County Medical Society, died suddenly while attending a patient, on June 26, aged 40 years.

Dr. WILLIAM T. RINEHART of Ashland, Wis., a graduate of the Jefferson Medical College, Philadelphia, in 1886, and a member of the American Medical Association, the State Medical Society of Wisconsin, and the Ashland-Bayfield-Iron Counties Medical Society, died at a hospital in Chicago, where he had gone for treatment, on July 2, aged 59 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

RELATION OF SCIENCE TO THE STATE—ST. THOMAS'S HOSPITAL PRIZES; SIR C. ALLBUTT ON THE FUTURE DOCTOR—CARE OF DEFECTIVES—UNION OF NON-PANEL PRACTITIONERS—GERMAN HOSPITAL—LEPER HOSPITAL FOR ENGLAND—GIFTS TO CHARITIES.

London, July 3, 1914.

A NEWSPAPER correspondence on the relations between "Science and the State" has been going on for several weeks. A number of representatives of science have pressed its claims on public support. Some of them urge that successful discoverers might properly be awarded titles and decorations, while others declare that the joy of research is its own reward and science might suffer if it offered a prospect of a "fat living." In opposition to this view it has been remarked that the best brains are being attracted to commerce by the ample rewards it offers. Nearly all the correspondents plead for subsidies in some form or other, but a small minority deprecates any endowment from state or municipal funds. The question how the State—if it were to undertake to provide financial aid—should proceed has been discussed as a subsidiary one—and has elicited many differences of opinion. The majority advocate additional endowments to the universities to enable them to increase the inadequate stipends of professors and lecturers and to establish new chairs for research. Others would rather organize special institutes for research and praise the work of the "scientific advisory committee on aeronautics," which is unhampered by officialism. The apathy of the State—so generally lamented—which should perhaps be called rather the apathy of politicians, is not likely to be overcome by discussion. Results will be asked for and when they are shown to be of importance to the democracy many difficulties will be thrust aside and expenditure incurred which can be seen to be profitable. In medical claims sanitation has obtained recognition among all classes as essential to the prosperity of the country. Another illustration of what might be accomplished if sufficiently supported is the success that has followed every step taken for the advancement of tropical medicine.

At St. Thomas's Hospital, the treasurer, Mr. Wainwright, presided at the distribution of prizes on Tuesday and in a short address said they were setting apart research wards to be under the staff and professors. They had also engaged to purchase radium to the value of £8,000. The Insurance Act had relieved them of a large number of trivial cases, but had increased the expenses in other departments. The tuberculosis dispensary had proved of great value to patients and to students as had another new department, neurology. The "baby clinic" had increased beyond measure and afforded valuable experience to students and instruction to mothers. In the past year 9,267 cases were admitted to the wards, being 495 more than in any previous year.

Sir T. Clifford Allbutt gave the prizes and proceeded to enliven the audience with one of his genial speeches, telling the young men how glad he was to see them still, like a pack of hounds following a breast-high scent in full dash after the subtle quarry of truth. It was the joy of the older generation to feel that the results of the last half century would be carried on even more brilliantly by their successors. The advance was due to science, but it would not be all for the best for men of science to have all their own way. Practical men said there was something more than analytical knowledge—called science. Why had the practical man such contempt for the young man fresh from the schools? In the art of medicine there was in fact a something more than analytical knowledge could give. The training of hand and eye gave a certain facility and power. The young man might think his elder a duffer, but young and old were necessary to each other. Even in the laboratory the skilled hand could by instinct do more than one with only theoretical training. But practical men were under the disadvantage of having no grip of principle. Their mind was not flexible; it was all right for to-day, but not for to-morrow. Small revolutions in practice meant the scrapping of old methods. Sir Clifford went on to refer to the changes impending in general practice. The panel practitioners he thought should have power to command any specialist aid they needed. That would lift English medicine to a higher level. The time of medicine was coming when it would reach the social consideration it deserved. Cambridge had been first in this country to establish a research hospital. The committee for national research were talking of setting up another; meanwhile St. Thomas's Hospital was nipping in to be second and he congratulated it most cordially on the new effort. Sir Clifford also referred to the need of a ministry of health—an office which he had urged as necessary ever since he spoke in public and which a member of the government had just said was wanted. He also held the study of comparative medicine was needful. Everything was centered at present in man-medicine, whereas, if great progress was to be made the medicine of the gooseberry bush should be studied.

A central association for the care of the mentally defective is being organized and the approval of the Board of Control has been expressed with an intimation of an intention to assist financially by a grant under the Mental Deficiency Act. The board hopes that the representative character of the Central Association and its inclusion of experts with special knowledge of metropolitan conditions will make it acceptable as the London association, also, in which event a substantial grant will be added in this respect. The Board of Control and the Home Secretary attach much value to the work that may be done for defectives and would gladly see efficient voluntary societies in every area, but as they could not possibly supervise constantly and closely the operations of all, they welcome the setting up of the Central Association, which can focus, co-ordinate, and disseminate the experience and knowledge acquired by all and advise them within the limits laid down by law or suggested by Providence.

The National Medical Union formed last December of men who decline to serve on the panel has now been completely constituted. On Monday it held its first dinner when one of the speakers expressed surprise that 12,976 practitioners were not on the panel, but 11,820 were in England alone. Adding Wales and Scotland the numbers were 15,663 not on and 14,472 on the panels. Those numbers suggest that the opponents of the system ought to be able to enforce great changes, but it is doubtful if general satisfaction will be attained, at any rate, for a long time. There is no doubt that

great numbers look on the panel as securing bread and cheese—they were taunted with this at the dinner. That it is a fact is common talk and the danger is deterioration of the professional status. One speaker said on telling a student he should learn for the sake of the profession the student would report it to his companions with the reply, "Profession be hanged—I can earn £1,000 a year with 3,000 patients on my panel."

Prince Lichnowsky presided at the sixty-ninth anniversary of the German Hospital last week. The hospital contains 174 beds and the medical staff has always held a good position. The benefits are not confined to Germans, for it stands in a district where accidents are not uncommon and English patients are freely admitted. Last year 2,358 in-patients and 22,522 out-patients were treated. Of the in-patients 537 were English, 150 were admitted into private homes set apart for a better class, and 353 were transferred to the hospital's convalescent home. The income of the hospital had been £7,000, but the expenditure amounted to £14,500, and the president made an appeal for the sum required to cover the excess. The German Emperor has given £200, the Austro-Hungarian Emperor £50, the chairman added £50.

A bequest of Lord Strathcona having been made for the establishment of a leper hospital in England, a farm has been taken for the purpose in Essex and plans prepared for a building. The farmhouse will be utilized in the meantime for some patients said to be in need of treatment. It is estimated that there are about twenty cases in England at the present time, five of them resident near London. It will not be limited to lepers, but skin diseases reputed to be incurable will be received. Twelve beds are to be provided as a beginning, others being added if found necessary and financial support available.

Mrs. Pritt, a widow said to have reached the age of 99, died on June 4 and bequeathed £20,000 to various benevolent and religious institutions. The residue of a large estate she left to Liverpool charities.

Mr. Edwin Tate has promised to St. Bartholomew's Hospital a capital sum of £5,000, the interest to be used to assist necessitous patients to obtain artificial teeth.

OUR VIENNA LETTER.

(From Our Regular Correspondent.)

EXPERIMENTAL STUDIES ON NASAL ASTHMA—EXPERIMENTAL NEPHRITIS—IMMEDIATE PROSTHESIS IN CASES OF RESECTION OF THE LOWER JAW—A CASE OF HEART SUTURE.

VIENNA, June 18, 1914.

IN a series of experimental researches Grossman tried to determine the causes of the clinical symptoms of nasal asthma. He found that irritation of the nasal mucosa with induced currents causes a considerable disturbance of the function of the heart and in consequence there is an engorgement of blood in the pulmonary circulation, as the result of which the lungs increase in size. This can be proved by the increase of pressure in the thorax and by the low position of the diaphragm. The augmentation of the volume of the lungs is accompanied by a rigidity of the latter and this is the real cause of the embarrassed respiration. In animals breathing naturally an irritation of the nasal mucosa causes a second impairment of respiration. The inspiratory phase is embarrassed to the extent almost of its total inhibition. If the second branch of the trigeminal nerve is previously cut, the effect of the nasal irritation upon the pulmonary circulation and consequently upon the volume of the lungs is eliminated. This also occurs if both vagus nerves are cut through. One has to do therefore with a reflex arc, the centripetal branch of which is formed by the trigeminal nerve and the centrifugal branch by the vagus nerve. The inspiratory inhibition by irritation of the nasal mucosa cannot be arrested by cutting the vagus on both sides. Therefore there must be a direct communication of the trigeminal nerve with the phrenic nerve outside of the vagus, which communication forms a second reflex arc which comes into operation by irritation of the nasal mucosa. The results of experimental nasal irritation bear a striking resemblance to the clinical symptoms of nasal asthma and in all probability the same mechanism and causal connections exist in the latter condition. In the discussion Hajek questioned the existence of a rhinogenous asthma.

The attempts to produce an affection in animals similar to acute and chronic nephritis has heretofore been unsuccessful inasmuch as the experiments caused an injury of the tubular apparatus of the kidneys by means of certain poisons, such as uranium, cantharides, chromium, mercuric chloride, etc., but not of the glomerular and other vascular apparatus of the organ. Hitherto only degenerative processes have been produced and not inflammatory processes of the parenchyma. Bahr has produced an acute inflammation by injections of uranium nitrate into the renal arteries. His animals all died in the acute stage. Even the chronic renal lesions produced by means of the above-named poisons bear no resemblance at all to the secondarily contracted kidney in men. Wiesel and Hess succeeded in producing a genuine chronic and a genuine acute nephritis, which can to a great degree be compared to the forms occurring in men. They carried out their experiments with a combination of intraperitoneal injections of a 5 per cent. solution of uranium with intravenous injections of suprarenal extract. In the first phase of this artificial nephritis there are, besides a degenerative process in the tubular apparatus, a swelling of and an increase in the nuclei of the glomeruli and an exudation which is frequently hemorrhagic into the interior of the capsules with a compression of the loops and a desquamation of the capsular epithelium. At a later stage the above changes are more marked and there are a beginning hyalinization and a thickening of the intima. In the last stages the kidneys are macroscopically diminished and their surface is uneven. The parenchyma of the kidneys is transformed to a great extent into connective tissue which shows a fatty degeneration like the degenerated tubular epithelium. The mechanism for the development of hypertrophy of the heart is probably the following: Through the strong contraction of the vessels of the glomeruli depending on the administration of suprarenal extract, the uranium is caused to remain longer in the glomeruli, as the result of which a more intensive action of this poison results. In some cases of human nephritis the same mechanism may be operative.

As the result of resection of the lower jaw there occurs a pronounced mutilation which is remedied by immediate prosthesis. Other methods for covering the defect demand difficult operations, such as implantation of a fragment of bone from the tibia,

which operations subject the already weakened patients to considerable risk. Immediate prosthesis was recommended by Claude Martin in 1878. Eiselsberg resorted to this procedure in fifteen cases of resection of the lower jaw. The apparatus consists of hardened caoutchouc and has tubes with which it is cleansed several times a day with hot water. The patients learn easily how to take the appliance out and how to reinsert it. It is necessary to introduce the appliance immediately after the operation and to have it worn constantly, because otherwise the tissue retracts and then an anesthetic must be used in order to introduce the appliance. For the same reason a duplicate of the appliance must be made for use in case of repairs. Of the fifteen cases thirteen were resections of one-half of the lower jaw; one case was a resection of the middle part, and another case was a total resection of the lower jaw. This case was of special interest. Because of a sarcoma the whole lower jaw was removed in two operations. In this instance the immediate prosthesis had a middle piece which was inserted after the introduction of the side pieces. The functional and cosmetic results were remarkable.

A case of heart suture was demonstrated by H. Finsterer. The patient shot himself in the region of the heart in an attempt at suicide. The projectile penetrated the heart. The cardiac dullness was not increased, but over the heart there were heard abnormal sounds. By means of roentgenoscopy one could see the projectile lying in the heart and sharing in all its movements. After a few seconds it was caught in a whirl and thrown around. The heart was exposed and the punctured wound in the left ventricle near the auricle was sewed up. The removal of the projectile was not attempted because this procedure was too dangerous. In the pericardium little blood was found. The course of healing was uninterrupted. The patient has a pulse that is full and strong and then becomes scarcely perceptible. At the apex of the heart there is a systolic murmur. At the aortic area there is a diastolic murmur.

Progress of Medical Science.

Boston Medical and Surgical Journal.

July 2, 1914.

1. Education of the Public in Medical Matters. H. D Arnold.
2. The Presidential Address. W. P. Bowers.
3. The Present Status of the Treatment of Laryngeal Tuberculosis in the Massachusetts State Sanatoria. A C. Getchell.
4. The Frequency of Laryngeal Tuberculosis in Massachusetts. J. B. Hawes.
5. Report of Two Hundred and Forty-one Cases of Laryngeal Tuberculosis Treated at the Rutland State Sanatorium. J. A. Lyon.
6. Significance of the Absence of Trypsin in the Stomach in the Presence of Icterus. A. E. Austin.

1. Education of the Public in Medical Matters.—H. D. Arnold states that a most excellent system has been developed in Boston for extending the instruction in health topics beyond the limits of the schools. In each district there is formed a home and school association composed of the teachers and such parents as are willing to join. Monthly meetings are held, and through lectures and discussions the effort is made to teach the parents what their children are learning at school in these subjects. From the school point of view this is very useful because it secures the cooperation of the home in teaching the pupils right methods of living. For the community it offers a most desirable means of educating the public.

6. Significance of the Absence of Trypsin in the Stomach in the Presence of Icterus.—A. E. Austin notes that many years ago Pawlow discovered that when oil is poured into the stomachs of his gastrostomized dogs, in one to two hours there began to flow from the fistula an emulsion which contained pancreatic juice and bile, in other words, duodenal contents which made its way back into the stomach through a relaxed pylorus. Boldyrew and later Volhard seized upon this physiological phenemenon to establish a clinical method of determining by the presence or absence of trypsin whether the functions of the pancreas are normal, impaired, or lost. It was found that individuals with normal digestion almost invariably show trypsin in their gastric contents 45 minutes after oil is taken. The author investigated this subject in ten cases representing the extremes of so-called malignant jaundice where cancer was the cause of the obstruction. By comparison of the mildest with the most severe cases one may learn that however valuable the absence of trypsin may be in the absence of jaundice, nevertheless when jaundice is present it seems to fail in the determination of the integrity of the pancreas. In none of the milder cases had there ever been an instantaneous access of pain such as is common where the jaundice is due to the sudden occlusion of the communis by stone, so that the theory of coincident closure of the choledochus and the duct of Wirsung by swelling of the mucous membrane of their several outlets is most probably in acute cases of short duration. The absence of trypsin in the presence of icterus may mean conjoint cholangitis and pancreatis, cholangitis with mere pressure on the outlet of the pancreatic duct, pressure of the enlarged head of the pancreas on the common duct, or mere pressure of a growth originating in the ducts on the pylorus. When in conjunction with this fact, one finds considerable residue in the fasting stomach, it is safe to conclude that there is pyloric narrowing due probably to outside pressure, and when the rare instance of bile without trypsin is found the inference to be drawn is that pancreatitis is primary and icterus secondary, due to pressure on the choledochus.

New York Medical Journal.

July 4, 1914.

1. The Treatment of Obesity. J. M. Anders.
2. The Treatment of Amebic Dysentery with Emetine. J. Friedenwald and L. J. Rosenthal.
3. Radium in Middle Ear Deafness Caused by Chronic Suppuration. W. S. Bryant.
4. Cardiac Hypochondriacs. R. H. Babcock.
5. The Control of Pulmonary Consumption. T. J. Mays
6. A Sensible Diet for the Average Man and Woman. E. L. Fisk.
7. Cutanea Lues Insolita. W. P. Cunningham.
8. The Effects of Narcotic Drug Addiction. F. Kennedy.
9. A Commissioned Veterinary Corps for the Army. G. Steele and M. Veter.
10. Circumtonsillar Abscess. D. Nathan.

1. The Treatment of Obesity.—J. M. Anders is of the opinion that the majority of cases of this condition are to be attributed to a relative excess of food and a small expenditure of energy. A division of the cases into plethoric and anemic, as well as into general and local, should be attempted in practice. The anemic form often results from periods of enforced rest, e.g., after accidents, surgical procedures, and the acute infections such as articular rheumatism and typhoid fever. During middle life a tendency toward corpulency is frequently observed, when prophylaxis must have reference to the causative factors presented by individual cases. The treatment of confirmed obesity should be carried out under strict surveillance in all cases, and may be conveniently considered under three heads: (1) The dietetic treat-

ment; (2) the mechanical management, and (3) the medical measures. The author allows a limited proportion both of carbohydrates and fat, and thus accomplishes two objects, namely, a slow consumption of the previous fat deposits and maintenance of the normal metabolic processes. The carbohydrates are not to be withdrawn in toto, since the use of large amounts of proteins which are difficult of complete metamorphosis tends to excite gouty manifestations and digestive disorders and to inhibit favorable progress, or indeed to induce fresh complications that should be avoided. Muscular exercise for the purpose of accelerating oxidation is only slightly less important than an appropriate diet; it promotes destruction of the fat already warehoused in the system and invigorates both the circulation and respiration. Certain spas, especially Marienbad and Carlsbad, are effective in the plethoric, but not in the anemic type of obesity. Thyroid feeding has gained considerable professional favor. It may be employed in the anemic variety, more particularly if a myxedematous condition is present. The commencing dose should be small (one grain), to be slowly and gradually increased, but it is unwise to exceed three grains thrice daily.

2. Emetine in Dysentery.—J. Friedenwald and L. J. Rosenthal conclude that emetine is a specific in the treatment of amebic dysentery. It is quickly absorbed and its effect is rapid and striking. It produces no unfavorable symptoms such as nausea, vomiting, and depression. Other forms of dysentery are not favorably influenced by this remedy, so that its employment as a diagnostic measure is of the greatest value. Recurrences after apparent cure are not infrequent. It is therefore best to treat all cases showing a tendency to relapse intermittently with emetine.

4. Cardiac Hypochondriacs.—R. H. Babcock states that there is a not inconsiderable class of impressionable individuals who seek medical aid for a fancied disease of the heart. They suffer more from their subjective symptoms of palpitation, precordial pain, etc., than does many a patient with veritable organic heart disease. They are hypochondriacs because they fix their attention on their bodily sensations with such tenacity that these dominate their thoughts almost to the point of an obsession. It is found that however neurotic or impressionable the cardiac hypochondriac may be, the foundation of this fear is laid not in the primary attack of palpitation or precordial pain per se, but in the behavior of the physician or friend who suggested the likelihood of a serious heart disorder. It should not be inferred that the cardiac hypochondriac imagines his symptoms. He only exaggerates their importance and by his apprehension or actual fear intensifies their severity. This is true in particular of an attack of palpitation or intermittence. There are some features of the attack which should enable one to interpret its real nature. The sufferer is quite likely to be a young adult and more often than not a female, and in them grave angina is not so apt to occur as in a middle aged or elderly man. In most instances the individual is found lying in bed or perhaps groaning with pain instead of sitting or standing, as is the rule with cases of organic angina pectoris. There may be a history of previous attacks or the attack may be the first, and for this reason all the more terrifying to the patient and family. Furthermore, it is learned upon inquiry that between the seizures, provided others have occurred, or previous to the one observed if it happens to be the first, the individual has been free from symptoms referable to cardiac incompetence. Moreover, a true anginal seizure rarely occurs at night or when the person is quiet in the house or bed, without a history of pain in the chest upon exertion as on walking.

Journal of the American Medical Association.

July 4, 1914.

1. Some Unhealthy Tendencies in Therapeutics. J. F. Anderson.
2. Research in Ophthalmology, and the Training of Ophthalmologists. Their Promotion and Encouragement through the Establishment of Teaching Fellowships. F. C. Todd.
3. Painless Tumors of the Spinal Cord. P. Bailey.
4. Gastrointestinal Studies. 1. The Question of the Residuum Found in the Empty Stomach. M. E. Rehfuss, O. Bergeim, and P. B. Hawk.
5. Chronic Ocular Tuberculosis. Necropsy Findings in a Case in which Death was due to Tuberculosis of the Hypophysis Cerebri. F. H. Verhoeff.
6. Tumors of the Optic Nerve. W. G. M. Byers.
7. Ocular Manifestations of the Toxemia of Pregnancy. W. A. Holden.
8. Two Cases of Acute Retrobulbar Neuritis, Associated with Marked Acetonuria. L. M. Francis.
9. A Method of Closing Perforations of the Septum of the Nose. W. L. Simpson.
10. Supposed Poisonous Properties of Chestnuts Grown on Trees Affected with Chestnut Blight. C. D. Marsh.

4. Gastric Residuum.—M. E. Rehfuss, O. Bergeim, and P. B. Hawks conclude that the accepted limit of the normal residuum of the empty stomach as 20 c.c. is false. The examination by means of the old stomach-tube as demonstrated by Harmer and Dodd and their own experiments is entirely inadequate. The method of examination by means of the new modified stomach-tube is the only satisfactory method of determining the complete residuum. On a series of healthy medical students the residuum in every instance exceeded the accepted limit and in several instances was above 100 c.c. without there being any evidence of gastrointestinal or general disorders. The significance of this symptom in relation to the diagnosis of ulcer must be seriously questioned.

5. Chronic Ocular Tuberculosis.—F. H. Verhoeff believes that in chronic ocular tuberculosis the infection of the ocular tissues takes place from the aqueous humor. The bacilli reach the latter from the blood through the ciliary processes, and are then carried to the filtration angle, whence they may pass into the cornea or sclera. They may also be deposited on the ciliary body or carried into the iris, producing focal lesions here, or into the subchoroidal space where they may give rise to choroidal foci. There is something special about this type of tuberculosis in addition to the mode or origin of the eye lesions. This is indicated among other facts by the following: Chronic ocular tuberculosis almost never occurs in cases in which there are well-marked clinical signs of systemic tuberculosis and in which, therefore, metastases would presumably be most apt to occur. On the contrary, it occurs chiefly in cases in which it is difficult or even impossible to find any other indications of tuberculosis. Although chronic ocular tuberculosis is rare compared to the incidence of tuberculosis in general, yet when it occurs it is almost always sooner or later bilateral, thus showing plainly that it does not represent chance metastases. It occurs almost exclusively in adults and sometimes even in patients of advanced age. It occurs far more frequently in females than in males. The temperature is almost never elevated and is often subnormal. A large dose of tuberculin is usually required to produce a constitutional reaction, and rarely a tuberculin reaction cannot be obtained at all. Acid-fast tubercle bacilli seldom if ever can be demonstrated in the lesions. Animal inoculations of the lesions usually if not always give negative results.

7. Ocular Manifestations of the Toxemia of Pregnancy.—W. A. Holden reports the case of a patient who was about seven months pregnant, for the second

time, and who had vomited the first three months of her pregnancy, and whose feet had been swollen at night. Her chief complaints, however, were that for five days she had seen double, and that during this time the sight of each eye had grown rapidly worse. Examination of the eyes showed a paresis of the left external rectus and an absolute central scotoma in the field of each eye so extensive that vision was reduced to the recognition of movements of the hand, but this was possible in the entire periphery of each field. The fundi were normal in appearance except for a trace of retinal edema about the macula lutea in each eye, which was not sufficiently marked to cause obscuration of vision. The author advised the immediate induction of labor in order to save her vision, and the patient was at once delivered of an eight-months' stillborn child. From an obstetrical point of view she had a rapid and uncomplicated recovery, and her sight became rapidly better, while the albumin was reduced and the blood-pressure fell, and she was discharged in good condition. This curious chronic progressive disturbance in the pigment epithelium the retina would seem to be due to the same toxic condition of the blood which, when more intense, caused paresis of one external rectus muscle and the retrobulbar affection of the optic nerves. The night blindness of scurvy, for example, must be attributed similarly to the action of the altered blood on the pigment epithelium. The characteristic lesion in eclampsia is a more or less localized edema of the intracranial tissues, of sudden onset. Complete transitory blindness with normal fundi is a fairly frequent symptom of eclampsia. In many of the cases of blindness in eclampsia one must suppose that there is an edema affecting the calcarine cortex or the optic radiation on each side, which in some cases causes destruction of tissues and therefore produces permanent defects in the fields of vision.

10. Chestnut Blight and Chestnut Toxemia.—C. D. Marsh states that an examination of the reported cases of poisoning from eating chestnuts collected from trees affected with the chestnut blight showed that there was no evidence that nuts from blighted trees contain any more deleterious properties than those from healthy trees, and the symptoms which had been supposed to be connected with blighted chestnuts could in almost all cases be explained as symptoms which would be produced by healthy chestnuts in some persons. Laboratory experiments in feeding the whole fruit, in the use of extracts, and in chemical examinations failed to show any toxic properties in the nuts.

The Lancet.

June 27, 1914.

1. The Hygienic Aspect of the Coalmining Industry in the United Kingdom. F. Shufflebotham.
2. The Treatment of Leprosy by Intravenous Injections of Iodoform. B. J. Courtney.
3. Some Cases of Traumatic Hysteria. J. W. G. Grant.
4. Mental Symptoms Associated with Exophthalmic Goiter. W. Leggett.
5. A Case of Fibrosis of Lung Treated with *Bacillus Friedländer* Vaccine. A. Sandison.
6. A Case of Acute Non-calculous Cholecystitis in a Child. F. C. Pybus.
7. A Case of Gallstone Causing Intestinal Obstruction. S. Wickenden.

1. Hygienic Aspects of Coalmining.—F. Shufflebotham states that anthracosis must be regarded in coal miners at the present time, not as a pathological condition, but simply as one physiological in nature. Coal dust is not an irritant to the lung tissue, and the microscopical examination of sections taken from anthracotic lungs bears testimony to this opinion. Tuberculosis of the lungs is not so commonly found in coal miners as in many other occupations. It has been asserted by many authorities that coal dust has germicidal properties, and in favor of this view there is the experience of colliery surgeons who record that extensive wounds full of coal dust heal rapidly, and even lacerated wounds sustained through injuries in coal mines can be stitched up without hesitation. The mortality from lung diseases among the Cornish miners has been known to be very high for many years past. Exposure to dust from working machine drills predisposes not only to lung trouble but also to an early death. The miners' phthisis found in Cornwall is caused by the silica-laden atmosphere of the mine; the symptoms and course of the disease are exactly the same as those of potters' asthma or stone masons' phthisis. Tuberculosis is as comparatively rare among the South African miners as it is among the coal miners of England. In a considerable number of mines in England the men are working at very high temperatures, and these temperatures not only are injurious to the health of the worker, but have a considerable effect upon their working capacity.

2. Treatment of Leprosy by Intravenous Injections of Iodoform.—B. J. Courtney notes that recently W. M. Crofton reported his method of treatment of pulmonary tuberculosis by means of intravenous injections of tuberculin and iodoform, which in his hands had met with considerable success, and it occurred to the author that this treatment or some modification of it might be worth trying in leprosy, a disease which in many respects, both clinical and pathological, bears resemblances to tuberculosis. Of the 12 patients on whom the treatment was tried for three months or longer, 4 were of the purely nodular type, 5 were of the purely anesthetic type, and 3 were of the mixed type. As regards the duration of the disease at the time treatment was commenced, the shortest was two years and the longest was seventeen years. One-half grain of iodoform was given twice a week; this was gradually increased up to one grain given five times a week. In addition to the intravenous injections, in four cases a local reaction was aimed at also: the solution of iodoform was injected into the substance of the nodules, the amount varying from 10-30 minims of the solution according to the size of the nodule. Four or five nodules were treated in this way at the same time, and when the resulting ulceration had healed another four or five were injected, and so on. Of the tubercular cases four were treated, three of which showed marked improvement during the period, and two of the mixed cases also showed improvement as regards the tubercular portion of the disease. As regards the effects on special symptoms and on the general health, it is noted that all the patients treated, both tubercular and anesthetic, said that they felt better and stronger as a result of the treatment, that their appetites had improved, and that they were able to do more work.

6. Acute Non-Calculous Cholecystitis in a Child.—F. C. Pybus reports a case of this condition in a boy aged six years, who was admitted to the hospital with a diagnosis of appendicitis. The history was that the child had a bilious attack and vomited a good deal. The vomiting was repeated for three days, during which time there was no constipation or abdominal pain. The boy then appeared fairly well for two days. On the day before admission he was again vomiting and had severe abdominal pain on the right side. On admission the child looked ill, had a temperature of 101° F. and pulse 132. He looked pale and was sweating. The pain was over the upper part of the right rectus. On abdominal examination some distention was noticed in the upper abdomen on the right side.

There were rigidity and tenderness over the upper part of the right rectus. The right iliac fossa was slightly tender but not rigid. The remainder of the abdomen was flaccid and not tender. On more careful examination a definite mass could be felt under the right rectus, and this part was dull on percussion. An operation was performed at once, revealing an enlarged and inflamed gall-bladder. This was about the size of a hen's egg, and was tense and green in color, the vessels being injected. An exploring syringe drew off some bile-stained pus. The symptoms and signs of acute cholecystitis in children very closely resemble those occurring in the adult. Khantz, in a paper quoted by Moynihan, states that he has found in the literature a record of only five cases of non-calculous cholecystitis in children. Three of these were secondary to scarlet fever, enteric fever, and appendicitis. Cholecystectomy was performed on four patients, and in three instances with success.

British Medical Journal.

June 27, 1914.

1. The Adrenal Glands. T. R. Elliott.
2. Some Clinical Aspects of the Body Temperature in Childhood. T. R. C. Whipham.
3. The Vicious Circles of Neurasthenia. J. B. Hurry.
4. Internal Secretions and Dental Caries, with Special Reference to Thyroid Insufficiency. H. P. Pickerill.

1. The Suprarenal Gland.—T. R. Elliott states that the suprarenal gland is a twofold structure. Its center is composed of masses of delicate semi-fluid cells, which are richly supplied with sympathetic nerves and lie enmeshed among thin-walled veins. These contain suprarenal extract. Intermingled here and there with them and growing out over the surface of the cells supplying the internal secretion, so as to form a complete envelope to the medulla, are the cells of the cortex. Their innervation is scanty and they yield no known active principle, but they are generally laden with a rich store of a peculiar fatty substance. It has been proved that the medullary cells deliver the suprarenal extract directly into the venous blood stream, and that they do this in part automatically, but chiefly in response to a call made through nervous impulses descending by the splanchnic nerves. Removal of the suprarenal glands, that is, of cortex as well as of medulla, brings death. Physiology has a tolerable full knowledge of the nature of the medullary cells of the suprarenal glands. Pathology merely confirms this. In many diseases the content of the glands in the internal secretion is diminished, but not often to what might be looked upon as a really serious state of depletion. The chief activity of the cortical cells is directly towards the formation of this special fatty substance. It is particularly abundant in the glands of man, and some quite definite knowledge with regard to it has been accumulated by several pathologists who have studied the adrenals in death from various diseases. Inanition from cancer of the alimentary canal or the beggarly emaciation of anorexia nervosa strip all the fat from the body and yet the cortex has its customary load. On the other hand, the cortical fat vanishes in a couple of days' acute fever, by which the depots of the body fat are hardly touched. All septic fevers reduce the cortical fat rapidly. The most obvious example of this is in acute pneumonia, in which the gland becomes fatless, edematous, and swollen to twice its natural size. Slow febrile processes, such as that of chronic tuberculosis, cause much less exhaustion. But the removal of the lipoid is not determined simply by a physical change in relation to the rise of temperature. Its increase is also manifest in some diseased states. Single large adenomatous masses of cortical cells that are packed with lipoid may occur in any individual and irrespective of any particular illness. But in kidney disease of the arteriosclerotic form, where the atheromatous change is widely spread through the vessels of the body, the cortex does tend to proliferate in numerous small adenomata or even to show a general massive hypertrophy. These pathological facts therefore make it reasonable to regard the cortex with respect to its fat-holding function as a tissue altogether apart from the medulla and the sympathetic nervous system. The cortical cells seem to be essential for the maintenance of life. The cortical cells are also of importance in the development of man's body during the early period of life, especially with respect to his brain and sexual attributes. Paleness appears early and with exaggerated emphasis in children whose suprarenal glands are the seat of proliferative tumors. The morphological evidence is sufficiently weighty to determine the balance in favor of the view that the cortex primarily controls nutritive material in regard to growth and reproduction.

2. Clinical Aspects of the Body Temperature in Childhood.—T. R. C. Whipham states that the vagaries of the body temperature in childhood are frequently perplexing and difficult to understand. In early life the temperature is very variable and uncertain; it may show marked oscillations from slight or trivial causes or rise to a considerable height for no apparent reason. On the other hand, a child may be seriously ill, perhaps with bronchitis or empyema, and the temperature chart will record but little variation from the normal. The heat regulating centers in childhood, as is the nervous system as a whole, are generally in an unstable condition, and may be influenced by emotional or slight physical causes, or they may fail to respond in the way one should naturally expect to a stimulus sufficient to cause a definite amount of fever in the adult. Undue stress, therefore, must not be placed upon the temperature of children. A transitory rise, even though it may be to 102 or 103°, need not necessarily cause alarm, although, of course, one should at all times seek for some underlying cause, especially if the elevation happens to be repeated. In this connection it is as well to bear in mind that in infants when once the heat center has been disturbed, some time may elapse before it regains its equilibrium, and that slight variations in the temperature may persist for a while after the exciting cause has been removed. On the other hand, a temperature which adheres more or less closely to the normal must not lead one to make light of any other physical signs which the child presents.

3. The Vicious Circles of Neurasthenia.—J. B. Hurry points out that a disorder of the ideational life is a striking feature of neurasthenia. This often leads to the genesis of anxieties and phobias, which prolong the state of exhaustion of the neurons. Mental depression is another common symptom of neurasthenia and aggravates the condition. A complex circle may be established when the perverted ideation leads to loss of appetite, refusal of food, and consequent emaciation. Insomnia is another psychogenous symptom of neurasthenia which often greatly impedes recovery; the associated cerebral hyperemia prevents the neurons from obtaining the rest on which their recuperation so greatly depends. Neurasthenic persons are frequently obsessed with the fear of heart disease and the consequent worry intensifies the neurasthenia. The sequence of events is somewhat as follows: The fear of organic heart disease leads to autosuggested sensations in the cardiac region, followed by a disturbance

of the cardiac action, such as tachycardia, occasional extra-systoles with palpitation, and an intermittent pulse. The associated sensations then arouse distress and terror, which in their turn further disturb the cardiac activity. Such attacks are especially common at night and may be caused by nightmare, and the operation of this circle may reduce the neurasthenic person to a condition of utter prostration or even lead to fatal syncope. Probably the digestive system is more often affected by vicious circles than any other system, owing to the peculiarly intimate relation between the central nervous system and the viscera. In a neuropathic person almost any painful disorder is liable to increase the neurosis. Treatment of neurasthenia resolves itself into breaking the vicious circles that complicate the disorder. Hence the importance of the physician being familiar in detail with the various factors which perpetuate the morbid gyrations. He should prepare his plan of campaign. He should seek the *locus minoris resistentiæ* and direct his broadside so as to effect a breach at the weakest spot. In functional disorder the treatment of symptoms may in itself be of great importance. Psychical disorders will create and psychical treatment will often break a vicious circle. Although psychotherapy may bring instant relief the primary disorder is as a rule not permanently cured. The chronic exhaustion of the neurons remains, with an abiding tendency to relapse on provocation. Carefully devised constitutional treatment is here called for, therapeutic measures being carefully adapted to each case. Rest, work, isolation, supernutrition, and change of air and environment, may each and all prove efficient in suitable cases.

4. **Internal Secretions and Dental Caries.**—H. P. Pickerill concludes that there is some reason to think that deficiencies of the thyroid and perhaps of the pituitary and thymus secretions are concerned in the lowering of the resistance of the teeth to caries. Because thyroid insufficiency may be a causative factor in certain patients, one should not conclude *ipso facto* that it is always a cause of caries. There are very many other factors, physiological and pathological, which must also always be taken into consideration.

Berliner klinische Wochenschrift.

June 22, 1914.

Investigations into Icterus.—Hymans van d. Bergh and Snapper sum up their serial account of this infection as follows: They have made certain observations and experiments, and have adhered throughout to facts to the neglect of theories. Their work on the ancient question as to whether coloring matter is normally produced in the liver alone, or in the liver and other organs, has led to nothing of value. McNee's surmise that bilirubin is formed in certain elements of the liver (perhaps in Kupfer's star-shaped cells), but excreted into the bile capillaries by the essential cells of the liver, seems fertile. As soon as blood leaves the vascular paths and is poured into the tissues we see a local formation of biliary coloring matter, which in turn is absorbed into the circulation. If the bilirubin content of the blood attains a certain concentration, the liver cells excrete the coloring matter into the bile passages. A certain portion of the bilirubin, however, is held back in the blood stream and is not eliminated by the hepatic cells. This quota differs with the species of animals. The majority contain but little, the dog almost none at all. Certain animals contain a good deal—mankind, and especially the horse. There are also notable fluctuations in individuals, which, however, are insufficient to disturb the physiological equilibrium. If the function of the liver cells is damaged—for example, in stagnation, as a result of myocardial insufficiency—then the formation of bilirubin is curtailed, while the content of this substance in the blood-serum is correspondingly increased; the same result occurs when bile is excreted in excess. In gross mechanical obstruction the bilirubin in the blood serum reaches a concentration at which the kidneys begin to excrete it. If the causes persist, the skin becomes jaundiced. These ideas of bile secretion correspond to the modern idea of the excretion by the kidney of salt and sugar; in each the vital point is the blood-concentration of the various substances.

Excretion of Typhus Bacilli in Carriers.—Hirschbruch has studied the action of various substances on the typhoid bacilli in the intestines of carriers. He regards the use of calomel as of doubtful value as a prophylactic in those as yet not infected. In some carriers aloes with podophyllin brings away the bacilli. One carrier with chronic diarrhea, in whom over 50 negative tests of the stools were made, gave a positive result after a castor oil movement. Naturally some bacteria may escape through the kidneys. In the expulsion of the same by the intestine something irritant should be indicated—aloes or podophyllin, or even croton oil. The authors' material is grouped as follows, due allowance being made for the periodical pauses between excretions, and for the great number of negative tests in general. Purgatives often make positive tests possible. Here castor oil, or sesamol with a little croton oil, aloes, podophyllin, have been used with success. In this class the patients naturally show no periodicity. If the excretion is regular, calomel is used with profit.

Münchener medizinische Wochenschrift.

June 16, 1914.

Disturbances of the Internal Secretions in Chlorosis.—Schmitt states that the primitive theory of the hemic origin of this affection has undergone much revision. There have been gradually associated with chlorosis certain lesions which point to other causal elements, such as organic heart disease and functional disturbances of the uterine mucosa. In fact, chlorosis is now believed to involve the entire organism, and to be in fact a basic anomaly of the latter. This in turn almost necessarily implies a disturbance of the organs of internal secretion. It should have been stated that chlorosis may exist clinically with complete absence of the chlorotic blood picture. The author, proceeding upon the temporary belief that the disease is bound up in a disfunction of the uterus and ovaries, has made use of Abderhalden's procedure in the solution of the problem. Typical cases were selected by the following complex: high degree of pallor, puffiness of the skin, disturbances of function of the heart and vessels and of the genitals. No blood picture is mentioned. Controls were used. Of two severe chlorotics tested, one reacted negatively to liver, spleen, thyroid, and adrenal, but positively to ovarian tissue and to uterine tissue. The other chlorotic reacted negatively to liver, pancreas, spleen, and ovary; but positively to uterine tissue. Fifteen other chlorotics of a relatively mild type gave three positive results to human ovary and seven positives to animal ovary. To human uterus there were seven positive reactions, and to animal uterus, eight. There were some negative results, but not nearly enough to outweigh the positives. In a small number of cases the four tests were not all made, the test with human organs being occasionally omitted. Other organs, as a rule, gave solid negative results, but there were two positives with the spleen and one with thyroid.

Insurance Medicine.

THE WORK OF THE MEDICAL EXAMINER.*

By HENRY WIREMAN COOK, M.D.,

MINNEAPOLIS, MINNESOTA.

MEDICAL DIRECTOR NORTHWESTERN NATIONAL LIFE INSURANCE COMPANY.

It gives me great pleasure to open this fourteenth meeting of the American Association of Medical Examiners. I believe the program will be both interesting and instructive and that the meeting will indicate the progress that medical examiners for life insurance are steadily making towards a better appreciation and understanding of this specialty of our profession.

I ask your attention for a few minutes to a brief consideration of the purposes of this organization and its need in giving the dignity, the scientific basis, and the professional standing to this specialty which it demands, and which is exemplified individually in the large number of physicians who are now deriving all or a goodly portion of their income from this work. For the layman or physician who thinks that the ordinary medical course or the experience of medical practice is all that is necessary in order to do efficient work as a medical examiner, the experience of the medical officers of all insurance companies would afford much of interest and astonishment.

The examination of a patient by a physician and of an applicant by an examiner offers many different and some entirely opposite considerations. A good diagnostician and physician frequently makes a very poor expert witness on the stand, and similarly many excellent physicians, either through inexperience or through ignorance, lead their companies to assume extra hazardous risks at inadequate rates.

To make an accurate diagnosis in a patient under the prolonged and detailed methods of good clinical practice, and to exclude or accurately gauge an impairment and every impairment in an applicant for insurance, are two very different problems, and the training and experience which might well suffice in the first instance might and does frequently in practice fail in the second. The patient comes to his medical attendant desiring that his ailment be thoroughly understood and well defined, and he lends every aid by history, symptoms, etc., submitting himself to the necesary, sometimes painful, clinical methods.

The applicant for insurance regards the examination as an inconvenience, and with more or less dread and antagonism, realizing that it may, through what he may regard as a technicality, deprive his wife and children of financial protection or himself of business credit. He will, therefore, particularly if he knows or suspects that he is impaired, naturally not assist, but will rather attempt to thwart, the examiner in his work. Some applicants will undergo dietary treatment, some resort to drugs, in order to pass the examination. A few days' rest in bed and a milk diet have cost companies many thousands of dollars, and nowadays a grain of sodium nitrate will often deceive even the sphygmomanometer.

In addition to the problems of the examination itself there are many conditions and much statistical information which must be intelligently correlated in insurance work, and which are only vaguely, if at all, appreciated by the average practitioner. Insurable interest, moral hazard, occupation hazard, for example, are vital in insurance work, but only indefinitely recognized in general medicine.

The significance of a trace of albumin in apparently healthy men is distinctly an insurance problem, for the practice of routine examinations of healthy persons by their medical attendants has not yet become sufficiently common to afford the general practitioner the necessary data or experience.

All business is developing, and must develop if it would persist, along the lines of increasing economy and efficiency. The hit-or-miss methods of the past generation will not pass muster today. To this economic demand insurance offers no exception. Extravagant salaries, the wasteful or criminal manipulation of trust funds, speculative investments, are not to be found in American insurance companies today. Medical selection shares in the general uplift, and must meet the demands of higher standards. Mortality savings are appreciated by the policyholder or stockholder when returned in increased dividends. The time is past when the medical director is overruled because the applicant is influential or is a director or stockholder of the company. The companies realize that the basis of their medical selection must be the work of the medical examiners, and they are continually reviewing their lists, weeding out the incompetent, and substituting better trained men.

This association is a recognition by its members of their interest in life insurance examining and their ambition to study the requirements of the work as well as to improve their individual practice of it.

I believe that the interests of our specialty, as well as of our general profession, would be best conserved by the union between our association and the American Medical Association. General medicine already owes much to insurance medicine, particularly, of course, in prognosis, but also much in diagnosis and prophylaxis. No statistical records available on mortality and varying medical requirements can compare to that offered in such investigations as the medico-actuarial investigation. Much of the medical knowledge and best training of many general practitioners is gained through their insurance connection. For example, competent uranalysis and blood pressure estimation have been largely instilled in the rank and file of the profession by the educational work and the routine demands of insurance companies. As another example of this debt of general medicine to insurance medicine we should note that the present acceptance of periodic physical examination by laymen is largely due to the insistence of insurance officials, medical and lay. Such an amalgamation does not seem practical at this time, and in the meanwhile our association should make valuable contribution to our knowledge and literature of the subject.

We have received signal encouragement from the medical officers of a majority of the companies, and will continue to receive their advice and assistance. I cannot too strongly urge all physicians interested in the work of insurance examining to join the association, and by their influence and experience to assist in developing better work and a higher standard of excellence.

*President's Address at the Annual Meeting of the American Association of Medical Examiners, Atlantic City, N. J., June 22, 1914.

Book Reviews.

LECTURES ON DIETETICS. By MAX EINHORN, Professor of Medicine at the New York Postgraduate Medical School and Hospital and Visiting Physician to the German Hospital, New York. Price $1.00 net. New York: Paul B. Hoeber, 1914.

THIS little volume on dietetics comprises a series of lectures on the subject given by Dr. Max Einhorn at the New York Postgraduate Medical School. Diet in disease is mainly dealt with and statements on this point from an authority such as is Dr. Einhorn must carry weight and cannot fail to be of value to the busy practitioner.

THE ROAD TO A HEALTHY OLD AGE, Essays Lay and Medical. By THOMAS BODLEY SCOTT. Price $1.00 net. New York: Paul B. Hoeber, 1914.

THIS little work comprises a selection of lay and medical essays, and from the literary and scientific point is eminently satisfactory. The author gives useful hints as how to best ward off old age and does this in excellent language and style. The latter part of the book is devoted to a consideration of vaccine therapy and appears to be a thoroughly clear description of the theory and practice of this most modern phase of medicine. The volume is instructive and interesting.

DIE PRAKTISCHE BEDEUTUNG DER MISSBILDUNGEN DER NIERE, DES NIERENBECKENS, UND DES HARNLEITERS. Von Prof. Dr. C. ADRIAN. Price 1.20 Mks. Halle a. S.: Carl Marhold, 1914.

PROF. ADRIAN reports the results of a varied and rich experience in his clinic in malformations of the kidneys, of the pelvis, of the kidney, and the ureter, which will interest that circle of physicians who are not urologists as well as the specialists in that branch.

ENTSTEHUNG UND ENTWICKELUNG DER LARYNGOSKOPIE. Von Prof. Dr. EMERICH VON NAVRATIL. Price 1.60 Mks. Berlin: August Hirschwald, 1914.

GEHEIMRAT VON NAVRATIL gives some interesting case histories and an account of his treatment of them, gathered from the experience of a long practice in laryngoscopy (1858-1913).

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics, Materia Medica and Diagnosis in the Jefferson Medical College, Philadelphia; assisted by LEIGHTON F. APPLEMAN, M.D., Instructor in Therapeutics, Jefferson Medical College, Philadelphia. Price $6.00 per annum. Philadelphia and New York: Lea & Febiger, March 1, 1914.

THIS number of "Progressive Medicine" contains a new section on surgery of the thorax, excluding diseases of the breast, by G. P. Müller. Otherwise the volume is similar to the corresponding number in former years. The section on surgery of the head and neck is contributed by C. H. Frazier; that on infectious diseases, including acute rheumatism, croupous pneumonia, and influenza, by J. Rührah; diseases of children by F. M. Crandall; rhinology and laryngology by G. B. Wood, and otology by A. B. Duel. There can be no possible doubt as to the value of the publication to the practising physician.

DIE ZUCKERKRANKHEIT (DIABETES MELLITUS), IHRE URSACHEN, WESEN UND BEKÄMPFUNG. Von Dr. med. A. SOPP. Price, 1.50 Mk. Würzburg. Curt Kabitzsch, 1914.

DR. SOPP in the second edition of his pamphlet on diabetes, relates the progress made in its treatment. He gives a table with the quantity of the different foods which contains 70 gr. of carbohydrates and he discusses the use of vegetarian diet.

GEBÜRTENRÜCKGANG UND MÄNNLICHE SEXUELLE IMPOTENZ. Von Dr. P. LISSMANN. Price, 1.20 Mk. Würzburg: Kurt Kabitzsch, 1914.

THE writer states that the fall in the German birth rate only affects the married element, as the illegitimate rate is increasing. He attributes the fall to neomalthusianism, suffrage, the share of women in industrial life, sexual perversities of the husband, too long abstinence, and adds that 80-90 per cent. of the abortions handled in the Berlin University Policlinic are criminal.

MILITÄRÄZTHICHE KRIEGSERINNERUNGEN AN 1866 UND 1870-71. Von Dr. M. PELTZER, Generaloborarzt a. D. Price, 1 Mk. Berlin: August Hirschwald, 1914.

SURGEON-GENERAL Peltzer recounts a number of most interesting reminiscences of the part the German surgeons took in the campaign of 1866 and that of 1870-71.

DIE MODERNE THERAPIE DER GONORRHÖE BEIM MANNE. Von. Prof. Dr. PAUL ASCH. Price, 3.20 Mk. Bonn: A. Marcus & E. Weber, 1914.

PROF. Asch gives twelve lectures on those methods of treatment of acute and chronic gonorrhœa and their complications which have had the best results in his fifteen years' practice as specialist. He lays particular stress on the great value of a urethroscopic examination following a vaccine injection prior to the permission to marry for gonorrhœa convalescents.

BEHANDLUNG KOSMETISCHER HAUTLEIDEN. Von Dr. S. JENNER. Price, 2.50 Mk. Würzburg: Curt Kabitzsch, 1914.

THIS is the third edition of Dr. S. Jenner's lecture for practitioners on the treatment of cosmetic defects. It is written so admirably, however, that it will be appreciated by the layman, or rather by his wife.

DER AUSFALL DES KOPFHAARS UND SEINE BEHANDLUNG. Von Dr. FELIX PINKUS. Price, 1.60 Mk. Halle a. S.: Carl Marhold, 1914.

THERE are several interesting pages in this little pamphlet on the neurotic and inner secretory forms of alopecia areata, based on recent research in the ductless glands. The usual combination of theory and formulæ of the Jadassohn dermatological series is followed in this dissertation.

DIE STÖRUNGEN DES VERDAUUNGSAPPARATES ALS URSACHE UND FOLGE ANDERER ERKRANKUNGEN. (III Part.) Von Dr. HANS HERZ. Price, 9 Mks. Berlin: S. Karger, 1914.

THE book of this well known author has now appeared in its second edition. In reference to the disturbances of digestion in tuberculous patients the author says: "It is an undoubted fact that digestive troubles bring many tubercular patients to the physician who through anamnesis or examination discovers an old or recent lung affection or suspects only a beginning phthisis. The early and marked occurrence of such symptoms may be explained in two ways. On the one hand the bacilli may in some cases be particularly numerous and virulent and finding their way early to the digestive tract, form poisons deleterious to stomach and bowel. On the other hand the condition of the digestive apparatus at the time of infection is a disposing factor not to be overlooked."

"There is furthermore, no doubt that symptoms of intoxication without marked tissue changes can arise from tuberculous foci just as in other infectious diseases. The toxins reach the various organs by the blood and in the case of the digestive tract possibly also by the sputum. They act directly on the parenchyma and its nervous apparatus, also indirectly through local or higher nerve centers. To this may be attributed the initial dyspepsia of tuberculous patients. To prove clinically that digestive disturbances are the result of tuberculosis is mostly very difficult, even in such affections of the mouth, pharynx, or rectum that are readily accessible to inspection, much more so in deep-seated affections. Since these disturbances are the expression of a general affection, we will expect to find the characteristic premonitory signs: heredity, phthisical habitus, tubercular affection of other organs, temperature variations, hyperhidrosis, lack of nutrition reactions to specific products of tubercle bacilli and serological differences."

The author then discusses the disturbances of digestion in other chronic infectious diseases, viz., leprosy, actinomycosis, rhinoscleroma, and syphilis.

THE ANATOMISTS' NOTEBOOK. A Guide to the Dissection of the Human Body. By A. MELVILLE PATERSON, M.D., Edin., F.R.C.S., Eng. Price, $2.00 London: Henry Frowde; New York: Oxford University Press, 1914.

THIS manual is intended essentially for use in the dissection room, and the author says it is to be supplemented by a knowledge of osteology and a systematic textbok. There are many illustrations and very clear directions.

Les Techniques Anatomo-Pathologiques du Système Nerveux; Anatomie Macroscopique et Histologique. Par Gustave Roussy et Jean L'Hermitte. Price, 5 francs. Paris: Masson et Cie., 1914.

Pierre Marie writes in his preface to this book that its place is not on the library shelf, but on the laboratory table beside the fixatives and staining fluids. The authors give the methods for the preparation of nervous centers, macroscopical sections, and selection of material for bistological research. They review the technic of fixation, inclusion and staining of the different parts of the nervous system. The methods have been all used for years by Prof. Roussy.

Deutsche Zahnheilkunde in Vorträgen. Heft 32. Innere Sekretion in Beziehung zur Kieferbildung und Zahn Entwoicklung. Von Dr. med. P. Kranz. Price, 2.80 Mk. Leipzig: Georg Thieme, 1914.

The writer explains the bearing of the recent researches on the effects of the internal secretions on jaw formation and on the development of the teeth. There are fifty excellent plates and a good bibliography.

Innere Sekretion. Ihre physiologischen Grundlagen und ihre Bedeutung für die Pathologie. Von Prof. Dr. Artur Biedl, Wien. Mit einem Vorwort von Hofrat Prof. Dr. R. Paltauf, Wien. Zweite, neubearbeitete Auflage. Zweiter Teil. Mit 56 Textfiguren und 13 mehrfarbige Abbildungen auf 6 Tafeln. Berlin: Urban & Schwarzenberg; New York: Rebman Company, 1913.

The second volume of the new edition of Biedl's encyclopedic monograph on the inner secretions completes the chapter on the suprarenal system and includes sections on the carotid and sacral glands, the hypophysis, the genital glands, and the internal secretions of the pancreas, of the stomach, of the mucous membranes of the intestine, and of the kidney. A bibliography of 256 pages, including papers published in 1913, is appended. It is impossible to include within the limits of this notice the important features of this standard book. While it does not attempt to be absolutely critical, yet the presentation of the views of various investigators quoted are given with fair fullness. In contrast to many German publications it gives credit to the important work of American investigators; for example, the studies of Cannon and his pupils on the emotional stimulation of adrenal secretion and on emotional glycosuria are fully reviewed. It is a satisfaction to note that the widely published erroneous statement that the so-called adrenal tumors contain adrenalin is finally corrected; while the tumors arising from the chromaffin medullary tissue, the so-called paragangliomata are shown to contain a substance which raises the blood pressure. A very good presentation is that of the chemistry of the adrenal glands apart from their specific secretion. A large amount of research has been done on the lipoid substances present in the adrenal, and yet it is difficult to find elsewhere a connected review. The hormone theory of mammary gland influence comes in for a good deal of discussion. The author rather holds to the views of Starling despite the published critique of Frank and Unger. Six very beautiful colored lithographs show the structure and relations of the hypophysis and various pancreatic lesions.

A Short Practice of Midwifery for Nurses, Embodying the Treatment Adopted in the Rotunda Hospital, Dublin. By Henry Jellett, B.A., M.D. (Dublin University), F.R.C.P.I. Master, Rotunda Hospital; Extern Examiner in Midwifery and Gynecology, Victoria University, Manchester; late King's Professor of Midwifery, University of Dublin, and Gynecologist to Sir P. Dun's Hospital; Formerly Gynecologist and Obstetrical Physician, Dr. Stevens' Hospital; Censor and Examiner in Midwifery, Royal College of Physicians, Ireland; University Examiner in Midwifery and Gynecology, Dublin University, Extern Examiner in Midwifery and Gynecology, Royal University of Ireland. Fourth Edition, revised: fourteenth thousand. With six plates and 169 illustrations in the text; also an appendix, a glossary of medical terms, and the regulations of the Central Midwives' Board. Price $2.50. New York: Paul B. Hoeber, 1914.

This is as good a book for nurses as we have ever seen; in many respects it might serve as a model for writers of books for nurses dealing with other subjects. The information given is accurate, and well selected: and there is no needless parade of unnecessary material. The author has proceeded on the assumption that a nurse should be able to manage every case of normal labor, and in other cases to send for medical assistance; at the same time she should be able to look after her patient pending the arrival of the physician; it is further assumed that the readers of this book aim at being good nurses and not bad doctors.

A Manual of Infantile Paralysis. With Modern Methods of Treatment, Including Reports Based on the Treatment of Three Thousand Cases. By Henry W. Frauenthal, A.C., M.D. Surgeon and Physician-in-chief, New York Hospital for Deformities and Joint Diseases and Jacolyn Van Vliet Manning, M.D. Epidemiologist, Wisconsin, 1908, Epidemic Acute Poliomyelitis. Copiously illustrated with more than one hundred engravings, nearly all original. Price $3.00 net. Philadelphia: F. A. Davis Company, 1914.

There is no other disease in which such rapid progress has been made in the study of its prevalence, dissemination, and etiology, as in the case of poliomyelitis. Within a few years there have been discovered the facts that this disease may be transmitted to animals, and that various insects, chiefly the stable fly, may carry the infection, and its parasitic cause, a protozoan probably akin to that causing rabies, has been isolated and cultivated. Within the past few years a number of works on infantile paralysis have appeared in the English language. These include translations of Wickmann's, Vulpius', and Romer's works, and of the contributions by Kling, Pettersson and Wernstedt. To these is now added the admirable volume by Frauenthal and Manning, which deals with every aspect of the disease, from the description of the protozoan parasite recently cultivated by Noguchi, to the method of treating some of the deformities by means of exercises performed before a mirror. The book is eminently practical. It contains a large number of excellent illustrations. There is a certain lack of proportion in the discussion of various phases of poliomyelitis. Thus, considerable attention is given to Manning's studies of an epidemic in Wisconsin and of the habits and possible rôle of the bedbug in carrying the disease, while only brief mention is made of the surgical treatment of poliomyelitis, a subject which has been greatly elaborated within recent years. A few errors have crept into the text. Thus, on page 22 mention is made of a "Gram positive diplococci" and on page 23 of "a media of nutrient broth." On the whole, however, the volume is well written and forms a valuable contribution to medical literature.

Die Therapie des praktischen Arztes. Herausgegeben von Prof. Dr. Eduard Müller, Direktor der medizinischen Univ.-Poliklinik in Marburg. Erster Band. Therapeutische Fortbildung, 1914. Mit 183 teilweise farbigen Abbildungen im text und auf 4 tafeln. Price, Vol. I, 10.50 Marks; Vol. II, 6.40 Marks. Berlin: Julius Springer, 1914.

These two volumes constitute a practical course in therapeutics for the general practitioner. Volume one consisting of 1056 pages summarizes the latest therapeutic progress up to the year 1914. The opening article is by Neisser and deals with the subject of venereal diseases and the medical examination requisite to the clean bill of health with reference to marriage. Some of the other articles are the treatment of tuberculosis of the skin, by Veiel; the treatment of eczema, by Zieler; the feeding of healthy and sick children by Vogt; the preparation of the infant's food, by Stolte; asthma and its treatment, by Breens; the treatment of obesity, by Hürter; obstetrical operations in the private house, by Zangemister; the surgical treatment of cholelithiasis, by Poppert; toothache and its treatment, by Fischer and Moral. These represent only a few of the large number of articles in which newer methods of treatment have been evolved within the past few years. They are succinctly written, and contain many details of practical value. The second volume of this work consists of 664 pages and some of its articles are as follows: the economic aspects of prescribing, by Sordeman; a list of proprietary drugs with their chemical equivalents; abbreviations; the prescribing of drugs according to indications; and useful remedies. The last article, which is written by Frey, consists of 171 pages and comprises a compact materia medica. There are also articles on the newer remedies, and secret remedies, so-called patent medicines, maximal doses, the symptoms and treatment of acute poisonings, incompatibles, drops, solubilities, saturations, the principles of serumtherapy, etc. This volume, like its companion, is compact and full of useful information.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held April 21, 1914.

DR. JOSEPH C. ROPER IN THE CHAIR.

Myotonia Atrophica.—Dr. J. G. BULLOWA presented this patient, a man thirty-eight years of age, single, and a storekeeper. He came under observation February 9, 1913, complaining of cramplike spasms, which had lasted for several years, and weakness of the left upper extremity. He had always been a large, heavy man, weighing 187 pounds. There was no similar disease in the family. Eighteen years ago he had been operated upon for left varicocele, and since that time the left testicle had been much smaller than formerly. Fourteen years ago he had had a gonorrheal urethritis. Sixteen years ago he had eczema on the right hand, which involved also the forearm and popliteal spaces. Since having an attack of ptomaine poisoning eight years ago he had had cramps in the various muscles of the body on starting to move, especially in a cold room when undressing. These cramps started in the calf muscles. About three years ago the patient noticed that he became muscle bound on attempting to lift objects with the left arm, and this at times was painful. For a number of years he had had difficulty in maintaining his balance in the street if he collided with anything, even a child. If a support gave away he was unable to recover himself quickly and fell, and he was unable to rise unassisted from a crouching position. His speech was not quite as fluent as formerly, owing to the fact that his throat became stiff and he was unable to relax the muscles when he attempted to speak. For about a year he had had a limp, his toes dragging on the ground, and for about six months there had been an extensor cramp if the hand was held in one position for a time. The patient used alcohol, tobacco, tea, and coffee in moderation. Physical examination showed the thoracic and abdominal viscera normal. The thyroid was not palpable and the testicles were very small. There was an atrophy of the left sternocleidomastoid, the deltoid, and the biceps muscles. His muscular strength was fair. The myostatic irritability was fascicular. The flexors of the left foot were weak, the reflexes all exaggerated, the vasomotor control poor, and there was a dermatography, but sensations were not disturbed. The electrical reactions, which were verified by Dr. Abrahamson with the Faradic current, showed that the left trapezius was myotonic; the posterior portion of the deltoid gave no reaction; the anterior portion a fairly prompt reaction with twitchings. The left triceps gave a prompt reaction, easily exhausted and followed by twitchings. There was slight myotonia. The left biceps was preatrophic and myotonic. The muscles of the forearm gave a normal response. Nerve point stimulation gave a prompt reaction, followed by twitchings, though less than from muscle stimulation. On the right side the Faradic current showed a beginning reaction of exhaustion in the deltoid. In the lower extremities there was a myotonic reaction in the quadriceps extensors on both sides. There was no reaction of degeneration. Erb's wave reaction from cathode to anode was obtained in both biceps. Examination of the urine on several occasions showed a reducing substance which did not ferment with yeast. The Wassermann reaction and the complement fixation test for gonococci and streptococci were negative. The patient had atrophic testicles, one of which was attributed to varicocele. Whether the condition was to be attributed to deficient hereditary endowment or, with Bramwell and Addis, to a deficient testicular secretion, were questions of vital importance to the patient. In the present instance it was proposed to supply the hypothetical deficiency by implantation of a testicle.

DR. FOSTER KENNEDY said he would hesitate to call the case one of myotonia atrophica. The left sternomastoid was strong, although smaller than the right. The atrophy of the shoulder girdle was confined to the shoulder girdle muscle. In myotonia atrophica the most constant features were the tonus of the supraorbital muscles and of the masseter, and in most cases when the hand was squeezed the fingers opened slowly. Of course he had not seen this case long enough to say that it was not one of myotonia atrophica, but it was different from the types that he had seen. He had noticed a constancy of the tonus of the forearm, which prevented the patient from extending the hand quickly, which was not found in this case. About 70 per cent. of those having this condition had a definite family history of similar disturbances and an also characteristic bilateral cataract occurring prematurely at about the age of thirty-five years.

The following contributions were from the medical wards of St. Luke's Hospital:

Reports of Cases of Tabes Dorsalis Treated by Injections of Salvarsanized Serum Intraspinously.—Dr. AUSTIN W. HOLLIS reported these cases, which were treated first with neosalvarsan intravenously and then by salvarsanized serum intraspinously, after the method of Swift and Ellis. In this series there were fifteen cases, about three-fifths of which were treated with 60 per cent. serum in normal salt solution; in about one-fifth 40 per cent. serum was used, and in the other fifth pure serum. In one case 0.05 c.c. neosalvarsan was dissolved in the serum. The average quantity of neosalvarsan, however, was 20 c.c.; in a few cases 10 or 15 c.c., and in one or two as much as 30 c.c. The smaller amounts had to be given sometimes because sufficient blood could not be obtained to prepare the serum. The reactions following the injections were usually slight, perhaps one or two degrees of fever for two days, nausea or vomiting, and pains in the legs. The pains seemed to be due more to the amount of serum injected than to its strength. In many cases there was practically no reaction. The largest number of injections in any one case was eight. Several patients were injected intensively at intervals of one week for three or four times, but in most of the cases the injections were spread over periods of one to four months. The Wassermann reaction was blood positive in eight cases and spinal fluid positive in eleven cases. In three cases the blood and spinal fluid became negative at the end of treatment. The butyric acid test was positive in ten cases; the Fehlings reduced in three cases. The number of lymphocytes per c.m. in the spinal fluied varied in the different individuals in the series from four to 277 at the time of admission; from two to twenty at the time of discharge, showing a reduction to normal in practically all cases. In three of the cases the knee jerks returned, and in two others light reflex returned. Nearly every patient gained in weight, but rest and hospital care might account for many of these gains. After reviewing in detail these fifteen cases the writer concluded as follows: (1) Intraspinous injections of salvarsanized serum were a perfectly safe procedure, but required experience, a very refined technique, and most careful asepsis. No untoward effects or depressing reactions following any of the injections had been observed. (2) The amelioration of tabetic pain, reduction of the cell count to normal in practically every case, disappearance of the Wassermann reaction in three cases, but above all the return of the knee jerks in three cases and light reflexes in two showed that they were dealing with some curative agent or principle. It was probable that salvarsan alone or in combination with the use of mercury would produce such results. It had been assumed that the salvarsan in the serum might have some potency, but that seemed hardly possible, owing to its extreme dilution. The antibodies in the serum might be of some value but the author was inclined to believe that the withdrawal of the spinal fluid and the introduction of the serum produced vascular and cellular changes in the cord and meninges which enhanced the action of the antisyphilitic remedies given intravenously or intercutaneously. They had seen no case that at this period might be called cured or arrested.

DR. HOMER F. SWIFT said that among the reports made during the past year, that of Dr. Ayer of Boston was most interesting. Dr. Ayer has treated a series of patients with salvarsan intravenously and with mercury, in whom there was some improvement, but when the condition became stationary, combined intravenous and intraspinous methods were used with rather striking improvement. Lately Dr. Ellis and Dr. Stillman of the Rockefeller Hospital have been treating some patients intraspinously simply with normal serum. Some of these patients gave evidence of marked improvement, showing that the serum itself was beneficial. With this newer evidence and that previously obtained, they might attribute the beneficial effects to one or all of the four factors: (1) to the salvarsan content of the serum or to some salvarsan derivative brought about by some reaction between salvarsan and

serum; (2) to anti-bodies; (3) to an increase in the permeability of the meninges brought about by the inflammatory reaction set up by the injection of serum; (4) to the beneficial effect of acute inflammation on top of the chronic inflammatory process,—much like Bier's hypermia treatment of other chronic inflammatory conditions. The speaker said that he was glad to hear that Dr. Hollis had observed no bad results from the injections, and emphasized the fact that such treatments were to be undertaken only with the greatest care, and to be used only after other methods had been exhausted or in rapidly advancing syphilitic disease of the central nervous system.

Report of a Case of Disseminated Myelitis of Doubtful Origin.—Dr. Ewen Van Kleeck read this report for Dr. Lewis F. Frissell. The patient was a single woman, 32 years of age, admitted to St. Luke's Hospital on March 12, 1912, complaining of inability to move the left leg, and weakness in the right leg. Her family history was negative as regarded nervous diseases. Her habits were good and her past history without bearing on her present illness. Two weeks before she had a cold in her head and for the past ten days had felt fatigued in the morning and had indefinite pain in the back. Six days before she had noticed that there was diminished tactile sensation in the left leg, and pricking and tingling sensations from the knee down, with burning pain if the skin was touched; at the same time there was pain in the right eye, and vision became blurred. The bowels had been constipated and for three days previous to admission there had been retention of urine. Physical examination showed no dyspnea, cyanosis or jaundice, and the woman did not appear acutely ill. There was a raised papular and erythematous eruption on the back and buttocks, and to a less extent on the buttocks. There was no rigidity of the neck or enlargement of the lymph glands. There was moderate optic neuritis in the right eye, the edge of the disc being blurred in its entire circumference. There was also slight optic neuritis in the left eye. The color fields of the right eye were contracted; the fields in the left eye were not so markedly contracted. The upper extremities were normal except for the grip in both hands; there was no impairment of power in the upper arm. The left leg showed drop foot and flaccid paralysis from the hip down. There was weakness of the whole right leg, without paralysis. Knee jerks and plantar reflexes were not obtainable and there was no Kernig's sign. The clinical picture was that of a disseminated myelitis, closely resembling a poliomyelitis. The blood count was normal, the leucocytes being 8,000 and the polymorphonuclears 65 per cent. Lumbar puncture obtained a clear fluid with some increase in pressure, showing a cell count of 196 per c.c.; 100 per cent. lymphocytes and a positive butyric acid reaction. The Wassermann reaction was positive on March 21. A second lumbar puncture on March 22 showed the cell count to be 80, with both negative acid and Wassermann reactions, a very rapid clearing of the fluid and one quite characteristic of poliomyelitis.

On March 26 the patient regained a little movement in the toes of the left foot and from that time her paralysis improved gradually until May 28, when she was discharged, being able to stand and walk fairly well. Her upper extremities were normal and knee jerks had returned. Bladder control had been completely regained. The optic neuritis had improved. During her stay in the hospital she had received eight doses of one-half grain of mercury salicylate and also iodides for a short time. The protective action of the patient's serum against poliovirus was tested on monkeys through the courtesy of Dr. Flexner and Dr. Clark of the Rockefeller Institute, with the result that the serum protected against three times the fatal dose of the virus. The patient was at present under the care of Dr. Hollis and showed no symptoms whatever. This case was obviously open to several diagnoses. Evidence of a diffuse lesion did not make the diagnosis of poliomyelitis improbable. The recovery seemed too rapid for a syphilitic lesion treated only by mercury for so short a period and without a positive Wassermann in the spinal fluid. Then, too, research workers at the Rockefeller Institute had recently determined that a positive blood Wassermann was not an unusual event in poliomyelitis, though whether a serum reaction would last two years was doubtlful. The evidence of the protective properties of the patient's serum could not be considered positive, because the patient might have had an abortive attack in the past, or the sera of certain normal individuals might protect. The rapid return of the spinal fluid toward a normal count with the absence of the Wassermann and butyric acid was too speedy for a specific lesion. Second, the case might be one of disseminated syphilitic lesions. The presence of the blood Wassermann after two years was suggestive, and the spinal fluid apart from the absence of the Wassermann might also incline one to make this diagnosis though the rapid recovery made it unlikely. Third, an infectious myelitis of unknown origin had been described by Oppenheim which clinically could scarcely be distinguished from poliomyelitis and which he separated from it on pathological and anatomical grounds, being inclined to limit the term poliomyelitis to a lesion involving the gray matter of the anterior horns. Oppenheim had nothing from a positive point of view to offer as an etiological factor in these cases, and only the negative evidence of the site of the lesion. It seemed fair to make a diagnosis of probable poliomyelitis in an individual who had a concomitant syphilitic lesion, not involving the central nervous system.

Dr. Bernard Sachs said that this report was in line with his observations. Two or three years ago he had reported a case of acute transverse myelitis due to the virus of poliomyelitis. This diagnosis had been arrived at with the aid of blood tests made at the Rockefeller Institute. Since that time some doubt had been thrown on the findings in that case and the reason he spoke of it was that this winter they had had three or four cases of this sort at Mount Sinai Hospital which had to be labeled acute transverse myelitis of infectious origin. Two came into the hospital with the most pronounced symptoms and went on to complete recovery within eight weeks, and had remained well ever since. At the same time there was one case, much more severe, which terminated fatally. The symptoms were those of acute transverse myelitis beginning in the lumbar region, but later becoming more extensive. At autopsy every possible known method was employed to determine the kind of infection present in this case but all to no avail. It was evident, however, that anatomically the spinal cord lesions were not those of poliomyelitis. A toxic or infectous myelitis might lead to recovery, but in this instance it proved fatal.

Detection of Mercury in the Excreta.—Dr. Karl M. Vogel read this paper, in which he said that instances of bichloride poisoning were very frequent, both because of the newspaper notoriety which had made this method of suicide popular and because bichloride tablets were kept in almost every house as an antiseptic. It was very important, both from the standpoint of diagnosis and from that of treatment, to determine whether the patient had really taken bichloride of mercury. Frequently patients came with an obscure or unreliable history, and it was important to settle the question, as the strenuous eliminative treatment required to combat bichloride of mercury poisoning occasioned a great deal of discomfort to the patient and to those who cared for him. Most of the methods of determining the presence of mercury in the excreta were impractical because of the length of the chemical process and the rare chemicals that were required. In St. Luke's Hospital they had had seven cases of bichloride poisoning in the past few months and determined to try to devise a method for detecting the presence of mercury in the excreta by adapting the methods in use. The following method they had found to be reliable and practical: To 150 or 200 c.c. of urine add 5 c.c. hydrochloric acid and evaporate to 50 c.c. Oxidize this by adding two drams of potassium chlorate and continuing to heat until it became colorless. It might be necessary to add more hydrochloric acid and potassium chlorate. Then add water to bring the quantity up to 60 or 70 c.c. and boil to drive off the chlorine. If feces have been used filter at this time. Next a copper wire which had been cleansed in hydrochloric acid was dipped into the fluid, when the mercury would be deposited on the copper. If mercury was present the wire would be covered with it, but it was possible that the deposit might be any of a number of other metals. To prove that it was mercury obtain a small pellet of gold foil from a dentist and place it in test tube; then holding the wire near the pellet, but not touching it, heat, and if the deposit on the copper wire was mercury it would distill over and one would get silver enamel on the gold. A further proof was to use iodine vapor, and red iodide of mercury would be formed. A quantitative analysis might be made by weighing the copper wire before it had received the deposit and afterward, having conducted the first part of the experiment along quantitative lines. This method was applicable to a test of the urine, stomach contents

and feces. The presence of mercury had been proved in twelve instances in which persons had taken two grains of calomel. Of course one should always inquire before making the test whether calomel had been taken.

Treatment of Bichloride Poisoning.—Dr. HENRY S. PATTERSON reported that of five cases of bichloride poisoning coming under his observation the first two occurred by way of the vagina, in one instance one tablet having been used and in the other two. When the first case came in they tried to formulate a method of eliminating the drug so rapidly and in such a dilution as not to set up inflammation of the kidneys. They had used rectal lavage and large amounts of diuretics. The patients left the hospital after two weeks, and at the end of two years were in good health. In the cases poisoned by taking bichloride by way of the mouth one took three tablets and two took two tablets. The method of treatment was largely determined by the findings of the examination of the urine and stomach contents by Dr. Vogel's method. He first gave alkaline diuretics hourly and administered the Murphy drip. Potassium acetate, one dram to a pint, and a milk diet, one glass every two hours, was administered until the stools and urine were free from mercury and remained so for two successive days. He adopted the use of stomach lavage two or three times a day in all patients who came under observation before anuria had developed. In a case seen recently there had been anuria three days and the cause was not suspected. The patient had come home highly intoxicated, and his wife remembered afterward seeing the bottle of bichloride tablets in an unusual situation and the cork removed. When first seen the man did not look sick enough to have a high-grade nephritis. There was no pupillar reflex and it was thought at first that the anuria was a calculus anuria. The stools were examined and gave a strong reaction. The anuria continued two days more, making five days in all; then the patient passed one dram, then two drams, and then five drams of urine on successive days. He then passed 50 ounces and it was thought he was on the way to recovery, but about five days later he developed jaundice and a diphtheritic colitis, which had frequently been recorded as occurring after copious urination had been established. The speaker said that at the present time he had a few cases under observation. One case had been admitted to the hospital on March 26, having taken four bichloride tablets; four or five hours after admission albumen and casts were found in the urine; it was probable that she had a kidney lesion and tertiary syphilis. Anuria continued until April 2, when she passed a small quantity of urine; the quantity increased until by April 9 she passed 49 ounces. On April 17 she passed 78 ounces. Every stool and every specimen of stomach washing up to April 17 showed a strong reaction for mercury. The question was whether she was going to be able to eliminate the drug in a form sufficiently dilute not to cause liver or colon lesion. One could not tell this yet, but the cases he had seen had all succumbed after having had anuria in spite of the establishment of the urinary flow. Another patient was admitted to the hospital on April 9, having taken 30 grains of bichloride in instalments. She had not had anuria; the lowest output of urine was 38 ounces. The phenosulphonaphthalein test at first gave a return of 66 per cent, and on April 21 of 62½ per cent. The outlook in this case was better than in the former one, but the patient had taken the mercury in successive doses and that militated against her recovery. They had produced a high diuresis, 150 to 200 c.c. per day. Of course when they got the patient a few hours after the drug had been taken the outlook was better than when a longer time had elapsed. As to the subsequent effect on the kidneys Dr. Patterson said he had not studied many cases, but in one instance the phenolsuphonaphthalein test gave 76 per cent. after the anuria had cleared. The patient should not go out of the hospital until there was no evidence of kidney irritation.

The Difference in the Morphology of the Blood in Gastric Ulcer, Duodenal Ulcer, and Chronic Appendicitis.—Dr. G. A. FRIEDMAN presented this paper, the object of which was to show that correct interpretations of blood findings in gastric and duodenal ulcer and chronic appendicitis might be of great aid to the clinician in the differential diagnosis of these affections, especially in cases in which all hitherto known methods of examination, including the *x*-ray, had failed to clear up the situation. While partial attention had been paid to the blood in appendicitis this could not be said of the blood in ulcers of the stomach and duodenum. Their hematological studies had convinced them that the morphology of the blood differed in gastric ulcer with the site of the lesion in the viscus. In patients with pyloric ulcers the blood picture varied from that of nonpyloric ulcers. As cases without operative demonstration might be open to criticism their deductions were based on forty-five cases operatively demonstrated. This series of cases drawn from the Vanderbilt Clinic and Dr. Friedman's private practice comprised twelve cases of gastric ulcer, ten in males and two in females; eighteen cases of duodenal ulcer, fifteen in males and three in femals, and fifteen cases of appendicitis, eight in males and seven in females. After citng the operative findings in each of the cases of gastric ulcer and giving the blood picture in each case the author divided these cases of ulcer into two groups: (1) Nonpyloric, where the lesion was at the lesser curvature, nearer the cardiac orifice, and (2) pyloric, where the lesion was at the pylorus or very near to it (para or prepyloric). The average percentage of hemoglobin for the nonpyloric group was 85 per cent., for the pyloric 65 per cent., and the average percentage of hemoglobin for the entire series of gastric ulcers was 75 per cent. The average number of red blood corpuscles for nonpyloric ulcers was 5,700,000, while for pyloric ulcers it was 4,463,000, an average of 5,081,000. The somewhat higher counts of red blood corpuscles in two of the cases in the pyloric group were probably due to concentration of blood, as frequent vomiting was noted in the histories of these cases. Mild leucocytosis was present in the nonpyloric group; in the pyloric group there was no leucocytosis, but frequently a leucopenia. A relative lymphocytosis was frequently found in the pyloric group; there was no lymphocytosis in the nonpyloric group. Small mononuclears were markedly increased in the pyloric group, but showed no increase in the nonpyloric. Any marked increase in the large lymphocytes was not noted in either of the two groups. Large mononuclears were absent from the blood in the two groups. A relative eosiniphilia (4 per cent. or thereabouts) was present in the pyloric group with the exception of one case, a case of pyloric obstruction. There was no relative eosinophiila in the nonpyloric group. There was an occasional increase in transitionals in the nonpyloric group, but no increase in the pyloric. The chief characteristics of the pyloric group were then ologoglobulia, relative lymphocytosis, and relative eosinophilia; of the nonpyloric group, polyglobulia and leucocytosis. The tables showing the operative findings in duodenal ulcers indicated that the lesions were all in the first portion of the duodenum. In eight cases callous or indurated ulcers were found; in four, scars; in two, broad adhesions between the duodenum and gallbladder without stones. A summary of the blood findings in these cases indicated that the average percentage of hemoglobin for duodenal ulcer was 90 per cent. The average number of red blood corpuscles, 6,000,000. Polycythemia was found in fifteen cases out of eighteen, or in 83 per cent. There was no leucocytosis present except in a case shown before to belong to the nonpyloric group and in a case of perforated ulcer. Occasionally leucopenia was present. There was no relative lymphocytosis. An increase in small mononuclears was rarely noted. Relative eosnophilia (4 per cent. and over) was marked only in two cases. Large mononuclears were absent in all the cases of duodenal ulcer except in two in which appendicitis was likewise found. An increase in transitionals was noted frequently. The blood of the patients who continued under observation after gastroenterostomy was examined at longer or shorter intervals after the operation and remained the same with reference to polycythemia and other findings. The characteristics of nonhemorrhagic ulcer were polycythemia, absence of relative lymphocytosis, and absence of relative eosinophilia. After reviewing the operative findings and the blood picture in each of the fifteen cases of appendicitis the author stated that in these cases the stomach, duodenum, and pancreas were explored and found to be normal. In doubtful cases the appendix was examined by the pathologist and found to be diseased. In this series the average hemoglobin was 83 per cent. and the average number of red blood corpuscles, 5,181,000. In three cases polycythemia was found, although the hemoglobin in one case was much lower in comparison with the number of red blood cells. The frequency of polycythemia in this series of appendicitis cases was therefore 20 per cent. In the remainder the red cells were normal or below normal in number. Leucocytosis was found in nine cases, or in 60 per cent., and in one case marked leucocytosis. The frequent occurrence of large mononuclears and the increase in transitionals was noted. The large mononuclears were absent in only

three cases of appendicitis. The chief characteristics then of the blood in appendicitis were large mononuclears, transitionals, and leucocytosis. The blood in nonpyloric ulcer was related to the blood of duodenal ulcer so far as erythrocytes, lymphocytes, eosinophiles, and transitionals were concerned, but differed in regard to white blood corpuscles. The presence of leucocytosis in nonpyloric ulcer made the blood in this condition related to appendicitis. The most striking difference was found between the blood of pyloric ulcer and nonpyloric and duodenal ulcers. The difference in the morphology of blood had led him to construct types of blood pictures in these conditions. The blood picture of appendicitis, although it had the special characteristic, large mononuclears, which were absent from the blood in ulcers of the stomach and duodenum, did not represent a special type but a combination of types. The following types were possible in appendicitis: duodenal, pyloric and nonpyloric, duodenal and pyloric, duodenal and nonpyloric. The author cited cases illustrating the value of blood findings as interpreted by him for the differential diagnosis of the conditions under discussion. In the differential diagnosis of gastric and duodenal ulcer and appendicitis the history, the physical examination of the abdomen, the analysis of the gastric contents and of the feces, and finally the *x*-ray findings, gave valuable data, but none of them seemed to stand in definite relation to the site and character of the lesion in the great majority of cases. The blood findings, on the other hand, seemed to possess such a relation. The author urged his hearers to apply his findings to their own material so as to convince themselves of their definite value in diagnosis.

Dr. CHARLES H. PECK said he would like to confirm the statement made in regard to the great frequency of polycythemia in duodenal ulcer. The difference in the blood picture in duodenal ulcer and appendicitis was quite striking. This difference should prove of value in those cases of appendicitis with gastric symptoms in which the diagnosis was so often in doubt.

Eventration of the Diaphragm.—Dr. MORRIS MANGES and Dr. H. WESSLER presented this communication. Dr. Manges described in detail two cases which represented clinically two well-defined groups of symptoms which, among others, might occur as the result of an abnormality in the structure and function of the diaphragm. These symptoms were referable on the one hand to the respiratory and cardiovascular system, and on the other to the gastrointestinal tract. Frequently these were combined in varying degrees of severity. The first case represented a common symptom complex. Under the influence of trauma, or unusual distention of the abdominal viscera with gas, the already weakened and stretched diaphragm became the seat of further insult and the patient experienced a gastric crisis very much like that occurring in sudden pneumothorax or the onset of a pleurisy, dyspnea, pain, cyanosis, and cough which depended probably also on the extreme displacement of the heart and the blood vessels and the resulting interference with the circulation. These attacks simulated pleurisy and pneumothorax in their physical signs also, there being loud or dull tympany over the chest, immobility of the chest in respiration, succussion, and dextrocardia. So frequent and striking was this association of symptoms that not infrequently these cases were aspirated for fluid, a procedure not devoid of danger of perforating the distended stomach. These crises were followed by sticking pain in the back, dyspnea, and palpitation on exertion until they were succeeded by another acute attack. In the gastrointestinal type, owing to the chornic dilatation of the stomach and also to periodic partial obstruction of the splenic colon in the cul-de-sac of the atrophic diaphragm, the patient might suffer from dyspnea and recurring attacks of intestinal obstruction. If these symptoms were combined with a loss of weight and a severe anemia it was easy to see how a suspicion of carcinoma might be entertained. In the second case the gastrointestinal symptoms were preceded for some years by definite cardiac symptoms which were attributable to the extreme dextrocardia which was present. It had been a subject of contention ever since this subject had been discussed whether in a given case the integrity of the diaphragm, however thinned out it might be, was maintained, or whether there was a real hiatus through its musculature. This question could not be determined definitely by roentgenology, as the wall of the distended stomach presented exactly the same appearance as the line of the thinned dome of the diaphragm. The presence or absence of movement of the diaphragm had not helped to decide this question. The etiology of eventration of the diaphragm was obscure. Hoffman believed that "chronic idiopathic dilatation" of the stomach led to a rudimentary eventration of the diaphragm. Koninger did not favor this view, but with Arnsperger considered the condition one of fatty degeneration of the diaphragm perhaps in the sense of a pseudomuscular hypertrophy of congenital origin, in which later traumatism played some indetermined rôle. Autopsy findings had disclosed a condition of extreme atrophy with fatty degeneration of the muscular fibers, so that the diaphragm had the appearance of a thin membrane. The condition had also been observed in poliomyelitis. The theory of primary disease of the phrenic nerve had not been supported by autopsy findings. Eventration of the diaphragm being easily mistaken for other conditions, it was important in the first place in every case of apparent dextrocardia to look for the presence of diaphragmatic anomaly. Similarly every case which had the clinical signs of pneumothorax should be subjected to a radioscopic examination to avoid the possibility of error. Occasionally diaphragmatic pleurisy and pneumonic lesions at the base of the lungs resulted in an unilateral paralysis of the diaphragm, producing some of the symptoms of eventration. This condition was, however, transitory. From the point of treatment the differential diagnosis between diaphragmatic hernia and eventration was of practical importance. The former condition was amenable to operative treatment, while the treatment of eventration could only be palliative. It was not possible to do anything to restore the function of a completely atrophic diaphragm. On the other hand, anything that increased the intraabdominal pressure would add to the difficulties of the already displaced diaphragm. It had also been noted that associated with an increase in weight and with presumably an increase in the amount of intraabdominal fat, the symptoms were aggravated. It would therefore seem rational to put such patients on a diet in which the fattening elements of the food were restricted and to avoid such foods which by their fermentation would give rise to flatulence.

Dr. H. WESSLER gave a lantern slide demonstration of the cases cited by Dr. Manges. The radiograph of the first case showed a distinct linear curved shadow surmounting the very much distended stomach, which tempted one to believe must be a thinned out diaphragm. That it was much thinned out and atrophied must be assumed from the entire absence of respiratory movement and from the paradoxical movement on breathing. In the second case there were several points of interest which suggested the possibility of diaphragmatic hernia. The thin shadow which should have represented the diaphragm had not the regular curvature which was seen in the first case, its apex being somewhat pointed. The stomach when outlined with bismuth showed a constriction at its lower pole which might be due to the pressure of the margins of the diaphragm. The illustrations well illustrated the difficulties of making a diagnosis of eventration of the diaphragm by means of the *x*-ray.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held March 24, 1914.

DR. ASA B. DAVIS IN THE CHAIR.

Broken Glass Catheter Removed from the Bladder.—Dr. FORBES HAWKES reported this case. The patient had been catheterized, and the catheter on being withdrawn broke and a piece was left in the urethra. The house surgeon attempted to grasp it but broke it into one or two pieces. A No. 12 Kelly's instrument was then passed and the remains of the catheter came into sight, lying transversely in the bladder. The forceps was introduced, and the catheter grasped and removed. There was no bleeding and the patient had done well.

Carcinoma of the Kidney Associated with Calculi.—Dr. FORBES HAWKES presented this specimen which he had removed from a woman, 29 years of age. She had given birth to twins eight years before and had had convulsions six or seven days after which were typically epileptic in character. The trouble was supposed to be syphilitic in origin. There were no urinary symptoms whatever. She gave a history of tumor of the liver and there was a large tumor on the right side. This was supposed to be a gumma. The Wassermann reaction was negative. The *x*-ray showed the presence of a stone in the right kidney. At operation the kid-

ney was found to have a large cystic sac containing hardened material. The patient was in no condition to stand an operation but did fairly well for eight to twelve days, when she died of exhaustion. The liver was found studded with hard nodules. The kidneys were of the hydronephrotic type.

Carcinoma of the Rectum.—Dr. FORBES HAWKES presented this patient, a woman 57 years of age, who had borne one child. She had had occasional headaches but had never been constipated, and no history of tuberculosis or syphilis was obtainable. Her husband had tuberculosis. Two years previous to her present illness she had had some rectal pain and distress and passed some blood. On examination an annular flat growth involving the rectovaginal septum was found. The operation was performed in two stages, an artificial anus being made first, and later the growth was removed together with the coccyx and a portion of the sacrum. An uneventful recovery followed and the artificial anus had been closed.

Acute Infectious Myelitis Complicating Pregnancy.—Dr. ROBERT E. POU reported this case. He stated that a case of this kind was of such rare occurrence and this one was so well defined that he believed it would be of general interest to the Section. It was more usual to see these cases as the result of caries or syphilis. He had assumed that this case was one of acute infection of the spinal cord, probably a severe myelitis. As a matter of fact the real diagnosis of such cases was usually made at autopsy. The subject of this report was 42 years of age and at the time of the onset of the myelitis was in the sixth month of her fifth pregnancy. The past history of the patient was unimportant; there was no history of miscarriages. During the first week in December, 1913, she became constipated, had headaches, pain in the abdomen and epigastrium, and stiffness in the arms, shoulders, and neck. Not many hours after this she noticed that her legs were numb and helpless, and incontinence of urine and feces followed. A few days later she was admitted to the Lying-In Hospital at which time she was paraplegic. When the writer saw her one week later she was covered with fine scales which seemed to be a congenital ichthyosis. There was no photophobia, or hyperesthesia, and no pupillary symptoms. The muscles of the face and tongue were normal. There was a slight Kernig's sign. Babinski was present in both feet, and knee jerks could be faintly elicited. At the time of her admission to the hospital her temperature was 101°F., pulse 120, and respirations 24. The following day the temperature dropped to normal and then beginning to rise two days later, rose to 103°F. on her ninth day in the hospital. A spinal puncture done on the third day after her admission to the hospital was negative as was also the Wassermann test. The blood count at this time was as follows: hemoglobin 80 per cent., red blood corpuscles 3,890,000, white blood corpuscles 20,800, polymorphonuclears 88 per cent. Examination of the urine showed a specific gravity of 1016; albumin was present, but no sugar and no indican. Urea was 1.9 per cent. There were a few granular and hyaline casts and a small amount of pus, together with some epithelial cells and urates. Ten days after admission the leucocytes were 9,200 and the polymorphonuclears 89 per cent. The leucocyte count diminished until on the twenty-first day in the hospital it was 8,000 and the polymorphonuclears 84 per cent. Labor was induced on December 20 as the patient had bad incontinence of urine and a bedsore threatened to develop over the right trochanter. On December 21 the patient was delivered of a six months macerated fetus. She then made an uneventful recovery. The power returned rather rapidly to both legs and the knee jerks increased at the same time, though the stiffness and retraction of the neck continued for two or three weeks. The incontinence of urine gradually lessened. At no time could any sensory symptoms be elicited. On February 22, after returning to her home, the patient complained of distinct girdle sensations in the region of the ensiform. She hobbled about her room in a peculiar ataxic manner. Several further examinations showed a negative Wassermann, a negative globulin estimation, and only fifteen cells to the millimeter. The urine remained about as at the time of admission. Accounts of a so-called toxic form of myelitis occurring especially in pregnancy were vague and unsatisfactory. To distinguish between it and the infectious type was impossible. The presence of the dead fetus would have to be considered. The treatment consisted mainly in emptying the uterus, preventing bedsores, cleanliness, and turning the patient many times during the day. Urotropin was given to prevent cystitis. Massage and electricity were indicated later on. The prognosis was best in just such cases as the one reported as there was incomplete paralysis. The patient would probably always be spastic and have a weak bladder and rectum. Infection in these cases might occur in three ways: (1) As an extension focus from neighboring inflammations, as spinal caries or meningitis. (2) Through the blood stream, as a part of a general pyemia or a purely local phenomenon. (3) Through the lymphatics, Marinesco having traced an infection along the peripheral lymphatics and nerves in a case of gangrene of the leg.

Dr. SIDNEY D. JACOBSON reported a case that he had seen in London, Eng. The patient was a woman with a tumor of the cord, as he thought, in the dorsal region. She had been paralyzed from the waist down for three years. Neurologists pronounced the case one of tumor of the spinal cord. She was pregnant eight and one-half months, and he thought the uterus might have become enervated. However, he was notified one morning that the woman had delivered herself without pain. The baby was perfectly normal in every way and the delivery perfectly normal. It seemed that there must have been a certain amount of muscular power of the abdominal wall and muscles in order to have expelled the fetus.

Dr. GEORGE KOSMAK said he had had the opportunity to follow the case in the hospital and he was impressed by the condition of the mouth as being a possible factor in the woman's condition. There was a fetid condition of the teeth and gums, the mouth being as filthy a one as he had ever seen. Physicians did not pay sufficient attention to the teeth and gums. Oral surgeons had demonstrated in recent years that carious teeth might serve as an entrance of infection. This patient had a severe gingivitis and the myelitis from which she suffered might have had its source from this locality. The death of the fetus did not produce the inflammatory condition which involved the spinal cord. When the fetus was carried long there would be a toxemia rather than a bacteriemia. Dr. Kosmak expressed the conviction that the source of infection in many cases was carious teeth and the fetid condition of the mucous membrane of the mouth.

Dr. GEORGE L. BRODHEAD expressed the belief that the death of the fetus was merely an incident because there were many such cases in which the fetus was retained an indefinite length of time. Once in a long time a case of mild toxemia was met with in which the evidence was sufficient to indicate emptying the uterus.

Dr. ASA B. DAVIS said that what struck him particularly in the case reported was the gain in health. With regard to the bacteriology, one certainly did find bacteria in the spinal fluid. He recalled the case of a girl, 17 years of age, brought into the hospital with marked symptoms of meningitis which increased in severity. She had an injury of the right jaw caused by being thrown against a radiator. She developed an alveolar abscess. She was eight months pregnant. General symptoms of irritability of the brain and spinal cord developed. It was found that this patient had streptococcemia. A cesarean operation was performed and the child lived only a few days. A complete autopsy was made and streptococci found in the meninges of the brain. The infection was probably from the alveolar abscess.

Complete Inversion of the Uterus Following Delivery.—Dr. JOHN HAMILTON TELFAIR reported this case. He stated that the patient was admitted to his service at the Fordham Hospital on June 29, 1913. She had been delivered of a full term child about ten hours before admission. Following delivery she had had a profuse hemorrhage and a complete inversion of the uterus. At the time of her admission to the hospital she was in profound shock. Saline infusions, Murphy drip, and the usual quickly diffusible stimulants were given and the patient began to react. Examination revealed a large bleeding pear-shaped tumor extending 10 c.m. outside the vulva. This was washed off with hot saline solution, and an attempt was made to push it up in the axis of the pelvic inlet. There was a sense of firm resistance, and upon deep abdominal palpation, this was found to be due to a firm circular contraction of the muscle fibers at the cervico-corporeal junction. The patient was given ether to the surgical degree and when relaxed it was found possible to introduce the thumb and three fingers of the left hand into this cup-

like vagina, and it actually dilated as a cervix would do. With the left hand exerting this dilating force through the abdominal wall, upward pressure on the uterus was made on the right lateral wall, and this portion was started on through the cervix; then by continuous pressure the fundus was gradually worked up until the whole inverted mass reduced itself with a snap. The uterus was packed with gauze and the patient returned to bed in a fair condition. About four hours later she again went into collapse and was given a transfusion of blood. The result was remarkably good. She recovered partially from the primary shock and hemorrhage and left the hospital against advice on the third day. She died of sepsis on the seventh day after delivery. From a search of the literature on post-partum inversion of the uterus, it seemed that next to vagitus uterinus, this was the most uncommon accident that could befall the parturient woman. The most striking thing about the statistics was the tremendous difference in the various figures. Braun stated that it happened once in 250,000 labors, while Kehrer gave one case in 2,000 labors. An average made from the statistics of ten different men was one case in 128,766 labors. This condition was undoubtedly extremely uncommon, but happened more frequently than the figures indicated. Practically all the figures were based on hospital records, and undoubtedly complete inversion of the uterus following delivery was relatively more common among the practice of midwives and physicians who would not report the cases.

Dr. GEORGE L. BRODHEAD called attention to the relaxed uterus which followed the Credé method employed in a violent manner. Relaxation also followed long labors and deliveries with low forceps. Dr. Brodhead cited such a case. Upon examination he found the fundus of the uterus down. With the hand in the uterus he removed the placenta and pushed a cup-shaped depression upward. The employment of a violent Credé method was responsible for these cases of inversion of the uterus following delivery.

Dr. JOHN VAN DOREN YOUNG asked Dr. Telfair if he considered the question of hysterectomy in the case which he had reported.

Dr. TELFAIR replied that he thought it possible that hysterectomy might be necessary, but that it would be better to attempt manual replacement first. The question of anesthesia in these cases was important.

Vagitus Uterinus with Report of a Case.—Dr. GEORGE L. BRODHEAD reported this case. He recalled that Telfair had reported a case of vagitus uterinus in the *New York Medical Journal*, October 2, 1913. It was stated at that time that every paper on this subject in recent years had aroused a storm of criticism and sometimes of ridicule. The bitterest criticism usually came from obstetricians of wide experience. At the close of his article Telfair stated that of 44 reported cases more than one-half were operative deliveries, 11 being forceps, 15 versions, and one replacement of the arm and cord. The fetal mortality was 10 per cent, many of the surviving children living only after prolonged efforts at resuscitation. The patient whose case Dr. Brodhead reported was a VII-para, who went into labor March 24, 1911, at 8 o'clock P. M. The first stage lasted ten hours and during this stage the membranes were ruptured artificially. The second stage was prolonged and it was decided to apply forceps. The head was below the brim, the fetal heart from 140 to 150, and the patient's pulse 128. Dr. F. M. Turnbull, the interne in charge of the case, stated that the right hand was introduced to the left ear, and he was about to introduce the left blade when he heard a distinct loud cry from the baby. The cry was heard by Dr. Stilson, the anesthetist, by a woman in the same room, and by another woman in the adjoining room. The cry continued at intervals until the head was extracted thirteen minutes later. The child was in good condition, had a good color, and weighed ten pounds and ten ounces. To the list of reported cases one other could be added which was reported to the New York Obstetrical Society and recorded in the Transactions of that society, 1906-1907, page 257. Dr. Marx stated that he had heard such a cry once before in his experience. When the case was discussed a member of the Society and an eminent obstetrician stated that in his opinion such a cry was impossible. In the case reported there was no doubt in his mind as to the accuracy and reliability of the observers.

Dr. MALCOLM MCLANE said that the case he had reported was an undoubted one. The fetal head was well up in the uterus. There was suction and he was astounded to hear the child cry; the cry continued for several minutes. He had seen many instances in which the child cried while in the vagina and did not think them worth reporting, but in this case the child was well up in the uterus.

Dr. TELFAIR asked if this was an operative case.

Dr. MCLANE replied that the case was being prepared for operation when there was this suction of air into the uterus, which accounted for the cry.

Dr. TELFAIR said that some cases had been explained by attributing the sound to a vibrating fold of mucous membrane.

Dr. BRODHEAD asked when this report appeared.

Dr. MCLANE said it had appeared in the records of the *American Journal of Obstetrics*, probably sixteen years ago. The case had been reported in full before the New York Obstetrical Society about sixteen years ago.

Spontaneous Evolution of Shoulder Presentation.—Dr. GEORGE L. BRODHEAD reported this case. He stated that shoulder presentations were said to occur about once in two hundred labors, and according to Edgar (The Practice of Obstetrics," 4th Edition) spontaneous evolution occurred in about eight per cent. of all cases, if unusually small children, premature births, etc., were included. There were three factors which must be present to make this spontaneous termination possible, namely, large pelvis, small child, and strong uterine contractions. Owing to the rarity of the mechanism the writer felt that these cases would be of interest. The first case was that of a multipara, seven months pregnant, who had been in labor eighteen hours before she was seen by Dr. Bartholomew and the writer. A shoulder presentation was found, the right arm lying in the vagina. Preparation was begun for a version, but in a few minutes the patient was seen to have strong expulsive pains, the arm steadily advanced, then the right chest appeared, then the trunk of the fetus with extreme lateral flexion, next the lower limbs, and finally the opposite shoulder and head of the still born fetus. The child was macerated and measured fourteen inches in length. There was no hemorrhage; the placenta was expressed by the Credé method, and the recovery was uneventful. Dr. Brodhead reported two more cases of spontaneous evolution of shoulder presentation in which the mechanism was exactly the same as in this case. In all of these cases the puerperium was normal, and the infants stillborn.

Dr. CHARLES GOODMAN said that Abderhalden had demonstrated that stimuli, whether experimental, physiological, or pathological, were capable of elaborating "protective ferments" in the blood. He first demonstrated the presence of a specific ferment during pregnancy and this promised to be the key to a vast, but as yet unexplored, field of seropathology. At the Beth Israel Hospital Dr. Beckwith and Dr. Goodman had tried the Abderhalden dialysis technique in various groups of sera obtained from clinical material as well as from animals, and it might be of interest to review their findings in a few of the cases of malignancy. The material had been limited at the Beth Israel Hospital and some of the specimens obtained elsewhere had become contaminated; the presence of hemoglobin in the serum was bound to give misleading results. As more data were collected it would be of intense interest to see how nearly the diagnosis of the presence of malignancy could be elicited, and it was to be hoped that the method would assist in establishing a diagnosis in those obscure cases in which it had been impossible to make a diagnosis by other methods. The series of cases comprised thirteen, of which five had been diagnosed as cancer of the breast, two as cancer of the stomach, and one each of the liver, rectum, face, and femur, There was also a retroperitoneal tumor and a case in which the diagnosis was doubtful. This had been considered a case of possible cancer of the uterus, but the microscopical report had not been made. The cervix had been removed and the Wassermann was positive. The patient improved under the administration of salvarsan. This was the only case in the series in which the serum test was negative; in all the others it was positive.

Dr. S. H. GEIST said that in the chemical laboratory of Mount Sinai Hospital Dr. Epstein and he had been investigating the Abderhalden reaction in pregnancy and had adhered to the technique described by Abderhalden, having been in personal communication with him regarding the work. Their results had been very discouraging, and he felt that other investigators must

have had similar experiences and hesitated to publish them because of fear of the criticism of improper technique. Losee and Jellinghaus, in a large series of cases investigated at the Lying-In Hospital, arrived at a technique which gave them very good results. A subsequent series with the same technique gave bad results. He did not believe that up to the present time the second series had been published. In relation to the test in carcinoma, Dr. Crohn, working in the laboratory of Mount Sinai Hospital, in a fairly large series of cases had very disappointing results. His early cases gave great promise, but the same technique extended to a large series of cases did not result very favorably. It seemed from their experiences that the poor results could not be attributed entirely to faulty technique.

Result of Three Years' Observation on a New Form of Cancer Treatment.—Dr. L. GRANT BALDWIN reported three cases out of twelve that had received 30 c.c. of serum intravenously. One or two of them felt faint after the injection. Two or three developed a severe urticaria which lasted about one week, but did not interfere with their regular work. The first patient had had an operation for carcinoma of the breast two years ago last June and since that time she had gained greatly in strength. He had never seen a case as bad as this left in such good shape after operation and the use of serum. In the second case there was a mass in the lower sigmoid and the gut was immovable, so much so that it was impossible to get beyond it. He thought it better to leave it alone and make an artificial anus, which he did. After reading Dr. Berkeley's article he placed the matter before the husband and consent to an operation was obtained. The patient had since gained twenty pounds and was in comparatively good health. The third patient had rapidly recurring cancer of the cervix. After the operation she was without recurrence for three years, when a rapid recurrence took place. She did well on serum for three or four weeks, when the serum seemed to lose its effect and she succumbed to the disease.

Dr. JOHN VAN DOREN YOUNG reported the case of a woman who started with recurrences two months after an operation on the right side. He took out nineteen nodules at one sitting. He then read Dr. Berkeley's paper, and with Dr. Beebe's help got the stock serum. The results were the most remarkable he had ever seen. There were thirty-five nodules under the skin which disappeared. No more nodules appeared after the first injection of serum. The patient left him because he would not guarantee a cure and went to Spain, where she died, probably of mediastinal carcinoma. The work of Drs. Berkeley and Beebe gave them food for thought and they should help these men in their work. Serotherapy was logical and they should give Dr. Berkeley every case not moribund to work on.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA.

June 10-14, 1913.

ANATOMY, PATHOLOGY, HISTOLOGY, AND BACTERIOLOGY.

1. Locate and describe the cecum.
2. Give origin, course, and distribution of the seventh nerve.
3. Describe the right and left subclavian veins
4. Describe the diaphragm, its principal openings and nerve supply.
5. Describe the mastoid portion of the temporal bone, and name the muscles attached thereto.
6. Name the ligaments of the hip-joint.
7. Relate the difference between a virgin uterus and the uterus of a multipara.
8. What anatomic parts are involved in the descent of the testes.
9. Describe the lesion found in the different forms of cirrhosis of the liver.
10. Give the gross pathology of amebic dysentery. Describe the organism giving rise to it and name the pathological condition of the liver often associated with it.

Answer only 8 questions.

PHYSIOLOGY AND HYGIENE.

1. What do you consider the chief difference in the function of epithelial and connective tissue?
2. Name classes of foods. (*a*) Which of these is alone capable of sustaining life? (*b*) What chemical element is usually spoken of as the chief characteristic of this one? (*c*) What per cent. of the molecule is composed of this element? (*d*) In the form of what substance is this element chiefly eliminated? (*e*) Where is this substance formed?
3. Name enzymes found in alimentary canal, place found, and function.
4. Give classification of white blood corpuscles and per cent. of each found in normal blood.
5. What is the fluid in muscle tissue called? (*a*) What is its chemical reaction? (*b*) How is this affected by fatigue? (*c*) By death? (*d*) Explain.
6. Trace circulation of blood through kidney.
7. Define Wallerian degeneration.
8. Give distribution of pneumogastric nerve and function in each locality. (That is state class of nerve in each locality.)
9. What is the significance of colon bacilli in drinking water?

MATERIA MEDICA AND THERAPEUTICS.

1. Mention the conditions which affect the dosage of medicines. Name the methods of introducing medicines into the circulation.
2. Give the physiological action of saline purgatives and their therapeutic uses.
3. Name the three most used preparations of opium and state how much of each represents one grain of opium. Explain the constipating action of opium.
4. Name an antidote for each of the following, and state whether this is physiological or chemical: arsenic, opium, copper, and strychnine.
5. State what remedies are used to reduce temperature. Explain how they accomplish this result, and describe how used.
6. What drugs would you use to stimulate the heart's action, to produce emesis, to control hemorrhage, to produce sleep, to relieve pain? Doses of each.
7. Name several drugs that render urine alkaline Give their doses. What class of acids would you use to acidify alkaline urine? Give an example. Give the composition of linimentum calcis and therapeutic uses
8. What is incompatibility in medicine, and what are the different kinds of incompatibles? Give an example of each.

CHEMISTRY AND DISEASES OF CHILDREN.

1. Describe the process of manufacture of chloroform, ether, and nitrous oxide, and express in equations the reactions respectively occurring in their formation.
2. Review briefly the theory of ions or of electrolytic dissociation.
3. The composition of normal urine represents the approximate equilibrium between the *acidic* and the *basic* end-products of metabolism. Name several food substances which contribute to the establishment of *acid conditions*, and several others which contribute, in like degree, to the establishment of *basic conditions*
4. What two sugars are especially concerned in the anabolism of the tissues? What organ converts levulose and lactose into glucose? How would you determine the limit of assimilation of the various sugars?
5. What are fats chemically? In what two ways do fats form in the organism? How is the composition of the fats of the diet affected in the process of digestion and assimilation? What is the significance of excessive unresolved fat and of fatty acid crystals in the feces? What is the final fate of the fat in the body?
6. State the general plan of the enzymotic hydrolysis of the protein molecule, and designate the form which the resulting products must assume prior to absorption and nutrification.
7. Discuss the properties, the relative merits, and the indications for using the various carbohydrates in infant feeding.
8. Describe Kernig's and Babinski's reflexes, and give their respective diagnostic value.
9. Describe congenital atelectasis, and state the best method of remedying the condition.

Answer any six of the foregoing questions

ANSWERS.

ANATOMY, PATHOLOGY, HISTOLOGY, AND BACTERIOLOGY.

1. The *cecum* is a blind pouch which forms the commencement of the large intestine. It is situated in the right iliac fossa, immediately behind the abdominal

wall, and above the outer half of Poupart's ligament. It may lie on or to the right side of the psoas muscle, or in the pelvis; and is of very variable size. Its length may be from two to four inches, and its width about the same. It is generally covered by peritoneum, and is usually freely movable. Its shape is variable, and it is generally classified under one of four possible types. From the cecum is given of the vermiform appendix. The ileocecal valve opens into the large intestine at the point of junction of the cecum with the ascending colon.

2. The *seventh or facial nerve* has its superficial origin in the upper end of the medulla oblongata, in the groove between the olivary and restiform bodies. It passes "forward and outward to enter the internal auditory meatus; it lies upon a groove on the auditory nerve, with portio intermedia of Wrisberg between, and at the bottom of the meatus it enters the aqueductus Fallopii, along which it runs first outward between cochlea and vestibule as far as hiatus Fallopii; then backward in internal wall of tympanum, just above fenestra ovalis, at the turn presenting a swelling, the geniculate ganglion; and finally it passes downward, to emerge from the bone at the stylomastoid foramen; it then passes outward and forward in the parotid, dividing behind the ramus of the jaw into temporo-facial and cervico-facial branches, which further subdivide and intercommunicate, forming the pes anserinus."—(*Aids to Anatomy.*)

It *supplies* the muscles of expression in the face, the muscles of the external ear, the Platysma, Buccinator, Stylohyoid, and the posterior belly of the Digastric.

3. The *subclavian vein* is the continuation of the axillary, and extends from the outer border of the first rib to the inner end of the clavicle where it joins the internal jugular vein, the two forming the innominate vein. At this junction the left subclavian vein receives the thoracic duct and the right subclavian vein receives the right lymphatic duct. The tributaries are the external, and anterior jugular veins. It is separated from the subclavian artery by the scalenus anticus muscle and the phrenic nerve.

4. The *diaphragm* is a musculofibrous septum which divides the thoracic from the abdominal cavity; it is fan-shaped; the broad elliptical portion is horizontal, and the crura are vertical. It is attached to the ensiform, to the internal surfaces of the lower six costal cartilages, to bodies and intervertebral substances of first, second, and third lumbar vertebræ. Its *openings* are: (1) The aortic, transmitting the aorta, vena azygos major, and the thoracic duct; (2) the esophageal, transmitting the esophagus, pneumogastric nerves, and some small esophageal arteries; (3) the opening for the vena cava, transmitting the inferior vena cava, and small branches of the right phrenic nerve; (4) the right crural, transmitting the right splanchnic nerves; (5) the left crural, transmitting the left splanchnic nerves and the vena azygos minor. —*Nerve Supply*: Phrenic, lower intercostals, and sympathetic.

5. The *mastoid portion of the temporal bone* is situated at the posterior part of the bone; its outer surface is rough and has several foramina, the chief of which is called the mastoid foramen and transmits a vein to the lateral sinus and a small artery to the dura. It is continued below into the mastoid process, on the inner side of which is the digastric fossa. The inner surface lodges part of the lateral sinus in the sigmoid fossa. The mastoid process contains the mastoid antrum and the mastoid cells. *Muscles attached*: Occipito-frontalis, sterno-mastoid, trachelo-mastoid, retrahens aurem, splenius capitis, and digastric.

6. The *ligaments of the hip-joint*, are: Capsular, iliofemoral, cotyloid, transverse, and ligamentum teres.

7.

VIRGIN UTERUS.	UTERUS OF MULTIPARA
The cavity is of normal length and triangular.	The cavity is increased in length, and oval.
The cervix is small, hard, and cartilaginous, and of the same length as the body.	The cervix is large and soft; it is about one-half the length of the body.
The external os is a transverse slit or pinhole orifice with smooth edges.	The external os is irregular and its edges are fissured.
The sides of the cavity of the body are convex inward.	The sides of the cavity of the body are convex outward.
The uterus is normally anteflexed.	The uterus is straighter, or even retrodisplaced.
There is more or less flattening of the anterior and posterior uterine surfaces.	The contour of the uterus is more rounded, while its diameters are increased.
The fundus is nearly flat.	The fundus is convex.
The internal os is closed.	The internal os is patulous.

(From Dorland's *Obstetrics.*)

8. *Descent of the Testes.*—"In early fetal life the testes are placed at the back part of the abdomen, below and in front of the kidneys, and behind the peritoneum. About the third month a peculiar structure, the gubernaculum testis, appears, attached to the lower end of the epididymis, and extending as a cord to the bottom of the scrotum. It is supposed to cause the descent of the testicle. It reaches its full development between the fifth and sixth month, at which time the testicle reaches the iliac fossa. It enters the internal abdominal ring by the seventh month, and the scrotum by the eighth month, carrying before it a fold of peritoneum, which is afterward shut off, forming the tunica vaginalis testis. Other coverings of the testicle are also derived in this manner. In the female a structure similar to the gubernaculum forms the round ligament." (Young's *Handbook of Anatomy.*)

9. The following table (from Thayer's "Pathology") will assist in distinguishing the two varieties of cirrhosis of the liver:

Synonyms. Charcot's, Hypertrophic, Unilobular, Hepatogenous, Biliary.	Laennec's, Atrophic, Multilobular, Hematogenous, Hob-nail liver.
Jaundice. Early and marked, bile often absent from feces.	Late and slight, bile usually present.
Ascites. Late and unimportant.	May be early; often enormous.
Spleen. Enlarged early and markedly.	Late and less.
Alimentary hemorrhage, piles. Not common.	Common.
Liver. Large, smooth, mottled, green.	Small, rough, pale or yellow.
New fibrous tissue. In fine lines and strands between acini and cells, involving all parts equally.	In broad bands, making prominent islands in which the single acinus may appear nearly normal; distributed irregularly

10. In *amebic dysentery:* "The lesions are chiefly seated in the intestine. They present: (*a*) Small gelatinous swellings of the mucosa, with partial ulceration; (*b*) Necrosis and sloughing of the underlying tissues. The ulcers of amebic dysentery thus have undermined edges. The amebæ are found in the ulcerating mucosa, but more abundantly in the tissues beyond the ulcerated area (submucous or muscular coat), where they set up edema and necrosis. Later, along with the ulcers, cicatrices, leading sometimes to partial stricture, may be found. Hepatic abscess, usually single, and hepatopulmonary abscess are common complications. Amebæ are sometimes found in the portal capillaries.

"The ameba is a rounded cell with a clear outer ectoplasm, and a granular endoplasm. It has a rounded or oval eccentric nucleus, and measures from 10 to 15 μ in diameter. In the warm stage it shows active ameboid movement. In the resting stage it forms a cyst or cysts, and in this state resists drying for a long time. The organisms are found chiefly in the large intestine, especially in the rectum and flexures, but they also occur in the ileum and stomach, and in the liver. They have the power of penetrating the tissues."—(Wheeler and Jack's *Handbook of Medicine.*)

PHYSIOLOGY AND HYGIENE.

1. The *functions of epithelium* are: Protection, secretion, absorption, special sensation, and ciliary motion.

The *functions of connective tissues* are: Support, connection, and protection.

2. Foods are classified as follows:

Inorganic { Salts / Water

Organic { Nitrogenous—Proteins / Non-nitrogenous } { Carbohydrates / Fats }

(*a*) Proteins.
(*b*) Nitrogen.
(*c*) About 15 to 18 per cent.
(*d*) Urea.
(*e*) In the liver.

3.

ENZYMES.	ORIGIN.	FUNCTIONS.
Ptyalin.	Saliva.	Changes starches into dextrin and sugar.
Pepsin.	Gastric juice.	Changes proteids into proteoses and peptones in an acid medium.
A curdling ferment.	Gastric juice.	Curdles the casein of milk.
Trypsin.	Pancreatic juice.	Changes proteids into proteoses and peptones, and afterward decomposes them into leucin and tyrosin in an alkaline medium.
Amylopsin.	Pancreatic juice.	Converts starches into maltose.
Steapsin.	Pancreatic juice	Emulsifies and saponifies fats.
A curdling ferment.	Pancreatic juice.	Curdles the casein of milk.
Invertin.	Succus entericus.	Converts maltose into glucose.

4. *White blood corpuscles are classified* as follows: (*a*) Small mononuclear leucocytes or lymphocytes, about 25 per cent. of the white blood corpuscles; (*b*) large mononuclear leucocytes, about 1 per cent.; (*c*) transitionals, about 2 to 4 per cent.; (*d*) polynuclears, about 70 per cent.; (*e*) eosinophiles, about 2 per cent.; (*f*) and mast-cells, about 0.1 to 0.5 per cent.

5. The fluid in muscle tissue is called muscle-plasma.
(*a*) Alkaline.
(*b*) Acid, due to development of sarcolactic acid.
(*c*) Acid, due to development of sarcolactic acid.

6. *Renal circulation.* "The renal artery, on entering the kidney, breaks up into numerous primary branches, which travel along the columns of Bertini, and are called the arteriæ propriæ renales. These divide at the base of the pyramids and form arches with their neighbors; these arches give off (1) branches into the cortex termed the interlobular arteries, from which the afferent vessels to the Malpighian tuft arise; the efferent vein from the glomerulus breaks up into a capillary network which ramifies on the urinary tubules in the cortex, and after an extended course joins the interlobular veins; the efferent vessels of the lowermost glomeruli break up into and surround the straight tubules; (2) branches downward into the pyramids running between the bundles of collecting tubes, and termed the vasa recta or arteriæ rectæ. The interlobular veins correspond with the arteries, and receive some veins termed stellate from beneath the capsule, and also the small veins which receive the blood from the minute plexus surrounding the convoluted tubes. The venæ rectæ run along the pyramids accompanying the corresponding arteries. The venæ propriæ renales pass along the columns of Bertini after having been joined by the interlobular veins and venæ rectæ."—(Ashby's *Notes on Physiology.*)

7. *Wallerian degeneration:* "When a nerve is divided the first result is a loss of its function. Inasmuch as each nerve-fiber develops from a cell which later nourishes it, if the connection between the two is severed the nerve-fiber undergoes Wallerian degeneration, and in the case of a nerve which is made up of nerve-fibers the whole nerve undergoes this change. This degeneration consists, in the case of medullated nerves, in the death of the axis-cylinder, the breaking up of the medullary sheath into drops of myelin, which are later absorbed, and the multiplication of the nuclei of the primitive sheath. In non-medullated nerves the only result is the death of the axis-cylinder. Degeneration begins very soon after the section—within a day or two—and throughout the entire severed portion of the nerve at the same time. Thus the course of a nerve, or a collection of nerves, may be traced throughout its entire extent. These changes are believed to be due to the severance of the nerve from its trophic center. If an anterior root of a spinal nerve is divided, the distal end, being separated from the gray matter of the cord which is its center of nutrition, undergoes degeneration, while the end which remains connected with the cord retains its integrity. If a posterior root is divided between the cord and the ganglion, the degeneration takes place between the cord and the ganglion; while if divided below the ganglion, the degeneration takes place in that portion separated from the ganglion, showing that the ganglion is the nutritive center for the posterior root." (Raymond's *Physiology.*)

8. *Distribution of pneumogastric nerve:* To dura, external ear, pharynx, heart, lungs, esophagus, and stomach. *Functions:* "Throughout its whole course the pneumogastric contains both sensory and motor fibers. To summarize the many functions of this nerve * * * it may be said that it supplies (1) *motor* influence to the pharynx and esophagus, stomach, and intestines, to the larynx, trachea, bronchi, and lungs; (2) *sensory* and, in part, (3) *vasomotor* influence, to the same regions; (4) *inhibitory* influence to the *heart;* (5) *inhibitory* afferent impulses to the *vasomotor center;* (6) *excitosecretory* to the salivary glands; (7) *excitomotor* in coughing, vomiting, etc." (Kirkes' *Physiology.*)

9. The presence of colon bacilli in drinking water is an indication that the water is polluted with sewage.

MATERIA MEDICA AND THERAPEUTICS.

1. *Conditions which affect the dosage of medicines:* Age, sex, weight, habit, idiosyncrasy, method of administration, mental emotion, preparation of the drug, cumulative action of the drug, and the presence of disease.
Methods of introducing medicine into the circulation: By mouth or stomach, hypodermatically, by inhalation, by the rectum, by inunction, by fumigation, intravenously, and intramuscularly.

2. *Salines* stimulate the intestinal glands to increased secretion, and by their low diffusibility impede reabsorption; this results in an accumulation of fluid in the intestinal tract, which partly from the effect of gravity and partly by stimulating peristalsis, causes a copious evacuation.
Salines are indicated in constipation, intestinal putrefaction, dropsy and to lessen the secretion of milk in nursing mothers.

3. Tincture of opium, 10 minims equals one grain of opium; camphorated tincture of opium, about half an ounce contains one grain of opium; Dover's powder, 10 grains contains one grain of opium.

4. *Antidote* for *arsenic*, freshly prepared solution of ferric hydroxide (chemical); for *opium*, potassium permanganate (chemical); for *copper*, potassium ferrocyanide (chemical); for *strychnine*, potassium permanganate (chemical).

5. The following table (from Potter's "Materia Medica") gives the chief antipyretics with their manner of action. Temperature depression may be done by five different actions working upon two principal lines, viz., by:

(*a*) *Lessening heat production, by*
- (1) diminishing tissue change,
- (2) reducing the circulation.

(*b*) *Promoting heat loss, by*
- (3) dilating cutaneous vessels, thus increasing heat radiation.
- (4) promoting perspiration — its evaporation lowering the temperature.
- (5) abstracting heat from the body.

The following list of antipyretics include a few for each of the above-named actions, to which the numbers refer in each case, viz.:

Quinine, 1.	Aconite, 2.	Antipyrin, 1, 4.
Phenol, 1.	Alcohol, 1, 3.	Antimony, 2, 4.
Salicin, 1.	Nitrous ether, 3, 4.	Cold Bath, 5.
Digitalis, 2.	Acetanilid, 1, 4.	Cold drinks, 5.
	Phenacetin, 1, 4.	Wet-pack, 5.

6. *To stimulate the heart's action:* Alcohol ʒss; aromatic spirit of ammonia, ʒj; nitroglycerin, gr. 1/20;

ether, ʒj; heat, applied over the heart; digitalis, extr. gr. j; citrated caffeine, gr. v; tincture of strophanthus, ♏v; strychnine sulphate, gr. 1/20.

To produce emesis: Ipecac, gr. xx; apomorphine hydrochloride, gr. 1/10; tartar emetic, gr. ½; zinc sulphate, gr. xv; copper sulphate, gr. iv; mustard and water.

To control hemorrhage: Wine of ergot, ʒij; adrenalin chloride, ♏v of the solution; fluid extract of hamamelis, ♏xxx.

To produce sleep: Opium, gr. ss; tincture of Cannabis indica, ♏x; alcohol, ʒj; chloral hydrate, gr. xv; sulphonal, gr. xv; trional, gr. xv; veronal, gr. vij.

To relieve pain: Opium, gr. jss to ij.

7. The salts of potassium, lithium, and sodium render the urine alkaline. Lithium bromide, gr. xv; lithium citrate, gr. vij; potassium acetate, gr. xxx; potassium bicarbonate, gr. xxx; potassium citrate, gr. xv; potassium bitartrate, gr. xxx; potassium and sodium tartrate, ʒij; sodium acetate, gr. xv; sodium bicarbonate, gr. xv; sodium, gr. xv.

To acidify the urine: Vegetable acids, in excess, acid sodium phosphate, or benzoic or salicylic acids.

Linimentum Calcis contains equal parts of lime water and linseed oil. It is used locally for burns.

8. *Incompatibility* is that relation between medicines which renders their admixture unsuitable. Incompatibility may be chemical, pharmaceutical, or therapeutic. *Chemical incompatibility* is seen in compounding an acid with a base, and forming a salt. *Pharmaceutical incompatibility* is seen in compounding a resinous tincture with an aqueous solution. *Therapeutic incompatibility* is seen when two agents are administered together which have an opposite action, such as belladonna and physostigma.

CHEMISTRY AND DISEASES OF CHILDREN.

1. *Chloroform* can be obtained by heating chloral hydrate with an alkali:

$C_2HCl_3(OH)_2 + KHO = CHCl_3 + H.COOK + H_2O$

Ether is made by the action of sulphuric acid on alcohol:

$H_2SO_4 + C_2H_5OH = H_2O + C_2H_5HSO_4$

$C_2H_5HSO_4 + C_2H_5OH = H_2SO_4 + (C_2H_5)_2O$

Nitrous oxide is made by heating ammonium nitrate:

$NH_4NO_3 = N_2O + 2H_2O$

2. *Electrolysis and Electrical Dissociation.*—"The molecules of many simple chemical substances, on being dissolved in water, are more or less completely split up or dissociated into two or more (generally two) parts called ions. This behavior of substances, on going into solution, is known as electrolytic dissociation or ionization. The substances which dissociate in this manner are all conductors of electricity, and are called electrolytes; those substances which do not dissociate are non-conductors. When a current of electricity passes through an electrolyte or its solution, the latter undergoes certain changes, which we group under the term electrolysis. The electrodes are the conductors by which the current enters or leaves the electrolyte. Under the influence of an electrical current the ions of the electrolyte migrate in two directions. Those ions which migrate toward and concentrate about the anode (or positive electrode) are called anions. Those which migrate toward and accumulate about the cathode (or negative electrode) are called cathions. Certain gases undergo ionization under the action of the ultraviolet light, Röntgen rays, radium rays or heat."—(Bartley's *Medical Chemistry*).

3. *Acid conditions* of the urine are caused by animal food, restricted fluid. *Basic conditions* are caused by vegetable food, milk diet, and a large amount of fluids.

4. The two sugars are cane sugar and lactose. They are converted into glucose in the liver. When sugar is not assimilated, the excess appears in the urine.

5. Chemically, *fats* are esters of glycerol with a fatty acid; most of them are mixtures of glyceryl tripalmitate, glyceryl tristearate, and glyceryl trioleate.

Fats are formed in the body from the food ingested, chiefly (1) the fats and (2) the carbohydrates.

In the alimentary canal the fat is split up into glycerol and fatty acid, these are absorbed by the cells covering the villi of the intestine and are here again converted into fat.

Excessive fat in the feces is an indication that more fat has been taken in than could be absorbed.

The fats are utilized in the body for the production of force or to be stored as adipose tissue to be used later; they therefore serve for the production or maintenance of heat and for the performance of work. The products of combustion of fat are CO_2 and H_2O.

6. During digestion the proteids are split up into proteoses, peptones, polypeptides and amino-acids. The amino-acids are believed to be taken as such by the epithelial cells and carried to the blood of the portal capillaries. Another view is that in the intestinal epithelium the amino-acids are built-up again into proteins such as are found in the blood. There are three theories of the further history of the proteids. According to one of them (the theory of Voit), "the protein of the tissues, living or organized protein, is to be differentiated from the absorbed circulating protein. It is only in this circulating protein, which is assumed to be present in the fluids of the body, the blood and lmyph, that catabolic changes take place. These changes take place under the influence of the living cells. The more resistant organized protein is not supposed to undergo catabolic changes. If any of it does, it is cast off into the fluids of the body, and thus becomes circulating protein, undergoing catabolic changes in precisely the same manner. It is obvious that a small part of the absorbed protein must be utilized to replace the waste of the organized protein and to subserve the process of growth. This portion is termed tissue protein."—(Lyle's *Physiology.*)

7. The various carbohydrates used in infant feeding are sugars and starches. Sugars, particularly lactose, are useful; but starches should not be given before the period of teething, as the infant is not capable of digesting starches until that time.

8. *Kernig's sign.* The patient lies on his back with the thigh at right angles to the body; he then tries to extend his leg and so bring it into a line with the thigh. In case of cerebrospinal meningitis this is nearly always impossible.

Babinski's sign. If the skin of the sole of the foot is irritated, there will be noticed extension of the toes instead of flexion. It is found in lesions of the pyramidal tract.

9. CONGENITAL ATELECTASIS. "This is a condition in which the alveoli of the lungs have not become filled with air at birth, but remain empty and collapsed. The child makes only faint efforts at breathing, the skin feels cold, and the temperature is only 97°F. The fingers and toes are blue, and the cry is faint; the child is unable to suckle; the pulse is hardly perceptible, and the fontanelle is deeply depressed. Auscultation reveals little air entering the chest, and at the bases and along the borders of the lungs vesicular sounds may be entirely absent. Percussion will give some dullness at the bases and along the borders of the lungs close to the spine. Cases of this severity live but a few hours, but many others, not so extensive, may, by energetic treatment, recover."

Treatment. "Artificial respiration; the warm bath; rubbing the back with whisky; dashing cold water on the chest, are the means used when the child is born apparently lifeless. It is very necessary that the body-heat be maintained, therefore keep the child in a warm room, and roll it in cottonwool. If unable to suckle, it must be spoon-fed, and it should get 5 drops of brandy in a spoonful of hot milk every hour. Stimulating liniments and the mustard-bath are also serviceable, and the inhalation of oxygen may be tried."—(McCaw's *Aids to Diseases of Children*).

(To be concluded.)

Multiple Subcutaneous Cysts in the Arms.—E. Cautley reports a case of a male aged seven months who was the sixth of the family, only one being dead. He had fits at intervals from the age of four days to eight weeks, and again last December. Apart from this he was reasonably healthy, though somewhat rachitic and ill nourished. "Lumps" were said to have been present at birth on the left and right arms and two on the back. They were described as having been purple and hard, and as having been called abscesses. They were also said to have gotten smaller. No new ones had appeared and none had been noted in the other children. There were several nodules, varying in size from a millet-seed to a pea, in the left arm, mainly from the shoulder to the elbow. The skin seemed adherent to the larger ones, but the others were subcutaneous. Two minute ones were present at the bend of the right elbow; on removal these were found to contain clear fluid. The two said to have been present on the back disappeared.—*Proceedings from the Royal Society of Medicine.*

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SOME PROBLEMS IN GENETICS.

BY THOMAS E. SATTERTHWAITE, M.D., LL.D., Sc.D., NEW YORK.

GENETICS is a branch of biology that embraces generation in all its aspects, and is deservedly attracting a great deal of attention. As physicians, however, we are more taken up with those phases of it that have to do with the propagation of normal human beings and of the abnormal through procreation. Both of these topics fall, directly or indirectly, within the scope of eugenics, a branch of genetics that is especially interesting us at the present time.

The principles of both, as the latter includes the former, were first emphasized by the laborious but illuminating studies of Lamarck (1809), Wallace and Darwin (1859) on evolution; Mendel (1866) and Galton (1897) on heredity; and in this country more recently by Dugdale (1878) and Davenport, Goddard, and Rosanoff (1911-12). The data furnished by these men and others of their colaborers on these or collateral lines have served to lay down certain general principles that have been successfully applied in the hybridization of plants and in the cross-breeding of animals. But though for various reasons these principles are not as applicable to human beings as to the lower forms of life, they may properly be utilized as bases for solving problems bearing on the legal regulation of marriage and the propagation of hereditary diseases.

Certainly any reasonable person will admit that marriages concern the community at large, sometimes as much as and often more than the contracting parties. Matings of any sort should therefore be amenable to some sort of regulation, whether by moral influences, legal methods, or by arbitrary authority as in the medical departments of our army and navy. In fact, eugenics has so close a relation to the well-being of society that laboratories are devoted exclusively to its study, an international congress has met to further its interests, and legislatures have framed laws to make its teaching effective. There are many illustrations at hand to show its importance, but the history of the notorious "Jukes" family,[1] familiar to many of us, gives an instructive picture of the appalling consequences of improper matings. I will merely outline it. Somewhere between the years 1720 and 1740, a hard-drinking backwoodsman of our State known to us as "Max Jukes," was the first in a family that up to the year 1877, either in direct or collateral lines, by marriage or cohabitation, numbered upward of a thousand individuals. Of these 709 were actually traced in the course of the investigation; 300 or thereabouts were computed to have died prematurely; 50 of the females were common prostitutes; 40 of the women had specific diseases, contaminating 440 persons; 60 were habitual thieves; 7 were murderers; while very many others were in various ways burdens on the State. When the inquiry closed, in 1877, it was estimated that the family had cost the State $1,308,000, or more than a thousand dollars apiece for each of the 1000 persons in whom there had been Max Jukes' blood, besides causing widespread degradation and the physical harm to the community that has been described.

The following history, however, is even more instructive, as it contrasts the results of unfit with fit matings. Back in Revolutionary times a man by the name of Martin Kallikak took advantage of a feeble-minded girl. Of their 480 descendants 143 were feeble-minded, the greater part of the number falling below mediocrity, while none of the remainder had any special ability. Later, Kallikak married a respectable Quaker girl, "of good ancestry," it is said. From this union there were 496 descendants whose histories were traced. All of these but two were normal mentally, and the two exceptions were not feeble-minded. In both the Jukes family and among Kallikak's first set of descendants the breeding seemed to be "true"; that is, the vices or defects of the parent were apparently transmitted to the majority of the offspring, while on the other hand Kallikak's marriage with the Quaker girl, after he had come to look at life from a different angle, was productive of children that were gifted with exceptionally good traits. Other somewhat similar family histories have been published, each teaching the same object lesson. But even from the recital of the two I have mentioned, the conclusion is inevitable that such calamities should in some way, if possible, be prevented, for the protection of society.

Let me now turn to another phase of this subject. As physicians, some of us have to face even more widespread results of ill-assorted matings, which, if they do not cause such obvious damages to society as those in the two families alluded to, add greatly to the sum of human misery. As we know, there are many infirmities that may be inherited, such as epilepsy, chorea, deaf-mutism, and various mental disorders. A person afflicted with any one of these who mates with another similarly affected will under certain circumstances transmit them to the offspring, who will in turn hand them down to succeeding generations. In fact, Karl Pearson[2] has claimed from his study of statistics that 75 per cent. of all deaths are due to inherited diseases. If in the further study of eugenics it can be shown that this percentage is even approximately correct, it ought to arouse physicians, parents, guardians, teachers, and friends to their duties, as such, in warning the public that there is always a greater likelihood that these diseases will be transmitted by such marriages than that they will not, certainly if Mendelian principles are correct. These dangers that Pearson has

*Read in part at the annual meeting of the American Therapeutical Society in Albany, N. Y., May 29, 1914.

pointed out, we have, however, been in the habit of disregarding. As a matter of fact, we are often and truthfully charged with even greater offences against human eugenics, as when we bring unfit infants into the world and afterward use our best efforts to keep them in it. And we increase the numbers of the unfit in proportion as our medical knowledge and skill develop. Unfortunately, too, for human eugenics, in so far as we help in the transmission of physical and mental defects, we will continue to offend so long as legal or moral laws prohibit us from doing otherwise. We are not yet arbiters between life and death.

Take an instance of our misconduct against eugenics: Dwarfism is a family disease; that is, in the ordinary course of nature it would become extinct, but is maintained by the intervention of a Cesarean or other life-saving operation. For under ordinary circumstances mother and child would perish simultaneously. The skilful obstetrician, however, steps in; the dwarf mother's life is saved, perhaps, and in addition another dwarf may be born into the world.

At this point let me briefly take up some of the salient points concerned in the matter of heredity.

First of all, we must realize that heredity, so far as it relates to the transmission of traits in plants and animals, is a matter that is far better understood than is human heredity. Following the line of investigations pursued by Wallace and Darwin, Mendel and others, and which were begun more than half a century ago, natural or haphazard selection for the purposes of propagation in plants and the lower animals gave place long ago to artificial selection, particularly among nurserymen and breeders of horses and cattle. Flowers can now be made to take on new colors, plants new contours and greater vigor; horses by cross-breeding can in a succeeding generation develop increased speed; milch cows can in a similar way be made to generate a progeny that will yield a phenomenal quantity or quality of milk. The marvelous ability shown by our own Burbank in making new species of plants has never, I presume, been excelled, and his work is still being successfuly prosecuted. But we humans very rarely have such results. We cannot control the factors. Nowadays we are seldom given the opportunity to select human mates, certainly not in this progressive country.

"Love is the tyrant of the heart; it darkens reason,
confronts discretion."

Nor could we, if we would, produce a new species of the genus homo, by grafting or any such mechanical means. Having seldom a free hand, and being unable to achieve the results of the nurseryman, because of the limitations of human capacity, human eugenics as applied to our matings has very restricted possibilities.

However, something may be done by us that is eugenetical, for, if we accept the laws of Mendel, we can tell in advance what the expectation will be as to offspring in fit and unfit matings, and to some extent the relative proportion of normal and abnormal under ordinary conditions.

Gregor Johann Mendel was an Austrian monk, and he is credited with having been the first to enunciate the laws of heredity. Versed in physics, mathematics, and the natural sciences, he studied the effects of crossing various sorts of edible peas in his monastery garden. Singularly, he appears not to have been known to Darwin, though his work was done between the years 1857 and 1865. He died without having received recognition for his discoveries, which were not made public until 1900, or sixteen years after his death. His laws or principles may be briefly stated in the following general terms:

1. Every organism, from germ-life upward, contains within it an aggregation of characteristics representing the several elemental traits that have been inherited from a previous generation. Each organism is therefore made up, as it were, of a mosaic of molecular elements. Among these are certain dominating characters, called by Mendel *determinants*.

2. On the other hand, there are also organisms of the same species in which this dominant type is either absent or deficient. This sort of organism, according to Mendel, represents a *recessive* type. It is defective in respect to the elements of the dominant type.

3. If a dominant is crossed with another of the same type, the succeeding generation will all be of the same dominant type.

4. But if one of the dominant type is crossed with another of the same species which has but a single recessive characteristic, the result will be that 25 per cent. of the succeeding generation will be of the recessive type, and 75 per cent. of the dominant type, though not in the same degree. In one the grade of dominance will be marked, but it will be less in the other two.

5. Again, if one of a recessive type mates with another of the same type, all of the succeeding generation will be of the recessive type, that is, defective.

These Mendelian doctrines have been tested with reference to the feeble-minded by Goddard, as to the epileptic by Davenport, and as to insanity by Rosanoff. The latter has further elaborated six possibilities with respect to the inheritance of either a neuropathic or normal constitution in the human being, in general accordance with his interpretation of Mendel's laws.[3 4 5] Thus,

1. If the parents are both neuropathic, all the children will be neuropathic.

2. If one parent is normal, but with a neuropathic taint from one grandparent, and the other parent is neuropathic, half the children will be normal, but capable of transmitting the neuropathic constitution to their progeny, and half will be neuropathic.

3. If one parent is normal and of pure normal ancestry, and the other parent is neuropathic, all the children will be normal, but capable of transmitting the neuropathic constitution to their progeny.

4. If both parents are normal, but each with the neuropathic taint from one grandparent, one-fourth of the children will be normal and not capable of transmitting the neuropathic constitution to their progeny, one-half will be normal but capable of transmitting the neuropathic constitution, and the remaining one-fourth will be neuropathic.

5. If the parents are both normal, one of pure normal ancestry and the other with the neuropathic taint from one grandparent, all the children will be normal, but half of them will not be capable and half will be capable of transmitting the neuropathic constitution to their progeny.

6. Both parents being normal and of pure normal ancestry, all the children will be normal and not capable of transmitting the neuropathic constitution to their progeny.

The following table, which has been copied from a recently published study of heredity in insanity,

based on seventy-two family histories,[5] shows the closeness of correspondence between actual findings and theoretical expectations according to the Mendelian theory:

Types of Mating According to Rosanoff's Six Types	Neuropathic Offspring		Normal Offspring	
	Actual Findings	Theoretical Expectation	Actual Findings	Theoretical Expectation
1	54	64	10	0
2	190	214⅓	239	214⅓
3	0	0	45	45
4	107	80⅔	215	241⅔
5	0	0	77	77
6	0	0	0	0
Totals	351	359	586	578

It will be noted from these tables that there is a remarkable correspondence in figures between the theoretical and actual findings; sufficient to impress the impartial reader that in respect to the neuropathic constitution, at least, transmission from generation to generation is in accordance with the Mendelian laws as here set down.

Rosanoff tells us also that about two-thirds of all the patients admitted to insane asylums have inherited the neuropathic constitution. That the converse is true has been shown in a very striking manner by tracing the descendants of the distinguished theologian, Jonathan Edwards, as given by Walter.

In further confirmation of the application of the Mendelian laws, Rosanoff has tested them by the records of the Kallikak family already alluded to[6] and has found in 502 individuals traced there was a lack of correspondence between the theoretical and actual findings in two instances only. The figures cited should therefore be taken as proof that the Mendelian doctrine of heredity has very strong evidence in its favor. To disprove them one would be called upon to show inaccuracies in the tables themselves, or else that analogous ill or good results sometimes follow good or ill matings.

It is a matter of satisfaction that eugenics has taught us how a defective strain can be gradually minimized by selective matings, at least so far as physical and mental traits are concerned, the rapidity of the elimination naturally depending, *ceteris paribus*, on the excess of normal dominating germ material entering into the matings. Burbank, indeed, is very optimistic in this respect. He says that if he could only carry out in the human species the Mendelian principles, more could be done for it in ten generations than would otherwise be done in a thousand years. The inference therefore is justified that the physical and mental traits of offspring can to a certain extent be determined before birth through artificial selection.

Within comparatively recent years we have been able to isolate the infecting agents of tuberculosis, gonorrhea, and syphilis. We have also found that the gonococcus has a field of activity which is not limited to the genitourinary tract, as was formerly taught, but that it may produce a systemic disease of great danger to life. So, too, the *Treponema pallidum* of syphilis remains a powerful agent for the infection in the third stage of the disease. And it seems as if the degree of infectivity in the venereal diseases, as with alcoholics and drug habitues, is proportionate to the morbidity of the one who transmits the disease. Consequently, it is only reasonable that persons wittingly transmitting the venereal diseases should be amenable to the law. More than this, in extreme instances it is for the common good that such persons be debarred from procreation. There can be no doubt that sterilization laws such as those of Washington, California, Connecticut, New Jersey, Nevada, Indiana, and New York, if designed to prevent propagation by confirmed criminals, idiots, imbeciles, and rapists, indicate progress in the right direction. The validity of such laws has been tested in the State of Washington, where in September, 1912, a decision as to their constitutionality was handed down by the Supreme Court, the court of last resort in this State for such matters.

However, according to a report in one of our daily papers, the Iowa sterilization law passed by the General Assembly, has been declared unconstitutional, null and void, in a decision filed June 24 of this year by Judge Smith McPherson, District Judge of the Southern District of Iowa. The opinion as stated is that "the statute is in violation of the United States Constitution in that it is in effect a bill of attainder, in that there is to be no indictment or trial; that the statute abridges the privileges and that he is denied equal protection of the laws; that he is denied due process of law; that the statute is in conflict with the Iowa constitution in that the statute denies the inalienable right to enjoy life, liberty, and to pursue and obtain safety and happiness; that there is no jury trial awarded him and that the statute provides cruel and unusual punishment."

This decision will naturally effect similar laws in other States, and the writ of temporary injunction applied for by the inmate of the State penitentiary enjoining the members of the board of parole, the warden, and the penitentiary physician from operating on him was granted.

To what extent these laws have been carried out I have not been able to discover. They certainly have met with great opposition within the ranks of both our own and the legal profession. The question is a medicolegal one. Legislation in this matter, to be effective, must appeal to our intelligent judgment; it must be reasonable in a legal sense.

Many of our State legislatures have also passed laws regulating marriage. There are such in Ohio, Washington, Connecticut, Minnesota, Kansas, Utah, New Jersey, North Dakota, and other States, and the public may be counted on to urge further action in States where there are no such laws.

At present such legislation is to a large extent ineffectual, because the contracting parties can easily cross over into adjoining States, or into Canada. Eventually, however, public opinion, the most powerful deterrent in such matters, will be aroused by the evasion of the law and will make its verdict felt in an unmistakable manner.

Unfit marriages are, as I have already intimated, not only a direct outrage on the offspring, but indirectly a crime against society, when as a result of them the unfit are born into the world. It is not a sufficient reason for neglecting such legislation, that the laws made may not adequately protect the community, for the mere fact that some sort of inhibitory legislation is on the statute books will call attention to its importance and the desirability of not infringing it. To make laws in conformity with present knowledge and requirements and then to alter them in the face of new or special conditions, as may be desirable for the public good, is sound legislation.

But we must remember that there should be no overregulation of marriage. Many will hold with McCready[7] (Medical Record, August 23, 1913),

that "many of the individuals to whom we are indebted for whatever is best in art, music, literature, and science have sprung from ancestors which by present-day standards would be judged unfit"; and with Groszmann that "in the worst of families there has been a sprinkling of perfectly normal individuals." These statements should, however, be very carefully weighed.

At all events, there should be no ill-considered, hasty, or impractical legislation. The recent Wisconsin law was very probably opposed by medical practitioners of the State because its medical provisions could not be carried out. The charge for the necessary physician's certificate as to the applicant's freedom from venereal diseases was limited by the law to $3, whereas a full examination for syphilis alone would ordinarily cost $10, and under some circumstances six times that figure, and even then no physician could affirm with absolute certainty that syphilis was absent. A law requiring such certificates will, as in the Wisconsin case, fail of its purpose. But on the whole this incident may have a salutary lesson, even if it merely calls attention to many of our modern laws which often seem to be made to be broken. Anyone who is familiar with such laws will bear me out when I say that they are very apt to be hastily conceived, badly drawn, and often hedged about with so many restrictions that they cannot be enforced.

However, the Supreme Court of Wisconsin has upheld its marriage law by a recent decision. The objections on the part of physicians were met by the extraordinary holding that even if physicians could not prevent unfit marriages owing to the inadequacy of the allotted fees they could at least protect society from the effects of such unions. The legal objections that it established an unconstitutional discrimination by requiring that only men must have a satisfactory record was met by an equally curious holding, that such a classification was permissible.

But notwithstanding such inappropriate legislation, the intention of the court was undoubtedly to make a move in the right direction.

And this statement leads me to say as a corollary that all legislation in medical and sanitary matters should first be passed upon favorably by medical organizations, qualified to act with authority in legislation of this sort.

Such appears to have been the course pursued by our representative in Congress, the Hon. Lathrop Brown, in the matter of the bill introduced by him, already referred to. It may be safely predicted that any such bill introduced into Congress will have little support there, at the present time, unless backed by the medical profession, through its representative bodies. Even if by any chance such a bill should pass and become a law, I believe it would prove inoperable without the concurrence of our profession.

Apropos of legislation on this subject Dr. Charles B. Davenport of the Carnegie Institute of Washington, in charge of the Station for Experimental Evolution at Cold Springs Harbor, L. I., says that most of the so-called eugenic laws are failures.

Holding that the problem of eugenics is only to be solved by gradual processes, he says we are investigating but as yet know very little of the laws governing heredity and feeblemindedness. We have, he says, a mass of information but it is not ready as yet to be put before the public. When that time arrives sensible laws can be passed.

In concluding what I have to say on the transmission of diseases through procreation and the regulation of marriage, I do not pretend that we have all the desirable data at hand to sustain any law of heredity and explain its exceptions. We stand on the threshold of a very difficult task, which will require plenty of intellect and money and special facilities for its elucidation. This much I will say, however; I believe that Mendel's principles or laws of heredity have been established firmly enough to serve as a basis for statutory regulations whose ultimate object will be to prevent certain persons with physical or mental defects being permitted to bring into the world offspring to deteriorate it and to be a sorrow to themselves.

But this is not all. In the evolution of the ideal man or woman, we cannot stop at perfection in physical or mental traits. Eugenics halts at the threshold of life. It goes no further. And yet it is here that the most essential attribute of mankind begins to be formed. This is human character, which develops after birth into what Galton has called "civic worth." It is the result of environment and training from birth up. The infant that is born into the world with a perfect physique and a brilliant intellect will be a defective and may some time or other become a menace to society, unless character is acquired. A Plato, an Aristotle, or a Washington might be born into the world ideal in mind and body, but he would certainly be more dangerous to society than an ordinary man, without the proper development of character. A nation composed of such citizens would have in it the elements of its own destruction. It would die as other nations have done; as Greece did, because the Greeks, with all of their physical beauty and intellectual attainments, lacked an essential—character. *Mens sana in corpore sano* is very desirable, but the ideal citizen should also have what Horace has described as *integer vite scælerisque purus.* Conversely, by superimposing on a physical defective character one of the world's greatest leaders may be developed. We have many examples to prove this. The Apostle Paul was one.

Without being either a psychologist or a neurologist, I will venture to say in conclusion:

1. That while human eugenics is still imperfectly understood, there are certain principles bearing on the transmission of traits by propagation that are tolerably well established.

2. These principles should first of all be popularized, so that the adult portion of society will realize the importance of fit and the dangers of unfit matings. With an aroused public appreciation of these matters, appropriate legislation will sooner or later follow and be made effective.

3. Uniform laws as to the regulation of marriage should be urged in every State, and also laws to prevent the transmission of diseases by diseased persons.

4. While the motto *Salus populi, suprema lex,* is true, legislators should only advocate laws that will accomplish satisfactory results without an unreasonable curtailment of personal liberty.

5. There is urgent need of further researches in the field of eugenics, in order to clear up misapprehensions and so allay criticism as to its civic value. But, as this work would necessarily involve the services of special medical experts, expenditure of large sums of money and unusual facilities, it should be relegated to the States or the general government, which could provide the men, money and opportunities, and accomplish the most at the least

expense. Reports from such sources would serve admirably as bases for the framing of appropriate laws, or for the amendment of those that have proved to be unsatisfactory.

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7 EAST EIGHTIETH STREET.

CHRONIC INTESTINAL STASIS.*

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CHRONIC Intestinal Stasis is a new term for its old, and timeworn synonym, constipation, with its attendant toxemia. From time immemorial this condition was held responsible for many ills human nature is heir to. Hence therapeutic measures consisting of castor oil, or enemas, or Carlsbad water, or buttermilk, or certain pills were credited with remarkable cures. In the past, constipated patients were benefited by pills of one kind or another, until the laity caught the trick and ceased going to the doctor for such a minor ailment, and themselves experimented with various pills, such as the ingenuity of the manufacturer could devise, or the druggist could suggest. As they all failed in the end and the doctor had to be consulted, the latter only varied the dose of this or that or other drug compound without any attempt at thorough investigation or even cursory examination.

It is only of late that we really have begun to understand the etiology of intestinal stasis. To this contributed the experimental physiologist, clinician, radiographer, and surgeon. Of the first the European gastroenterologists, Von Noorden, Boas, Strassburger, and most of all Adolph Schmidt, have contributed enormously to our knowledge of the exact physiology and pathology of the alimentary tract. Schmidt, for instance, has devised a test diet for intestinal function. This diet has been standardized and is fixed even as Boas's test breakfast and Riegel's test meal. When this diet is administered for three days, the motility of the intestines can be estimated as correctly as with the *x*-ray, especially when a few grains of carmine are added to the first meal whereby it is colored slightly red. From this can be calculated the time necessarily consumed under ideal dietary conditions. By examining a portion of the feces, it is at once revealed how the stomach, pancreas, liver, and intestines function; that is, whether they contribute their hormones which, acting through the blood stream, excite peristalsis. One can readily see its importance in the study of stasis. The study of every case, when possible, should begin with a functional test meal for the intestines. Schmidt found, for instance, that raw connective tissue is dissolved by the stomach only, that the nuclei of meat fibers are digested only by the pancreatic secretion. He deduced from his extensive studies that constipation is often due to a too thorough absorption of the fluid elements from the feces. He, therefore, suggested the use of agar-agar, a fluid-retaining and therefore bulky substance. The intestines must be properly distended in order that peristalsis may occur. The researches of Starling and Baylis also showed that intestinal stasis is due to a diminution of an internal secretion, which they called hormone, which, when reinjected into the body, causes peristalsis. He isolated this chemical substance largely from the spleen, and this has been used in ileus.

Later came the radiographer and objectively projected the passage of a bismuth or barium test meal, while at the same time taking note of the duration of its passage through the intestines. He was able to show to the naked eye the actual contortions of the intestinal tract and to our frequent amazement disclosed conditions unsuspected by clinical methods —gastroptoses, festooned colon, dilated cecum mobile and sigmoid, kinks, and adhesions.

More recently Sir Arbuthnot Lane has demonstrated what he believes to be the causes of chronic intestinal stasis. I do not wish to dilate on his contribution to our knowledge of this condition as the next speaker will probably deal with it more fully. I only wish, however, to say that surgery's contribution to our newer conception of satsis is indeed epoch making. Just as another surgeon's, Moynihan's contribution concerning duodenal ulcer enabled the clinician to retrace his steps, better to understand its pathology, and consequently treat this important affection more scientifically and more intelligently.

From a rather large experience with cases of stasis in our clinic, I have ranged the patients in several groups. First comes the school boy or girl, pale, prematurely old visaged, complaining of a dull headache, coated tongue, poor appetite; perhaps some palpitation, weakness, and pains in the joints. These always had trouble with their stomachs ever since they were babies. The second class comprises the young mothers, who date their troubles from their first child. They are nervous, losing flesh, with pigmented and blotchy skins, insomniacs. They were always well before the childbirth. The third class includes middle-aged people, who suffer from some concomitant organic disease, as gallstones, chronic appendicitis, pelvic disturbances, hemorrhoidism, etc., with constipation as a main complaint. The fourth class includes the aged and debilitated in whom, through misuse of drugs, the bowels have become almost paretic. It is evident, that a clear history from each and every sufferer from constipation will suggest its own line of treatment. A good history is a *sine qua non* of intelligent treatment. Having obtained this, we are confronted with the following symptomatology. Lane classifies these symptoms as primary and secondary. "The primary symptoms are loss of fat, wasting of the voluntary and involuntary muscles, degenerative changes in the skin associated with alteration in its texture and color. Subnormal temperature, especially in the extremities. The mental condition is one of apathy, stupidity, or misery. This may become exaggerated into a state of melancholia or even apparent imbecility. Headache is a very frequent feature and may render the patient's life unendurable. Rheumatic pains and aches in the muscles and joints, often in the skin, are present.

*Read before Mt. Sinai Clinical Society in a symposium on intestinal stasis.

The thyroid gland wastes. Blood pressure may be raised or depressed. Degenerative changes occur in the breasts in the upper and outer zones and cancer readily develops in this condition.

"The several organs prolapse and alter in shape, partly because of the loss of fat, partly because of the wasting of the muscle fiber. Dyspnea and degenerative changes in the heart muscles occur. The kidneys are liable to become affected by the abnormal strain thrown upon them. The hair of the head loses its color early in life and tends to fall out. The pancreas becomes infected directly by extension from stagnating contents of the duodenum. This results in chronic induration, chronic inflammation, and finally cancer of this organ. In similar manner the ducts of the liver and gall-bladder are infected and gallstones, cholecystitis, and cancer may be produced, besides many acute or chronic diseases of the liver. Those diseases of the eye which are degenerative in origin are produced by and varied with the degree of autointoxication.

"The obvious indirect changes are infection of the gums, causing the condition commonly described as pyorrhea alveolaris, tuberculous infection not produced by direct inoculation. Rheumatoid arthritis. This, like tubercle, cannot develop except in the presence of defective drainage of the gastrointestinal tract. Infection of the genitourinary tract, either directly or indirectly through the blood stream by organisms other than tubercle, producing nephritis, cystitis, pyelitis, endometritis, salpingitis, etc. Changes in the thyroid gland, whether adenomatous tumors, general enlargement of the thyroid, or exophthalmic goiter. Infection of the skin of a pustular nature, Still's disease. Infection of the large intestines by organisms, which produced the several varieties of mucoid and ulcerative colitis. Ulcerative endocarditis."

By pointing out his array of symptoms, Lane wished to impress the profession with the extreme importance of stasis, which to the laity as well as physicians appears of so little significance. To diagnose chronic intestinal stasis there are two courses open to the busy practitioner. First, to refer the patient at once to the radiographer, which to my mind is a deplorable tendency as it may lead to errors of judgment in treatment; secondly, to investigate by clinical and laboratory methods and then check the results by radiography and fluoroscopy; this seems to be ideal. As many of these patients are ambulatory and come to the office where there is no *x*-ray apparatus ready at hand, the question arises, what can we expect from physical examination? There is no doubt to my mind that the physical diagnosis of the abdomen is largely neglected, but when practised as carefully as over the chest or precordium considerable information can be gleaned. A physical examination alone will reveal an enteroptosis a dilated movable cecum, a tender spot at McBurney's point, a corded descending colon. Hayes and Jordan can even determine by physical means a dilated duodenum which they claim is indicative of iliac stasis. The diagnosis, as a rule, is not difficult.

The medical treatment of chronic intestinal stasis must perforce limit itself to cases where there is no clear evidence of definite organic disease, as ulcerations of stomach or duodenum, gall-bladder, or appendiceal disease. These cases should be referred to the surgeon. Again referring to Lane, he defines stasis as follows: "By chronic intestinal stasis I mean that the passage of food along the alimentary canal takes place with such slowness that there is formed an excess of toxic matter especially in the small intestines. Consequently the blood flow pours into the transforming and excretory organs a quantity of poison larger than they can eliminate. From this it results that all the tissues of the body, drenched in this blood rich in poisons, degenerate and offer a diminished resistance to infection. A defective drainage has consequences which are deleterious to the organism in general as well as to the individual tissues of which it is composed."

Having this conception clear in our minds, what can we do medically to reestablish a proper bodily drainage, so as to rid the organism of an excess of toxic substances?

All treatment nowadays must begin with efforts at prevention. We must begin with the school child or even with the baby. Boas speaks of improper bowel training. Many mothers do not know how to train their children at natural defecation. The bowel syringe put into the hands of some mothers has been a curse to many children. Too frequent recourse to it prevents a proper education of the rectal nerve apparatus and so we find the school boy or girl with all the toxic symptoms of stasis due to a dilated sigmoid. The education must begin with strict instruction to visit the toilet at a certain fixed time and that the slightest warning of nature should be peremptorily obeyed. The teacher should be apprised of the fact so as to facilitate the pupils' going out during the school session. Girls, especially, suffer from constipation because of lack of bodily activity, hence the systematic exercises instituted in our school system are highly beneficial to develop the abdominal muscles and diaphragm, which, in turn, influence to a great extent intraabdominal pressure. Dr. Sever demonstrated in a large number of children by means of the *x*-ray a very marked gastroptosis due to improper posture. In some cases the stomach lay in the pelvis. Hence in aggravated cases of stasis, children should be *x*-rayed and abdominal supports applied.

Diet is a most important factor in the restoration of the normal intestinal activities. Immigrant Jewish patients in particular suffer from a lack of fecal residue. The foods they consume are too thoroughly digested, leaving little waste matter, which cannot be propelled through the commodious lumen of the colon. They entirely abstain from vegetable diet. The physician who wishes to instruct Jewish patients in their use must not only be an experienced marketer, but also a trained dietician. I frequently have to write out the names of certain vegetables, explain their use, taste, and smell, and even give recipes for stimulating and appetizing salads. The Italians, on the other hand, consume immense quantities of fresh vegetables, and chronic intestinal stasis is comparatively rare among them, even among their women with large protruding abdomens resulting from frequent childbirths. Important as dietary measures, besides vegetables, are other foods, such as graham and rye breads with butter, pumpernickel, fruit; buttermilk, cider, and beer are useful for their qualities of fermentation. Fats are especially to be recommended in patients who suffer from enteroptosis. Salt stimulates the intestinal movements, therefore foods containing salt are indicated in this condition. Perhaps this is the reason why Jewish patients like herring so much, and others caviar. Sugar, especially milk sugar, has a marked tendency to increase intestinal peristalsis. Cold water taken on an empty stomach,

before breakfast, will stimulate the bowel movements. Patients should be impressed with the necessity of adhering to a strict dietary, specially written out or printed, and urged to persist in it for a long time.

We come now to the second class of cases, namely young mothers. They complain of constipation, headache, flashes of light, cold hands and feet, poor appetite, bad taste in the mouth, and occasionally also loss of weight. I have seen hundreds of these cases. They are suffering from Landau's disease. On examination their abdominal muscles are partially or totally atrophied and diastatic; there is a hollow between the ensiform cartilage and umbilicus, showing even superficially that there is an enteroptosis internally. Sometimes the right kidney can be palpated, thus confirming the diagnosis of intestinal prolapse of a mild degree. These patients are greatly benefited, in addition to a fat diet, by orthopedic supports. Massage and electricity, with a sinusoidal current would be well, but it is a waste of time to suggest it even, as the patients do not feel it is worth while to undergo such expensive treatment. In my experience with dispensary patients of this type, I frequently apply a Rose bandage, made of adhesive plaster, before I advise a regular elastic belt. The application of this is really in the nature of a test for a week or two. If they feel improved by wearing it they are advised to purchase some of the standard bandages.

Those of you who practise obstetrics to any extent must bear in mind the possibility of a beginning enteroptosis following labor and should advise a support as soon as the patient commences to move about.

The cases which in addition to the symptoms of intestinal stasis also show symptoms of organic disease should be treated medically for a reasonable length of time in an endeavor to cure the organic lesion. When this fails operation should be insisted upon as a cure for chronic stasis. The treatment of these patients is best carried out in a hospital. The presence of obstinate constipation with nausea, belching, anorexia, dating back for many years with occasional exacerbations, raises a suspicion of a gastroduodenal ulcer of an atypical kind; or occurring after an attack of colic, suggests a possibility of gallstones or adhesions. Granting that the anatomical basis for chronic stasis may be adhesions anywhere along the intestinal tract and knowing that inflammatory connective tissue is absorbable, why not treat the adhesions medically? Rest in bed, manual applications about the suspected regions, hydrotherapy, iodide of potassium may do a great deal for the patient. I have seen patients operated on for duodenal ulcer and gallstones and nothing was found, except some slight adhesions. Incision and drainage only increase the possibility of adhesions. Boas in a recent article says that the internist was accustomed to think surgically, and it behooves the surgeon now to think medically. Therapeutic measures of a medical nature should be exhausted before the knife is used.

The treatment of the fourth class will be dealt with under the heading of drugs. After all that is said and done, drugs are still the mainstay of medical practice. Other methods are only accessories and may be very essential, but drugs, wisely and discriminately used, are of the greatest help.

In administering drugs for the relief of stasis and its resulting symptoms one must bear in mind clearly the exact condition he is dealing with. Assuming then that the major symptoms are toxic in origin due to an excessive activity of the bacteria, and their action on protein, it stands to reason that the first necessity is to diminish the amount of bacteria in the intestines. No known intestinal antiseptic has yet been found efficacious in overcoming them. Metchnikoff's bacillus has some claim on us for its power to inhibit the growth and activity of intestinal bacteria. After a preliminary purge, I administer a five grain tablet of bacillus bulgaricus t.i.d. to be taken indefinitely. The next use for drugs is to keep up a steady, mild peristaltic action. This can be done only by increasing the natural secretions of the intestines and their adjacent organs, as, for instance, the liver and pancreas. The use of physiological preparations is rational. They stimulate the various organs to renewed function, thus supplying the protective substances against alimentary toxemia and indirectly stimulate peristalsis. In a recent symposium on the same subject we are discussing to-night, Dr. Saundby of England maintained that under physiological conditions the natural protective agencies in the alimentary system are sufficient to protect the body from the dangers of poisons, formed therein or those introduced with the food, provided these are not overwhelming in amount. Such morbid symptoms as arise may well result from a breaking down in the protective machinery, in consequence of functional defects.

Therefore, and from analogy of the thyroid gland, physiological products, such as inspissated oxgall, pancreatic gland extract, enterokinase, secretogen, etc., etc., may be used and should be given a trial. Of the other drugs that stimulate the glands of the intestines cascara is by far the most useful one.

The musculature of the bowels also needs stimulation, hence strychnine, eserine, and sometimes belladonna to relieve a spasmotic condition are useful. In our clinic, treating as we do hundreds of such patients, we have found of the greatest benefit a mixture of aloin, 4 grains; tinctures of nux vomica, physostigmine, and belladonna, of each 1 dram; fluid extract of cascara, 1 ounce. This is administered in 15 to 20 drops and the patient is instructed to vary the dose to his or her needs. The patients rarely get used to it, and when they take it for some time we frequently observe a restoration of natural intestinal function. Not infrequently have we found that after the administration of sodium bromide the bowels commenced to act naturally. The same was observed when giving a tonic of hypophosphites. The general nervous system must not be overlooked while we are endeavoring to influence the gastrointestinal tract.

The two most common seats of stasis are the cecum and the sigmoid. Where there exists a cecal stasis, agar-agar, dram 1-3, taken t.i.d., or with the breakfast food, has been found to be very efficacious. In stasis of the sigmoid, the main attack is to be centered on increasing the sensitiveness of the rectal mucosa. In this connection enemas have been most serviceable. Also electricity is important. Liquid paraffin and Russian mineral oil have been suggested. My patients disliked it and refused to take more than one dose.

This line of treatment cannot always be applied to dispensary or office patients, but I have applied it to some of my private patients, and not all of them got well. In those that did not recover, upon repeated examination I began to suspect chronic

appendicitis or latent gallstone disease. Several patients were operated upon and remained well after that. How much surgery can do for chronic intestinal stasis with or without bands and adhesions, is still a problem for the surgeon to solve.

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PARENTERAL NUTRITION AND ITS SURGICAL APPLICATION;

WITH SPECIAL REFERENCE TO THE USE OF GLUCOSE SOLUTIONS IN POSTOPERATIVE SHOCK.

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In the treatment of surgical shock, just as in the treatment of traumatic shock, the indications are to adopt those measures which may assist in carrying the patient through a crisis lasting from a few hours to several days. During this time the entire organism is subjected to a severe strain for which it is often poorly prepared. Surgical shock, in contradistinction to the traumatic variety, often finds the patient in bad condition, due usually to a combination of three causes. These are: First, the pre-existing disease; second, the nervous strain preceding the operation; and finally, the period of enforced starvation before the anesthetic. To these are added, during the course of the operation, the surgical trauma and the toxicity of the anesthetic.

All these causes of shock are recognized, and an attempt is made to overcome as many of these factors as possible, without jeopardizing the lives of the patients or causing them serious bodily discomfort. The search for a safer anesthetic is constant. Crile[1] has taught us that much can be done to reduce the nervous stress, both before and during the operation, and the attempt is always made to put the patient in good physical condition before undertaking any operation of choice. The nutrition of the patient, however, during this period of intense cellular and nervous activity, has been neglected. This is especially true in those operations of necessity, where the condition of the patient is such that immediate operation is desirable, and there is often a state of malnutrition, due to the effect of the disease on the alimentary canal.

It is not uncommon to see, even in patients who are well able to digest and assimilate food, a period of enforced starvation preceding the operation, which may be drawn out to eighteen hours or even longer. If we add to this the period after the anesthetic, during which the patient is unable to take nourishment, we see that in many cases otherwise doing well the period of starvation may easily extend to forty-eight or seventy-two hours. This is probably of little import in a healthy adult who has reserve stores of nutritives scattered throughout the body, but in the patient already weakened by infection and defective assimilation this becomes a matter of great consequence, and, conceding the kinetic theory of Crile, the combined injury to the nerve cells may be so great that they are not able to regenerate; the patient, no longer able to respond to the stimuli, succumbs to the infection.

The injury caused by starvation theoretically acts in a number of ways to cause injury to the central nervous system. First, it deprives the cells of certain elements which are derived from the food, and which are carried to them by the blood stream (whether the food is absorbed directly by the nerve cells or is first changed in character at some other point is not important, the ultimate result being the same); second, it adds to acidity of the organism, which in itself (according to Crile) acts as a direct injury to the cells of the nervous system. (The presence of an acid intoxication following operation is recognized as occurring after more than half of all operations); third, it deprives the blood of chemical substances, which act as detoxicating agents on absorbed poisons. The conjugation of sulphates and glycuronates is the best known example of this action. There are probably other injuries to the nerve cells which may be directly or indirectly traced to starvation, but the above are the ones which are well recognized and serve to emphasize the points which I am most anxious to bring out.

It is desirable then, especially in that class of patients who are already poorly nourished, to take some measures to overcome the lack of food material in the circulating blood. Secretan[2] has recognized this and has emphasized the importance of food given shortly before operation, in the prevention of surgical shock. He asserts that it is usually safe to give some easily digested food from two to four hours before operation. There is, however, a large class of operations which do not permit of feeding by mouth for a considerable period before or after operation. These are in general the operations on the gastro-intestinal canal, and other abdominal operations, and it is especially these cases I am discussing. However, much that is true of the laparotomies is likewise just as true in other operations where shock is apt to be severe. The elimination of this particular element in the causation of shock is to be found in parenteral nutrition.

The term "parenteral nutrition" was coined about ten years ago to indicate any form of nutrition which takes place without the intervention of the intestinal canal. That is, practically, direct feeding of the body cells by substances introduced into the blood stream. There have been many recent advances in our knowledge of this subject, and it is the desire to present the more important experimental facts and to indicate their clinical significance that has led to the preparation of this paper. In parenteral nutrition to a much greater extent than in oral feeding it is necessary to determine what type of food is most adaptable to the organism and in what form this food should be given.

Proteins.—For a long time it has been firmly believed that protein substances injected directly into the blood stream act as cell poisons. This is, in the case of some proteins, undoubtedly true, yet one has only to point to the many successful transfusions of human blood and the injections of therapeutic serums to indicate the limitations of this statement. However, it was not until recently believed possible to maintain an animal in nitrogenous equilibrium solely by means of subcutaneous injection of nitrogenous material. While this subject is in the experimental stage, and is not applicable at this time to the human organism, yet the work done has proved so interesting, and its results may be so far-reaching that it may be profitably described in some detail. Henriques and Anderson[3] are responsible for our present conception of protein parenteral nutrition. They have recently published results of experiments, in the course of which animals were kept in nitrogen equilibrium and gained weight for a period during which they were fed entirely by means of nutrients injected directly into the blood stream. They reasoned that, contrary to the gen-

eral belief, the end products of protein digestion (the animo-acids) were not built into more complex proteins during their passage through the wall of the intestines, but that the change took place at some other point, and that animo-acids could be synthesized in the same manner when injected directly into the blood stream. This hypothesis was based on the work of Folin and Denis, who proved the presence of animo-acids in the blood after the injection of large amounts of protein food.

Henriques and Anderson injected a solution consisting of muscle protein (previously subjected to the action of trypsin and erepsin) together with sodium acetate, glucose, and inorganic salts. During a period of eighteen days, in which nothing was given by mouth, the animal not only remained in nitrogen equilibrium but actually gained weight. This experiment proved that both sugar and acetate can be burned when injected directly into the blood stream, and that the nitrogen so given is sufficient to supply the body needs over a considerable period of time. Goats and dogs were used in the experiments and the solution was given through a permanent canula introduced into the jugular vein. The fluid was slowly introduced during the entire twenty-four hours. Beef and veal were the source of the nitrogen, and the caloric needs were supplied by glucose and sodium acetate, in the proportions of 10 grams and 38 grams to the liter. Finally a mixture of chlorides was added, equivalent to about 1 per cent. This solution varied slightly, the glucose and sodium acetate being decreased as the nitrogenous content was increased. Part of this sugar (16 to 40 grams) was excreted by the kidneys, and there was a slight increase in the ammonia nitrogen in the urine. About 80 per cent. of the nitrogen was excreted as urea. From these experiments it must be accepted as proved that the end products of protein metabolism can be built up again without having to pass through the intestinal wall. Moreover, they give very definite proof of the ability of the animal body to assimilate and burn up glucose when injected directly into the blood stream.

I have never known of an attempt to nourish man by means of the injection of nitrogenous materials. This may be accomplished in the near future, but it is a problem of great complexity and should be approached only with extreme caution.

Fats.—In 1895 von Leube[4] injected butter fat into a dog previously brought into nitrogenous equilibrium, and noticed a gain in weight during a period of six weeks. During this time 1400 grams of fat were injected. From his experiments he concluded that butter fat could be stored in the animal tissues, and later utilized as food. Winternitz working with olive oil decided that fats were absorbed too slowly to be of any value as a food. Henderson and Crofutt[5] also decided that in cases of malnutrition in dogs fats were absorbed too slowly to be of value. Mills[6] in a more recent report found that in a patient with pulmonary tuberculosis certain fats could be injected without causing irritation or other bad effects, and that during starvation they were absorbed in sufficient quantities to furnish one-half to two-thirds of the total caloric requirements. He recommends oil of lard, cocoanut oil, peanut oil, etc., made into an emulsion with egg lecithin, as being the least irritating and most satisfactory form in which oils may be injected. It is possible that in cases of malnutrition, due to the mechanical inability to assimiliate food, some such method may find application.

Sugar.—Of all the carbohydrates the sugars are the ones most easily adapted to parenteral nutrition, and this discussion will be confined entirely to the use of sugar in some form. In every case glucose is the sugar used, and, unless otherwise stated, when sugar is mentioned glucose is the form of sugar referred to. Lactose, maltose, and saccharose are utilized only to a very slight extent and should not be used in acute or subacute conditions. The use of sugar intravenously is of comparatively recent origin. Bonny[7] in an article on the use of glucose solutions in acidosis, says that Barlow recommended glucose solutions by infusion as early as 1895. More recently Kausch[8] and Berends[9] have recommended glucose in surgical conditions. This work was apparently original with Kausch, although sugar has probably been so used before. He gives the sugar subcutaneously in from 2 to 5 per cent. solutions, and intravenously in higher concentration, usually 5 to 7 per cent.

Is sugar utilized by the body when introduced directly into the blood stream? In the opinion of the majority of clinicians who have used this method of treatment, there can be no doubt that the food thus given is of extreme importance in the nutrition of the patient. Patients look and feel better, and seem to have more resistance than when the nourishment is dependent entirely upon rectal feeding. An appreciable amount of food may be given by this means during the course of twenty-four hours, often as high as 100 to 120 grams of glucose can be given, representing approximately 400 to 500 calories. In addition to clinical evidence, laboratory results favor the hypothesis that glucose solutions given hypodermically are utilized in the same manner, and practically to the same extent, as are the same solutions when given by mouth. In the first place the sugar disappears in the human body. Thannhauser and Pfitzer found that in the normal individual the injection of 35 grams of sugar during a period of fifteen minutes causes an immediate increase of the sugar in the blood from .08 per cent. to about double that amount. In spite of this the urine contained only small amounts of sugar. In patients under treatment it is rare to find more than 2 to 5 per cent. of the injected sugar in the urine. If the sugar disappears there are only two possible explanations for its disappearance; either it is burned up in the body or it is built up into higher compounds. Cohnheim,[10] and Gigon and Massini[11] have brought forth experimental data tending to show that isolated muscles, and some other tissues, contain an enzyme which permits them to utilize sugar directly, while Levine and Meyer[12] believe that the latter explanation of the disappearance of sugar when mixed with muscle is the more probable one. However, the experiments of Henriques and Anderson, already cited, prove conclusively that, in a living dog, injected sugar solutions are burned up and serve as sources of energy and heat.

Even more striking are the calorimetric experiments of Vezar and von Fejer[13], who demonstrated that the respiratory quotient rose in the same manner after the injection of glucose as after its administration per os. They injected 134.5 c.c. of a 10 per cent. solution into a normal dog and found that the respiratory quotient rose from .736 before the injection to .890 immediately after it. This proves that glucose is oxidized when introduced into the circulation of a normal dog, and reasoning by analogy, a similar oxidation occurs in man.

Glucose, then, fulfills the requirements of a soluble nutritive that, in an emergency, can be injected into the blood stream furnishing at least a portion of the necessary caloric needs of the human organism. Moreover, sugar solutions have other indications, and this is especially true in the condition of surgical shock. They act mechanically, filling up the blood vessels and thus acting as a stimulant to the heart; they decrease acidosis, and thus put the organism in a better condition to recover from injury; they act on certain toxins to form conjugate glycuronates which are nontoxic; and, it is possible, if not probable, that they act as a direct tissue food to the cells of the heart muscle and of the central nervous system, thus enabling them to regenerate more quickly after injury. Kuhn[14] believes that sugar solution acts as a prophylactic against thrombosis, and that the bactericidal

Effect of glucose on the respiratory quotient in a normal dog (134.5 cc of 10 per cent. glucose solution by infusion between 12.10 and 12.50). From Vezar and Fejer.

properties of the blood are increased when the blood sugar is increased. Bainbridge at the New York Polyclinic gives glucose by hypodermoclysis during every severe abdominal operation, with excellent clinical results. Crile, in a personal communication, says that a solution of glucose is frequently given intravenously at the Lakeside Hospital in Cleveland. Personally I have given glucose to a large number of patients and have never seen a bad result. The pain is no worse than after saline; sloughing does not occur, and the clinical result is immeasurably better than when saline solutions are used.

For practical purposes 4½ per cent. solution of glucose in distilled water is an isotonic solution. If the glucose is added to saline or sodium carbonate it is necessary to decrease the strength of the sugar solution to correspond to the increase of the other constituents. However, if given slowly, a 5 per cent. glucose and ½ per cent. sodium carbonate solution, although hypertonic, may be given with perfect safety.

Conclusions.—(1) Parenteral nutrition, although theoretically possible, has not as yet reached that stage of development which will permit of the total nourishment of the individual over even a short period of time. (2) Glucose solutions may be injected into the blood stream in sufficient quantities to furnish for short periods a large portion of the carbohydrate requirement. (3) Both the clinical results and experimental data available indicate a more general use of glucose solutions during and immediately following all those operations in which there is apt to be considerable postoperative shock, or in which postoperative feeding by mouth is difficult or impossible.

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WHY YELLOW FEVER IS ENDEMIC IN THE TROPICAL AND ATLANTIC REGION.

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NOTWITHSTANDING the researches of the American, French, and Portuguese Commissions for the study of yellow fever, and the no less important investigations of Otto, R. O. Neumann, Finlay, Reed, Carrol, Agramonte, Ribas, Lutz, Marchoux, Salimbeni, and Simond, carried out on man, the reason for the endemicity of yellow fever is still unknown.[1] Even supposing that it should be possible to demonstrate that this fever is produced by a microorganism, perhaps of ultramicroscopic nature, or any other parasite capable of developing in the body of a stegomyia and of being transmitted through this mosquito, yet the problem of the endemicity of yellow fever would still be unsolved. The presence of *Stegomyia fasciata* in a given locality does not explain the existence of this endemic malady, because many localities in the tropical and sub-tropical zone are known, where the *Stegomyia fasciata* exists, and yet cases of yellow fever are not observed.[2] The three necessary conditions to the production of a great outburst of yellow fever are: the presence of the first case (containing the active yellow fever germ), the conveyers (mosquitos), and the favorable climatic conditions. The yellow fever germ, whatever its nature may be, belongs to the general flora or fauna of the Atlantic and American tropical region, in the same way as certain vegetable and animal species, for example, the *Coccoloba uvifera* or the *Cathartes atratus*, which are macroscopic organisms, belong exclusively to the same region. The experimental investigations I have carried out in Caracas, Venezuela, tend to explain the endemicity of the malady, that is to say, the climatic conditions necessary to the production of yellow fever and to its rapid propagation as an epidemic outburst when repressive sanitary measures are not employed.

These favorable climatic conditions for the production of the disease, as it may readily be imagined, do not confine themselves to the physical and meteorological influences supposed necessary for the propagation of the yellow fever germ. For the

production of a severe case of yellow fever, to its complete development and fatal termination, that is to say, to the entire pathogenesis of the disease, the presence of a specific substance of intestinal origin is indispensable. This substance, which I have called cholerythrogen, is produced in the intestine of the great majority of people who live in the tropical and Atlantic region where yellow fever is endemic. It is to be found in the feces and urine of many apparently normal persons, I mean to say especially in the apyretic state. This substance belongs to the chromogen class, yielding by acid hydrolysis a purple coloring matter, cholerythrin, which must be considered in this region as the corresponding pigment of the uroerythrin of the temperate zone. The cholerythrogen associates itself with the urobilinogen and the lime to form a granular concretion, similar to the ordinary intestinal sand, which I have called fecal carcoma on account of its resemblance to the dust made by the wood-louse. This special intestinal sand, which is easy to detect, is to be found in almost every specimen of human feces of the Atlantic and tropical region; and while certain feces contain the fecal carcoma in little quantity, even only in traces, it may be extracted from others in amount up to 4 or 5 grams in 24 hours.

I have made a special study of the fecal carcoma and of the cholerythrogen it contains. I cannot describe here all the investigations and experiments I have performed to discover its physical and chemical properties, its spectroscopic appearances, its quantities in the urine, its bacterial origin, and finally the functions it plays in tropical pathology. Five chapters of a book I have published are devoted to this important subject.[3]

Here I can refer only to some characteristic properties which cholerythrogen presents and which justify considering it as a specific substance, not yet described. It exhibits the phenomenon of *red oxidation*, that is to say it develops an intense carmine color when it is heated for a short time with a 5 per cent. watery solution of caustic soda in the presence of air. Oxygen is indispensable to the production of the coloring matter, and the phenomenon itself is so singular and so brilliant that this reaction makes the cholerythrogen an unique substance in physiological chemistry. This reaction enables the substance to be identified with ease, particularly when it appears as granules deposited in the tissues. Hydrolysis with hydrochloric acid makes the cholerythrogen yield a purple coloring matter, cholerythrin, similar to the uroerythrin of the temperate zone, and as specific as this, with its characteristic and spectroscopic properties. Similarly to uroerythrin, ammonia and alkaline carbonates make it turn successively blue, green, and yellow; later this last color becomes yellowish brown by oxidation. This substance presents, however, only one spectroscopic absorption band, while uroerythrin gives rise to two. It is very interesting to note at this time, on account of its great biological bearing, that in many years of experience I have never found uroerythrin in the urine of the tropical region referred to.

The substance I have already described with the name of cholerythrogen plays an important part in the pathogeny of yellow fever. When histological examination of the kidney, liver, and spleen is made in a fatal case of yellow fever, it is easy to detect in the organs that a great number of microscopic granules infiltrate the tissues, even in the interior of the cells themselves. The microscopic aspect of the specimens presented to the Venezuelan Academy of Medicine gives the impression that a true overflow of pigmentary granules has inundated the tissues. These facts have been established by two Venezuelan physicians: J. G. Hernandez, professor of histology, and F. Guevara Rojas, professor of pathological anatomy at the University of Caracas.[4] It is exclusively in yellow fever that this invasion of pigmentary granules and the fatal anuria appear associated to such a degree as to demonstrate that there is some causal relationship between the two phenomena; especially if it is remembered that there always exists an intense albuminous degeneration of the epithelium which goes on to obstruct the lumen of the renal tubules. After a series of concordant and differentiating reactions I have established the fact that these pigmentary granules are not composed of melanin as it was supposed at the beginning, but of true cholerythrogen. Therefore, the assistance of a substance of intestinal origin in the production of yellow fever in its most dreadful manifestations must be considered as an established fact.

This particular substance, produced in the intestine by the activity of specific bacteria which grow in the tropical and Atlantic region, intimately but not exclusively related to yellow fever, must be considered as a climatic substance, that is to say, a substance foreign to the human organism and to the activity of its cells, otherwise it ought to be found in any locality of the world.

Reasoning along these lines, uroerythrin must also be considered as a climatic substance, that is to say, a substance produced by certain bacteria which are restricted to the temperate zone and therefore independent of the human body, because there are certain regions of the earth where it is not found.

This conception of climatic substances, thus established, is of great importance for the general biology, from a theoretical point of view, and is also of practical interest in medicine. The extreme complexity of biological phenomena makes scientific judgment more critical in physiological or pathological chemistry when a fact must be definitively established. To prove this assertion it will suffice to state that to establish the exclusively intestinal origin of the urinary indoxyl more than one hundred experimental contributions and memoirs have been necessary, and even to-day some points related to this question remain in darkness.

It is a fact that uroerythrin increases remarkably in the urine after prolonged muscular exercise and strong sweats, in rheumatism, heart and pulmonary affections, digestive troubles, etc. It would require a great deal of experimental work to establish the exclusively intestinal origin of uroerythrin under such circumstances as all these are; but the fact that uroerythrin is a climatic substance, that is to say, that there are some localities in the world where this urinary pigment is entirely absent and is replaced by another one of equivalent value, makes the solution of the question a very simple one.

The medical interest of this fact is of no less importance. If it can be admitted that a climatic substance is endowed with certain toxic or pathogenic power as it has been said, and as the matter has been established for other substances of intestinal origin (paracresol or indol by Metchnikoff[5]),

the role that fecal absorption of climatic substances plays in the special pathology of certain localities becomes of the utmost importance, and explains the production and non-existence of maladies in certain regions and also the variations in their symptoms. As an example of the significance of this subject in relation to the knowledge of the nature of certain maladies I will refer the absence of rachitis in certain provinces of Japan,[6] its absence in all the territory of Venezuela, and also the absence of coma diabeticum in this last country. The constant absence of diacetic acid in the urine of diabetics explains sufficiently the absence of the fatal coma referred to. The whole anomaly may be fundamentally related to the absence of certain bacteria in the intestinal flora, specially the butyric acid germ.

The relations between the chemical and bacterial phenomena in the intestinal tract on one side, and the pathological variations referred to on the other, suggest an entirely new method of investigation, which the author has employed with advantage in establishing the pathogeny of certain maladies, like that of diabetes, whose nature remains unknown at present.

In the case of yellow fever it is not possible to establish what relation exists between the climatic substance of bacterial origin and *Stegomyia fasciata*, but the fact that this mosquito grows near human habitations and the observation of Reed whose success was greatest when he added fecal matter to his breeding jars are very suggestive.

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221 WEST SIXTEENTH STREET.

THE INTERRELATION OF THE EX-INTERN AND THE HOSPITAL.

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VISITING PEDIATRIST, METHODIST EPISCOPAL AND THE BUSHWICK HOSPITALS; CONSULTING PEDIATRIST, WILLIAMSBURGH, SWEDISH AND ROCKAWAY BEACH HOSPITALS AND THE INDUSTRIAL HOME FOR CHILDREN.

IN every realm of human activity and thought it is common to find that rapid advancement is made at the cost of known values. With the substitution of the new for the old, of the up-to-date for the out-of-date, there comes the relinquishing of things that were useful and had valued associations. And occasionally things are laid aside which make us stop and question for the moment as to whether the new is really an advancement. Coincident with the demands of higher education in medicine and more practical knowledge of its details, hospital internship became a desirable though not an essential step in the physician's advancement.

With the enlarging possibility of an internship in view, the need of the instruction and influence of the preceptor in medicine became supposedly less marked and more perfunctory. Not that the need was less, but the attitude of the student became less dependent and more intolerable. Then with the lengthening of the course of study and the more stringent requirements for admission, there occurred the gradual passing out of that most valued factor in medical education. In medicine, the study of men necessarily precedes the study of the scientific application of modern methods in diseases and the opportunity formerly offered to students of seeing patients with their preceptor and observing the solution of the problems thus met was a valuable preliminary training. The relation of the physician to his brethren, the principles of professional etiquette, the duty of the doctor to the public, and the way truly to serve were all early inculcated into the mind of the young student and became a part of his life and study. The graduate of to-day lacks in this instruction; the personal side of the physician's art is to him an unexplored field. Even internship in a hospital has not proven a satisfactory substitute because the relation of the intern to the hospital and the hospital to the intern has been more material than personal; more necessitous than mutually helpful.

Before we can deal with the ex-intern we must of necessity deal with the intern, and what are the facts? The appointment of an intern is usually an arrangement of expressed and implied contract. There are certain particulars of the agreement which are averred and mutually agreed upon and this is the express contract. But there are other particulars which may arise because of the relations of the parties and which may be brought into existence without previous knowledge or volition and by implication create an agreement which constitutes the implied contract.

Practically all hospitals require of an intern unusual skill, unusual character, and one or more of the best years of his life. That he is required to possess unusual skill is proven by the scheme of competitive examinations which are held to determine that point. As to his character, requirement is practically always made that certificates of such be filed with his application for examination. By merely accepting the position offered, the applicant impliedly contracts with the hospital that he has such skill, science, and information as will enable him judiciously and properly to perform the duties of that position. But while this unusual demand is made upon the applicant and there exists his implied contract of capability to meet the unusual conditions, there should be no lowering of the standard. Any change must be in the line of greater restriction, and should mean real advancement.

The examination of the applicant should be more personal; it is not sufficient that he prove himself a trained scientist. The influence of the hospital while largely medical is not wholly so and its staff should be qualified in those other characteristics which further the influence which is not strictly medical. This is partly met by the usual custom of the examining board marking a man's fitness. But the method is all wrong. Doctors are not adequately equipped by training to "size up" a candidate. One or more good members of the appointing board, that is, men trained and skilled in the estimation of a man's worth for a place are of more real service than an indefinite number of doctors.

And if this suggestion was really acted upon in co-operation with the examining board, there would be a lessened number of men classed by the attendings as "unfit for further service" at the end of their internship; a serious situation for any young man.

In marking a candidate's fitness, the individual members of the hospital staff are very likely to be influenced by the standing of the applicant in the technical examination, his alma mater, and the importunities of his friends. Therefore the marking of the candidate's fitness by the medical staff is often unsatisfactory and not for the best interests of all concerned. A more nearly perfect scheme and one that is at least worthy of an extended trial would be an arrangement between the board of directors or managers and the medical colleges whereby the faculty of the college recommends to the hospital at stated intervals a senior for the position. Such an arrangement at once does away with competitive examinations which are admittedly unsatisfactory and brings to the hospital a man who has proven his worth not alone in technical knowledge, but in real fitness and has done this over a long period of observation. The college would be placed upon its mettle to recommend the best of its men and the acceptance of such recommendation by the hospital would result in placing the incumbent upon his mettle to maintain the honor and standing of his college. The working out of the details of this arrangement would remain an individual problem for each hospital, but it immediately does away with many of the objections to the present system and adds other distinct advantages.

The benign influences of the modern hospital flow in many channels to the community, many of them being unrecognized and unappreciated by the bulk of the public. They are accepted rather as "matters of course" than as influences which should be fostered, encouraged, and given adequate moral, public-spirited, and financial support.

Although the public does not recognize this, its own education in the great principles of charity has been largely through the ministrations of the hospitals and much of the development of other agencies of public relief has been inspired by the unselfish work of the hospital. It must be apparent that the modern hospital is the center of that which is highest and best in modern medicine and to keep it so lays a heavy duty upon those who shoulder the responsibility. But no matter how modernly equipped or how able its staff, the hospital does not fully measure up to its responsibilities until it becomes a center of medical instruction also. Its duty is educational as well as charitable; its opportunity is to prevent and limit disease as well as to cure it. As such instruction must come through the staff, it becomes the duty of the management to impress upon the attendings the necessity and value of such instruction to the interns and outside physicians and to provide such means as would further instruction. Fortunately, some institutions have been sufficiently impressed with the value of this branch of service to enlarge it to include physicians not connected with the hospital in any manner. The writer realizes that in a large proportion of instances the young intern feels the importance of his position and the superiority of his knowledge, but, on the other hand, how is he to "find himself" if his bedside instruction consists merely of witnessing operations and being made responsible for the carrying out of "orders" which are given without explanation or reason. The intern is there to learn and between him and his attending there should be cooperation in instruction. It should be his privilege to bring forth his "why" without rebuff and at the same time it is his duty to accept the explanation without immediate or remote criticism because the methods of medical workers differ and it is only by the assimilation of these differences that he can produce a new product stamped with his individuality. A "one-man man" is unfortunate in medicine. Too often a physician's library is made up of one authority in each subject and his opinions are based upon these; too often an intern's individuality is warped at the beginning of his medical career by his ready acceptance of one-man teaching. There are many factors in the ever-increasing difficulty of securing sufficient good candidates for hospital internship, but not the least is the inadequacy of medical teaching. This is not so forcibly true of the surgical side because much can be learned from watching or assisting in a surgical procedure. But on the medical side more than the surgical it is not so much the doing, but the reason for the doing that counts in the instruction of the intern and the attending should realize this. With adequate instruction insured to the intern, candidates would be more numerous because the problem would be partly, but not wholly, solved. The economic factor, the necessity of paying interns, is becoming more and more insistent. How are these educational and other benign influences fostered and spread to the community? Largely through the physicians who also serve the community. Any hospital, every hospital needs the good will of all physicians because through this channel most of its influence flows to the public. And any particular hospital is in special need of the good will of its ex-interns, because their present or former relationship to the institution makes their ill-will weighty and even their neutrality damaging.

Therefore those things which tend to bind the ex-intern to the hospital, to keep alive his interest, and secure his enthusiastic support, help the institution and spread its influence. The ready acceptance of an intern's end of service as a termination of the hospital's interest in him is wrong in principle and damaging in its results. The hospital should be the center of the activities of all of its ex-interns. Every man who has served his time in the institution and is big with possibilities or ripe with accomplishments should be made to feel that the hospital in which he served his internship is the place in which his work may be carried on. But what of the man who has not yet shown his possibilities; the man as yet less brilliant, less forcible? The hospital owes a duty to him just as truly as to his more successful brother. Once having served the institution according to its unusual demands upon him, he should be taken care of by that institution unless he has shown his inability to measure up to modern hospital standards.

The out-patient department is the opportunity for the recognition of satisfactory service within the hospital as an intern. Every man should be given an opportunity in some department for which he may be best fitted, it being clearly understood that good work performed will surely bring its reward of advancement in the out-patient department and eventually within the hospital. We may theorize about it as we please, the bulk of the men who

work in dispensaries do not do so from wholly unselfish motives; they expect to get something out of it as well as putting something into it. Make the reward of good work sure advancement and we secure better service in the department and the development of men sufficiently skilled to fill positions within the hospital later. This means a closer relationship between the out-patient physicians, and those on the hospital staff because if the former after a period of internship are placed in the dispensary and by their work prove themselves capable of advancement, they again become the close associates of the latter.

Those who have the appointing power in a modern hospital have a large responsibility to the institution which they serve and that responsibility should be paramount. But closely allied with this is the responsibility to the ex-intern. What are you going to do with him? Is the completion of his term of service to mark the end of what may have been and certainly should have been a close relationship between the appointing power and the appointee or is that relationship to be continued in other channels? Responsibility to the intern is not terminated by the close of his term of service. There is an obligation of the strong to the weak. The young intern is just at the threshold of his medical career; he is beginning his success or his failure; he needs the advice and help of strong men whether he recognizes it or not. Is he to be denied that advice and the helpfulness which he has a right to expect without begging from those who have accepted his best for a year or more? When the writer tells you that a very large proportion of medical graduates are not in the active practice of their profession at the end of five years from graduation, it will emphasize the fact that medical failures are as real as business ones. The writer would not be misunderstood as advocating the indiscriminate placing of the ex-intern, but given men of equal ability for a position the ex-intern should be favored. But as the interests of the institution are paramount, he must be the equal in ability to all available outsiders. But I do stand for the principle that when a man has once served the hospital it becomes the privilege and duty of the appointing power to guide and help him and make him feel that there is some place in the institution's activities that he can fill if he has demonstrated his worth while in the hospital. One institution which I have the honor to serve, the Methodist Hospital, has through its present superintendent, Dr. Kavanagh, accorded to all of its ex-interns the privileges of the operating room and the private rooms. This is an advance along right lines. Previously, an ex-intern of the institution enjoyed no more privileges than an outsider.

It is an evidence of the tendency of the times toward helpfulness and the demand for efficiency that business concerns of large interests are placing men in other departments when they apparently prove inefficient in one, instead of discharging them. In other words it is becoming more and more the custom to "try a man out" and give him a chance at least to "make good." Because of the character of the service, of the unusual qualities of the man and the very close relationship which he has had toward the institution over an extended period, the ex-intern should not only be allowed the opportunity to prove his worth, but every encouragement should be given him to "find himself" by the hospital that he has served. Too often as intern he has come into relationship with the management of the hospital only when some rule has been broken or there has occurred some infraction of the regulations in the service to which he is then assigned. This is so common a situation that in talking with a large number of men in various hospitals, it is very evident that the men look upon their relationship with the management as one of discipline only and do not presume to look for that helpfulness and interest that is rightfully theirs.

It is an excuse, but no reason to claim that the ex-intern in the first place sought the position; he did, of course, but he was forced to it by the conditions which surround the practice of his profession to-day, and although he applied he was in no manner certain of appointment until after he had met the conditions imposed by the hospital. Let me ask this question: How often do those who appoint know the appointee? In most instances, the man is unknown except through the inadequate and meager information which is brought indirectly. That can be excused if the hospital is being managed as a matter of business and nothing else, but if there is the strong desire and purpose to make it a big institution, not big in size or financial strength alone, but big with human sympathy for the sick and disabled; big with possibilities for human helpfulness, then there must be more personal contact between those who govern, and those who serve.

Even a most cursory review of the relations of the intern and ex-intern to the hospital reveals some well defined needs. First and foremost, greater stress should be laid upon results. A large part of the duty of the intern and the opportunity of the ex-intern in the institution is now perfunctory. It is uninspired work; there are few enthusiasms and because of the methods pursued there are few real aspirations. In most instances the institution has placed the man because there is work to be done and no further interest centers about his work if it remains tolerably satisfactory. And meanwhile the man accepts his position as a necessary or desirable step toward his medical progress. Such an arrangement being cut and dried lacks in the vitality that makes for real progress and full efficiency. Another need is a larger freedom to individuality. It is not sufficient to equip our men with technical knowledge, but with such advancement should come the acquisition of a larger personality. To secure the best results he needs imagination and inspiration and these require individual freedom for their continued growth. All men differ and we should strive to get away from the usual method of endeavoring to have them all fit a common mould of our own fashioning. Then when there is a realization of the full possibilities of the hospital and the benign influences which it spreads through the community, there will come a closer contact between the heads of the several departments and all other branches of the institutions so that the younger men will be given every opportunity to study cases and observe the methods of individual workers in different fields.

How these and allied needs will be met is an individual problem for each institution to work out. That they will be met is certain, for we cannot disregard the tendency of the times. It is simply a question as to which board of directors or managers will recognize the needs sufficiently to seek their solution in co-operation with their medical staff and thus become pioneers in a readjustment

which will immediately benefit that portion of the community which the hospital helps and the staff that serves. This would mean more work for the younger men, but they would measure up to it; it is not hard work that breaks their spirit early in their careers, but hard work without the assurance of success. Let us give the ex-intern a chance in his hospital or to use a common phrase, let the hospital give him "a square deal."

42 GATES AVENUE.

METRORRHAGIA.

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SINCE time immemorial hemorrhages from the uterus have been an interesting and difficult question for physicians who have had to deal with this most common symptom among the ailments of women. The question becomes more complicated because of the normal cyclic uterine hemorrhage occurring every twenty-eight days. The periodicity was attributed in the ages of superstition to the changes of the moon. It is only since the time of Virchow that anatomical considerations have put the physiology and pathology on a sound basis. Morphological changes are the only criteria on which to base conclusions concerning uterine hemorrhage just as truly as they are for all natural science.

In recent years histological studies have revised all the theories about the cause of uterine hemorrhage substituting biological phenomena for morphological data. This tendency seems at present to be overdone.

I shall try to give a short survey of the present aspect of metrorrhagia. Following the usual outline of pathological study, I start with *Intoxications* as causes for metrorrhagia. Phosphorus and arsenic are well known as causes of uterine hemorrhage. The different diseases of the blood and blood-making organs, different types of anemia, leukemia, purpura hæmorrhagica are usually accompanied by uterine hemorrhage.

Infectious granulomata (tuberculosis and syphilis) do not appear to have uterine hemorrhage as a symptom. Both of these diseases are very rare in the uterus, and the cascation and granulomata produced by these seem to cause rather a characteristic discharge than metrorrhagia. It is furthermore a very common belief that displacements of the uterus cause hemorrhage. This opinion needs restriction as is shown by the fact that even the correction of the displacement usually does not check the metrorrhagia. To this theme I shall refer again.

A very important factor among the different causes of metrorrhagia is tumors. Polypi myomata, sarcomata, and carcinomata, with their tendency to hemorrhage into the tumor itself are regular causes of bleeding. Real adenomata of the uterus have not been observed, or rather the term adenoma, meaning a benign tumor, is not applicable to the uterus. This brings us to the much discussed theme of endometritis as a cause of metrorrhagia. Up to 1907-8 Ruge's conception of the two kinds of endometritis, endometritis glandularis and interstitialis, has been the ruling one. This will be easily understood if one considers the way in which endometritis was diagnosed. Cases of metrorrhagia were, of course, always curetted, and in reality it was almost impossible not to find what might be described as one of these conditions in the curettings. On the other hand, Scanzoni, whose work appeared in the year 1863, introduced a new pathological picture in what he termed metritis chronica. According to him, sclerotic changes of the arteries and comparatively large arterioles, and the increased connective tissue in the myometrium were sufficient for the diagnosis of a chronic metritis, and the principal symptom of this disease was uterine hemorrhage.

Both Ruge's and Scanzoni's ideas were overthrown by the investigations of Hitschmann and Adler concerning endometritis, by Pankow, Teilharber, Ahreiner, and others, concerning metritis chronica. The work of Hitschmann and Adler especially was very fruitful as regards our present conceptions in the changes of the endometrium and the causes of hemorrhage. They showed that there is no endometritis glandularis. The different microscopic pictures were only expressions of the different menstrual phases of the endometrium. They divided the menstrual cycle into three phases: interval, premenstrual cycle, and postmenstrual, basing these phases upon histological differences. Their views are accepted today, and they have also given substantial proof that irregular uterine bleeding is associate with definite morphological pictures in the endometrium. Only a few details of this will be given here. They distinguish two kinds of irregular bleeding or menorrhagia: (1) menstruation starting regularly but lasting longer than normally, (2) menstruation setting in at irregular intervals.

Curettings which are usually made at the end of or during the progress of the uterine hemorrhage would show in a normal case the characteristics of the postmenstrual mucosa—namely, collapsed glands with scanty epithelium, the glands narrow rather than straight, showing one layer of cells. In the case of protracted bleeding these postmenstrual glands are corkscrew shaped, with two rows of cells. Corkscrew glands are characteristic of the premenstruum. If we find them in curettings obtained during the progress of bleeding and with several rows of epithelium and without the characteristic change of the single epithelial cell prevailing during the premenstruum, we can say that this morphological picture corresponds to a regular but protracted menstruation.

In the second case, where the menstruation sets in after entirely irregular intervals, we get the mixture of several phases in the same mucosa, although the histological appearance would not allow us to make the diagnosis without considering the case.

Scanzoni's hypothesis has been successfully attacked by Pankow and others since they have shown that uteri showing this characteristic change—namely, enlargement, fibrosis, angiosclerosis—show clinically very often no hemorrhage, while smaller uteri without any change of the myometrium may bleed intensely. Almost all the investigators of late have agreed that the cause lies in the ovary which naturally, being the cause of the monthly bleeding, might when diseased or abnormally functionating cause abnormal uterine bleeding.

Teilhaber thought that the sclerotic changes of the uterus were not the cause of hemorrhage, but he stated that a large amount of connective tissue prevents the uterus from contracting properly so that hemorrhage is not stopped. He called this uterine insufficiency and formed a new pathological

term, the apoplexy of the uterus. One very often finds in senile uteri hemorrhagic foci, which, however, as Simonds and Slavianski showed, were agonal hemorrhage in the uterine substance. From all the aforementioned investigations the final conclusions seem to be that hemorrhage is not caused by endometritis. The only form of endometritis recognized by the microscopist as well as the clinician is the endometritis with round-cell infiltration in the endometrium and the presence of large plasma cells, a condition which is comparatively infrequent. This leaves us the main symptom of endometritis, the purulent discharge, not the mucoid one.

Retrodisplacements of the uterus do not seem to cause hemorrhage in themselves through hyperemia of the uterus, but rather through adnexal disease usually connected with it or causing the displacement. The so-called endometritis climacterica in the beginning of the menopause does not seem to be due to the change in the uterus, the senile change in the ovary is the one factor causing the change in the uterus. It is also asserted that the irregular bleeding is due to the ovarian factor. At the onset of the ovarian function—that is, puberty—uterine hemorrhage is also very frequent, suggesting an ovarian cause. In conformity with the change of opinion regarding the morphology, the therapeutic measures had to be changed. Without referring to operative details, I will speak of remedies causing contractions of the smooth musculature.

If the ovary is the underlying cause of the hemorrhage, and without characteristic changes in the endometrium, it would seem irrational to give ergot preparations, hydrastin, etc., having in mind, according to certain authors, that only the pregnant uterus responds actively to these drugs, although it is doubtless true that ergotoxin in ergot causes contraction of the smooth musculature all over the body when given in sufficiently large doses. The uterus is a tube containing by far the largest amount of smooth-muscle contractile fibers, and there is no reason why ergot preparations should pick out just the fibers of the pregnant uterus to cause contractions. The pregnant uterus is, of course, far larger than the non-pregnant. But this does not mean that the smaller non-pregnant uterus, though comparatively poor in contractile substance, will not react. In reality a non-pregnant uterus when brought in contact with ergot in Ringer's solution contracts very promptly. Since arteries contract under the influence of ergot, why should not the uterus contract? It is a similar muscular tube with walls containing many times more muscle fiber than arteries.

That ergot is a very symptomatic remedy is true, but that it does not act at all on the non-pregnant uterus because the ovary causes the hemorrhage is an untenable proposition. Animal experiments on the uterus in situ are needed to demonstrate the action of ergot. Those advocating its use, as a result of clinical experience, have a rational basis for their claims, since even temporary cessation of hemorrhage is of value, and the ovarian trouble causing the hemorrhage is also, at least, intermittent.

A new element comes into the question of uterine hemorrhage with the demonstration of the noncoagulability of the menstrual blood. It has long been known that the menstrual blood did not coagulate after many hours, though blood from the systemic circulation of the same individual clotted at room temperature in eight to ten minutes. This fact has been used as an explanation for the long-continued uterine hemorrhages where no tumor or other explanation was demonstrable. This incoagulability, however, can be at best but one of the factors in metrorrhagia.

It will be necessary to state briefly the normal physiology of clotting in order to discuss the noncoagulability of menstrual blood. It was until recently held that the admixture of uterine secretions and other genital discharges prevent the menstrual blood from clotting. G. Hoppe-Seyler found in a series of experiments that the average amount of blood contained in the menstrual discharge is only 57 per cent.; the rest is mucus, serous secretions, etc. This admixture of mucoid liquid contains a considerable amount of salts, sodium phosphates, sodium carbonates, sodium chloride, etc. The coagulation of blood is retarded or inhibited by mixing it with weak alkaline or acid solutions. This theory was antagonized by the findings of Dienst, who in a few cases was able to produce a substance from endometrium-extract which inhibited the coaguiation of blood. This substance is an antithrombin, and this necessitates now a description of the modern views of coagulation.

Alexander Smith's theory that fibrin is produced by the uniting of the fibrinogen present in the blood plasma and the fibrin ferment furnished by the corpuscular elements of the blood was modified by the brilliant investigations of Morawitz, Fuld, Bordet and Gengou, etc. They found that the fibrin ferment is composed of a proferment called thrombogen, which is also present in the plasma, and the thrombokinase furnished by the blood platelets and leucocytes, but these two bodies form fibrin ferment, or, as it is called at present, thrombin, only in the presence of lime salts. The thrombokinase activates the thrombogen to form thrombin only when in contact with foreign bodies. So four conditions are necessary, thrombogen, thrombokinase, lime salts, and the stimulus of foreign bodies. If any of these elements are missing coagulation does not occur. For instance fibrogen normally present in the blood plasma is destroyed in phosphorus intoxication and in the cadaver. The lime salts are missing when they become precipitated by oxalates or sodium citrate. The thrombokinase does not act when the blood containing the thrombokinase is allowed to run into a tube, the inner walls of which are covered with paraffin, and even if the fibrin ferment is formed anti-ferments might inhibit its action, as, for instance, in the case of hirudin, the extract from leaches, when it is mixed with the blood. The thrombokinase might also be excluded from action by an antikinase which is present in cobra and rattlesnake poison. Antikinase can also be produced by the injection of kinase into the blood. Doyen succeeded in producing an antithrombokinase solution from rabbit liver, and Dienst, as I mentioned before, from the endometrium. They, however, did not succeed in producing antithrombin in a pure state. Fibrin ferment or thrombin can be obtained only in mixtures with other liquids. This, of course, leaves the question open whether the extract is really a specific antithrombin or only a substance inhibiting coagulation in the same way that a diluted acetic acid would act. Although the few experiments of Dienst are readily accepted by physiologists, the theory concerning the admixture of the alkaline secretions of the uterus is still very strongly defended.

It is not justifiable to say that a ferment produced in the endometrium prevents coagulation, because it has not been sufficiently proven that the substance obtained by Dienst becomes inactivated if kept for an hour at 58° C.

The question of metrorrhagia is not much cleared by the observation of the incoagulability of menstrual blood because it is a matter of common observation that menorrhagia is often accompanied by the discharge of clotted blood. This is true of menorrhagia, metrorrhagia, bleeding from myomata uteri, etc. This, of course, might be explained by either theory, (1) assuming that there was not a sufficient amount of alkaline fluid mixed with the blood, and (2) assuming that the flow of blood was so intense that there was not sufficient antithrombin to counteract the fibrin ferment contained in the blood. From this short excursion into the theory of the incoagulability of menstrual blood one might easily conclude that it requires exact and irreproachable investigations to solve the question.

Conjectures without exact experimental work and statements, as, for instance, that the endometrium is an organ with an internal secretion, will never help the cause.

I have given in the foregoing the present views, the causes, and the pathological anatomical findings in metrorrhagia. From the many hundreds of curettings examined by Dr. L. W. Strong and myself, I wish to state that we could not help but approve of Hitschmann and Adler's views on the question of endometritis and its relationship to metrorrhagia.

I have also examined six uteri from cases in which the histories and exact pathological findings were accessible to me and found that Pankow's assertions are to a certain extent correct. These six uteri were removed from women suffering from metrorrhagia and showed macroscopically and microscopically no disease of the adnexa nor any tumor, myoma, or the like in the uterus. Only one case showed a real fibrosis of the myometrium and hyaline degeneration of the blood vessels; the remaining five uteri did not show any sclerosis of the myometrium nor any changes in the blood vessels which would enable us to ascribe the clinical symptoms to pathological changes. In these cases undoubtedly the morphologically normal adnexa have been responsible for the metrorrhagia by a dysfunction. This seems to be especially prevalent at the beginning and the ending of the functional life of the ovaries.

The endometrium shows in comparison with other mucous membranes singular features; the capillaries which rupture every twenty-eight days in numerous points, and the stroma which shows at that time intense changes furnish numerous possibilities of aiding hemorrhagia.

Local factors in the uterus at present still unknown may also be the cause of metrorrhagia. Neither the theory of an antithrombin causing the lack of coagulability nor that of a hormone produced by the ovaries explains satisfactorily the causes of this very frequent ailment of women.

Therefore, the decided prejudice which exists against the older therapeutic measures on the ground of modern theories is not fully justifiable. Until the rather vague biological and morphological phenomena encountered in experimental and clinical investigations are based on satisfactory proofs the gynecologist has largely to resort to his individual experience in the use of remedies checking the uterine hemorrhage.

THE DIAGNOSIS OF CHRONIC BRONCHITIS.

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In looking over the reports of the medical dispensary in several hospitals I was impressed with the number of cases that had been diagnosticated chronic bronchitis. One dispensary with 2,193 cases in the year had had 44 cases of chronic bronchitis compared to 83 cases of pulmonary tuberculosis, another with 1,038 cases had had 51 cases of chronic bronchitis compared to 22 cases of pulmonary tuberculosis and still another with 2,963 cases had had 160 cases of chronic bronchitis compared to 117 cases of pulmonary tuberculosis. These figures are taken from three prominent hospitals and it is not unfair to suppose that rather similar figures could be found in the reports of other hospitals. How often is it justifiable to make a diagnosis of chronic bronchitis? Is it not almost always a symptom of some underlying condition?

Chronic bronchitis is said to follow repeated attacks of acute bronchitis or even one attack of acute bronchitis if the infection is severe enough. In the cases of chronic cough there is very frequently some underlying pathological condition in the chest or some systemic condition and this is the diagnosis which should be made, the chronic bronchitis being simply a symptom of that lesion.

It is not an unusual history in tuberculosis dispensaries to have cases come there for diagnosis who have been treated for a varying number of months as chronic bronchitis. Examination frequently shows those cases to be more or less advanced cases of tuberculosis. I have examined this winter a child who for a year or more had been treated for chronic bronchitis. She gave a history of repeated attacks of acute bronchitis which was finally thought to have become chronic. Examination showed all the signs of advanced tuberculosis with cavity formation and all the distressing septic symptoms so often seen. A few weeks ago I saw a young Italian who said that in December, 1912, he had been treated for a severe cold. Since that time he had had a cough and his physician told him he had a chronic bronchitis for which he had been treating him. A careful inquiry revealed a rather typical case history of pneumonia in December, 1912. Examination of his chest showed an infiltration at the right apex and a fibroid condition in his right lower lobe, the probable site of his acute cold in December, 1912.

There are numerous conditions which, interfering in one way or another with the circulation of the blood in the lung, are accompanied by chronic bronchitis. The underlying condition being missed the case is diagnosticated chronic bronchitis. Some of these are cardiac conditions, especially mitral disease, emphysema and enlarged bronchial glands. At times there may be a combination of a couple of these causes as in the case of an old woman I saw who had been treated for some time for chronic bronchitis. Examination disclosed quite a marked degree of emphysema and a mitral regurgitation with some loss of compensation. Under treatment directed particularly to her heart the bronchitis cleared up to a great extent.

The enlarged bronchial glands causing chronic cough are usually met with in children. Holt says "the cough often occurs in severe paroxysms, the character of which is very much like pertussis. The attacks are apt to come on about the middle of the night for months. On account of the loss of sleep the patient's general health may be considerably undermined." The diagnosis of enlarged bronchial glands is not an easy one to make. But the condition should be held in mind in all cases of children with chronic cough the cause of which is not apparent.

Bronchiectasis is a condition that is quite frequently missed and the case is diagnosticated chronic bronchitis. In these cases a careful history of the case is often a great help, as the condition frequently follows a pneumonia or a pleurisy. There is the copious more or less fetid, thin, mucopurulent expectoration. The cough is more or less paroxysmal and occurs generally in the mornings. Careful examination of the chest will generally show physical signs not in keeping with a simple chronic bronchitis. The majority of the cases of chronic bronchitis occurring in the old are cases of chronic bronchitis developing on a senile emphysema and should be diagnosticated as such.

It is so important for the welfare of the patient suffering with a chronic cough to make a correct diagnosis that we should leave no stone unturned to arrive at our end. The diagnosis of chronic bronchitis often covers a multitude of sins and occupies a position to chronic cough that the diagnosis of malaria or influenza does to some obscure fever. The majority of mistakes in the diagnosis are not due to ignorance or lack of skill but more often to carelessness on the part of the examiner. Lavenson in a recent article on the failure to diagnosticate tuberculosis in its early stages found in the analysis of the method of examination of 54 cases that: "In 13.8 per cent. of the cases neither physical examination nor sputum examination was made, nor was the temperature taken. In 52.7 per cent. of the cases a physical examination alone was made. In 12.8 per cent. the temperature was taken and a physical examination was made, but the sputum was not examined. (In one of the cases included in this group the patient had no sputum at the time the other examinations were made.) In 8.3 per cent. the temperature alone was taken. In 4.1 per cent. a physical examination was made and the sputum was examined but the temperature was not taken. In 5.5 per cent. of the cases the patient, referring the complaint to the larynx, sought a laryngologist and in those cases only a laryngeal examination was made." It seems remarkable that these facts should be so. It is hard to believe that in a suspected case of tuberculosis an examiner would fail to make a physical examination, or to take the temperature, or to examine the sputum. It is, however, in this way that the majority of wrong diagnoses are made in tuberculosis and other medical conditions.

The cause of a chronic cough often requires careful and painstaking examination for its discovery, therefore we should make use of every diagnostic means at hand and remember that chronic bronchitis *per se* is rare. The most usual conditions that are mistaken for it are pulmonary tuberculosis, emphysema, fibrosis of the lung following pneumonia or pleurisy, and some form of heart disease.

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A PRELIMINARY REPORT ON A METHOD OF TREATMENT FOR DIPHTHERIA CARRIERS.

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Although I have been able to observe only a small number of cases, I have been prompted to report this method for the treatment of diphtheria carriers because of its apparently great value. The method consists in thoroughly spraying the throat with a solution varying in strength from ¼ to 1 per cent. of the usual 40 per cent. formaldehyde solution. The patient's throat is sprayed one hour before, or two hours at least after the ingestion of food or fluid. The spray is usually used every three or four hours except during sleep. The throats were sprayed daily and cultures taken from five to eight hours after the solution had been used. When the throat became free from bacilli, later confirmatory cultures were made. Because formaldehyde acts better upon organic material when used warm or almost hot, the solution used in our last five cases was warmed in a corked bottle before use. It was freshly prepared daily. In general I would advise that one begin with a solution of $\frac{1}{4}$ or $\frac{1}{2}$ per cent. made up from 40 per cent. formaldehyde. When necessary, the solution can be increased to 1 per cent. and be less frequently applied. Three, four, five or even six days of treatment may be required, but there should be persistence in the treatment. The urine should be examined daily so as to discover any effects on the kidneys. In none of the cases which I have treated has there been any evidence of any renal irritation. In the series of cases observed thus far no case failed to become diphtheria-free except one which was not treated under the author's supervision.

Case I.—C. M., 11 years of age. In February, 1913, the patient had an attack of what clinically appeared to be follicular tonsillitis, but a pure growth of diphtheria bacilli was obtained. Antitoxin was used with good effect on the symptoms, but the bacilli persisted. Four weeks later a similar attack developed. Antitoxin was again used. The bacilli persisted in spite of the use of iodine, potassium permanganate, bichloride of mercury, argyrol, and sprays of the cultures of the *Staphylococcus aureus*. A $\frac{1}{4}$ per cent. solution of 40 per cent. formaldehyde was used in the form of a spray three times a day for two days, and twenty-four hours later and five days later diphtheria bacilli were no longer found.

Case II.—Observed by Dr. M. H. Bass. Child eight years of age, with mild tonsillar diphtheria. Culture remained positive for three and one-half weeks in spite of the use of tincture of iodine, spray of peroxide of hydrogen, cultures of *Staphylococcus aureus* three times a day for three days, and bichloride of mercury 1-10,000, three times a day for three days. A ¼ per cent. solution of 40 per cent. formaldehdye was then used three times a day for two days, and cultures made twenty-four and forty-eight hours later showed no diphtheria bacilli.

Case III.—Observed by Dr. E. Libman. The patient was a woman sixty-eight years of age who had patches of membrane on both tonsils and on the right side of the uvula. Antitoxin was used and the membrane disappeared within two days. Four days later bacilli were still present in the throat. A $\frac{1}{4}$ per cent. solution of 40 per cent. formaldehdye was then used, and one day later and five days later cultures no longer showed diphtheria bacilli.

Case IV.—Observed by Dr. N. E. Brill and Dr. E. A. Aronson. Miss A., diphtheria of left tonsil and pharynx. Antitoxin was not used because of the presence of cardiac disturbance. Two throat cultures on successive days showed diphtheria bacilli. On the

evening of the third day the throat was sprayed every three hours with ½ per cent. of 40 per cent. formaldehyde solution. On the fourth day the spray was reduced to ¼ per cent., because of the mild irritation of the throat. The spray was continued on the fifth, sixth, and seventh days, but at intervals of five hours, and cultures on each of these days showed no diphtheria bacilli.

The following four cases were observed on the Surgical Service of Dr. A. A. Berg.

Case V.—J. P., three years of age. Tracheotomy done December 4, 1913, as a preliminary step to removal of laryngeal polyp on January 6, 1914. January 30, another portion of the polyp was removed. From the tracheal opening there was considerable thick mucopurulent secretion containing diphtheria bacilli. Cultures were found positive on March 5 and 6. The formaldehyde spray was used every three hours on March 7 and 8. Cultures taken on March 8 and 9 again showed diphtheria bacilli. On the latter day the spray was used every four hours, and the next culture was reported negative. Cultures were also negative on March 10 and March 15. In this case the trachea was cleared of diphtheria bacilli within forty-eight hours. The child was so intractable that throat cultures could not be taken. For the same reason the spraying within the first twenty-four hours was almost valueless.

Case VI.—M. L., 12 years of age, admitted to the hospital for the cure of tracheal fistula. March 6.—Routine culture showed diphtheria bacilli. Throat was sprayed with a ¼ per cent. solution every hour from eight to eleven, and at midnight a throat culture was found negative. March 7.—Throat sprayed every three hours. March 8.—Culture from tracheal wound reported negative. Spray continued until March 11, and cultures taken on that day and every subsequent day until March 15 proved negative.

Case VII.—R. O. 22½ months of age, admitted to the hospital for empyema. March 7.—Routine culture showed diphtheria bacilli. March 8-9.—One-half per cent. spray used every four hours. Throat cultures on both days negative, as also on March 9, 10, and 15.

Case VII.—R. O., 22½ months of age, admitted to the tuberculosis of cervical lymph nodes. March 7.—Routine culture reveals diphtheria bacilli. March 8, 9, 10.—A ½ per cent. solution was used every four hours, but the cultures still showed diphtheria bacilli. March 11.—Spray continued, increased in strength to 1 per cent. and used four times a day. Eight hours after the last application the throat culture showed no diphtheria bacilli. Cultures were also negative on March 13 and 15.

The procedure which I have suggested is a simple one and does not produce any untoward symptoms. It will be of interest to determine whether the spray suggested in this communication will influence the clinical course of diphtheria, and also whether the accessory sinuses can be cleared of diphtheria bacilli by its use. Because of the good results obtained in the series of cases here reported, I would suggest the use of the spray in acute cases of diphtheria in which antitoxin has already been administered, also its prompt use in cases where antitoxin is for some reason or other withheld temporarily or permanently.

I wish to thank the gentlemen whose cases I had the privilege of studying, and Dr. Libman for kind assistance.

Postabortal Icterus.—Andérodias and Drouin report two cases of this condition. In the first of these the jaundice was the result of a septicemia. In the second case the icterus occurred twenty-four hours after an intrauterine injection of non-sterile water. The urine of this patient contained a large quantity of hemoglobin, which may have been of hematogenous or of urinary origin. In the former event it may have been the result of a toxic hemolysis. In the latter event the blood that may have escaped from some part of the urinary tract would account for the hemoglobinuria.—*Journal de Médecine de Paris.*

PEDAL TIC.

By GUSTAV F. BOEHME, JR., B.S., M.D.,

NEW YORK.

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In the last few months capable phychanalysts have presented cases of torticollis (Pierce Clark) and various other spasmodic conditions which have succumbed to their methods. It is my purpose here to present an interesting case of pedal spasm which was cured in an extremely brief time by methods closely simulating theirs.

J. S., a native of the United States, 29 years old, and a clerk by occupation, consulted me on April 11, 1914, for the following conditions: Four years ago he noticed a twitching of his right foot while seated at rest; at times the left foot would be involved in similar movements. He felt extremely fatigued and did not feel desirous of walking any decided distances. The condition gradually grew worse till at the time of the history the spasms occur at night while in bed, when seated and on occasions when walking. His feet then seem to go from under his control, the right foot swinging inward, and he walks as if intoxicated. There is with this an occasional slight pain in the knees. Otherwise he feels well. There are no other subjective complaints. Lues is denied.

As to previous illnesses, he had measles in childhood; five years ago he was operated upon for the removal of a nasal spur, and two years ago he had some slight gastric disturbance. Family history is negative except for gastric cancer of father.

His physical examination was negative except for increased tendon reflexes; a diminution of corneal reflexes and a slight hyperesthesia and hyperalgia in the iliac and gluteal regions.

Feeling that my patient had no organic condition present, the determination of his so-called "subconscious" complexes was determined upon. On April 11 he stated that he had masturbated for a few years; that he had married at 27 years and was perfectly happy, having one child of 13 months of whom he was very fond.

On April 15 he again returned, and I then elicited the following further facts: Four years ago he had been in love with a young lady who had broken her troth to him. He brooded over this for a long time until he met his present wife, when he said his interest in the former inamorata ceased. (A substitution for a repression.)

His present home life proves to be far from a happy one. While his wife is a fair helpmate she tends to be very apathetic. He works hard all day, and upon returning home he is desirous of her company. She, however, falls asleep on some nearby couch, while he sits reading, whereupon his feet immediately commence to twitch and he feels much worse.

As far as his sexual relations go, he says at times things seem normal, on other occasions his sexual feelings are outraged by her general apathetic attitude, all of which has greatly obtunded his affection for her. Certain factors are to be noted, viz.: (1) His unfortunate condition at home, (2) his previous love affair, (3) his occupation, (4) the foot spasm.

The latter I explained as follows. Most of us when seated, crossing one limb over the other, as is generally done while reading, tend to oscillate the suspended foot. This, too, is generally the right one, the one most affected in our patient. If at all mentally perturbed the swinging is more pronounced, so much so, in fact, that the condition frequently becomes noticeable. My patient was a

clerk. In this occupation he sat upon a high chair with his feet dangling down, at times crossed. When worried he twitched his feet. When he finished the day's work he returned to his home, a thoroughly unsatisfactory environment, and here while reading his thoughts would wander, his worries would crowd into his consciousness, and the foot-twitching, at first voluntary, would begin. Gradually, subconsciously, the tic gained the ascendancy, and we have the condition presented in the picture before us—a pedal spasm of psychoneurotic origin.

Treatment consisted in explaining to him the mechanism of his condition, improving his general hygiene, and insisting upon rather prolonged walks in the evening with cheerful friends.

Three days after the condition was explained to him his movements were much improved. On May 2, 1914, all twitchings had ceased, and he declared that it was a relief mentally and physically after four years to understand his ailment and to feel that he had no fear of its recurrence.

He may, however, have a recurrence; this depends not so much upon his physical condition, but rather upon the clearness with which he interprets these symptoms. His cure may be attributed to the partial psychanalysis employed, and again demonstrates that its principles must never be forgotten whenever a tic or a spasm of any variety presents itself.

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Medicolegal Notes.

Malpractice—Care and Skill Required—Insufficient Evidence.—In an action against a physician and surgeon for malpractice it was alleged that the negligence complained of consisted of his not bringing and keeping the broken parts of the bone of plaintiff's leg into apposition, and while the broken parts overlapped in placing them in a wire splint and afterwards in a plaster cast, and permitting them to remain in that position for sixteen weeks. It was held that there was no error in refusing to make the complaint more definite and certain.

If the plaintiff, a regularly licensed physician, with reasonable diligence employed the skill of which he was possessed in treating the case, it was held that he was not liable for an error of judgment, and that the mere fact that an untoward result ensued was not in any sense evidence of negligence. There are so many elements combating the surgeon in his efforts to restore a patient to bodily soundness that he can do no more than exercise his best skill and judgment to accomplish the desired result. "The distinction between an error of judgment and negligence is not easily determined. It would seem, however, that if one, assuming a responsibility as an expert, possesses a knowledge of the facts and circumstances connected with the duty he is about to perform, and, bringing to bear all his professed experience and skill, weighs those facts and circumstances, and decides upon a course of action which he faithfully attempts to carry out, then want of success, if due to such course of action, would be due to error of judgment, and not to negligence. But if he omits to inform himself as to the facts and circumstances, or does not possess the knowledge, experience, or skill which he professes, then a failure, if caused thereby, would be negligence." It was admitted that the defendant diagnosed the case as a fracture of the right femur. The testimony showed that he endeavored to ascertain by palpation whether the parts of the bone were in apposition, and that he applied proper bandages to maintain that position. It was admitted that he installed extension weights to overcome the natural muscular contraction tending to displace the bone. The treatment was performed in a public hospital in the presence of another physician and the attendant nurses. There was no shortening of the leg shown or sidewise displacement of the foot during the defendant's connection with the case. It was not until after the plaintiff had begun to sit up and move around on crutches and had taken an automobile excursion that a misplacement or nonunion was suspected. The case was held to be one where the surgeon had treated a case in which the result was a failure. There was nothing to show that he did not do his best with what skill he possessed. To hold him liable without proof of some careless act or omission of his which produced the undesirable consequence would be to make him an absolute insurer of success in every operation which he undertook. Such a rule would be too drastic to be applied to the medical and surgical profession, and is not borne out by the authorities. There was a hiatus in the testimony on behalf of the plaintiff between the time the defendant ceased to treat him and the subsequent discovery of the nonunion of the bone which broke the connection of the defendant with the unfortunate result so far as negligence was concerned. Judgment for the plaintiff was reversed, and a judgment of nonsuit was directed to be entered.—Hill v. Shaw, Oregon Supreme Court, 137 Pac., 229.

Medical Associations—Trial of Member Notwithstanding Acquittal by Court.—The Hennequin County Medical Society is a voluntary association of physicians and surgeons. One of its by-laws provides as follows: "A member who is guilty of a criminal offense, or of gross misconduct either as a physician or as a citizen, or who violates any of the provisions of this constitution and by-laws shall be liable to censure, suspension, or compulsion." One of its members was acquitted in the district court of the county of the crime of manslaughter in the first degree. The indictment was based upon an alleged criminal operation. It was held that the society might try the member for the acts involved in the criminal prosecution notwithstanding his acquittal by the district court.—Miller v. Hennequin County Medical Society, Minnesota Supreme Court, 144 N. W., 1091.

Homicide—Causal Connection.—In a murder case it appeared that the defendant inflicted knife wounds on one Miller, one of the wounds being a deep stab which penetrated the left lung. Miller was a large, heavy man, in the prime of life. He was in good health except for alcoholism. Forty-eight hours after the assault he developed pneumonia, and died from the disease a week later. The pneumonia the lung which was pierced only. The surgeon who dressed Miller's wounds testified that in his opinion the pneumonia was caused by infection through the wounds, particularly the stab which pierced the left lung. Another physician, who attended Miller after the assault until his death, testified that he was unable to give an opinion whether the bacillus was taken into the lung by inhalation or was introduced by the knife of the defendant. The evidence, it was held, did not leave the cause of death a matter of speculation or conjecture, but was sufficient to justify the conclusion that the pneumonia germ was not inhaled, but entered the lung on the knife blade of the defendant, or through the puncture made by the blade, and therefore that the defendant caused the death, and was guilty of murder. —State v. James, Minnesota Supreme Court, 144 N. W., 216.

Operation Without Consent—Assault and Battery.—In an action for assault and battery against a physician and surgeon it appeared that the plaintiff had stepped upon a nail which penetrated the great toe of her right foot causing inflammation. The defendant advised an operation some 60 days after the injury, by making an incision in the toe so as to drain the joint. This was agreed upon and the operation was performed while the patient was under an anesthetic. In the course of the operation a sesamoid bone was removed, and the action was based upon this removal. It was not claimed that the operation was unskillfully performed, but that the defendant had agreed not to remove any bones from the foot. The plaintiff contended that the removal of the bone without her consent was wrongful and unlawful, and that her foot was permanently injured thereby. It was held: (a) That the defendant had no authority to remove the bone without the plaintiff's consent, either express or implied. (b) That she did not expressly consent, and whether or not her consent was implied from the circumstances was a question for the jury to determine under all the evidence. (c) That, if the plaintiff did not consent, the removal of the bone was wrongful and unlawful, and constituted in law a trespass upon her person and a technical assault and battery. Judgment for the plaintiff was affirmed.—Bolater v. Strain, Oklahoma Supreme Court, 137 Pac. 96.

MEDICAL RECORD.

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THE ALBUMINOUS CONTENT OF SEROUS FLUIDS.

WITHIN recent years considerable attention has been paid to the cytology of transudates and exudates, but relatively little has been learned regarding the chemical differences of these fluids. The albuminous content of the latter has been made the subject of a special study by Mosny, Javal, and Dumont, who report their results in *La Presse Médicale*, June 24, 1914. The investigation of the amount of albumin contained in serous accumulations in more than fifty patients furnished data of eminent practical value in diagnosis. The method employed was to precipitate the albumin and then weigh it. The most striking differences were between the transudates and the exudates.

Serofibrinous pleurisy is characterized by the high content in albumin which varies between 40 and 66 grams per liter. There is no difference between primary or secondary tuberculous pleurisy and that of streptococcal origin as regards the albumin content. In purulent pleurisy the albumin attains a high figure, approaching that of the blood, and fluctuating about the figure 70 grams. There is no relation between the hemorrhagic character of a fluid and its albuminous coefficient. In a recurring infectious exudate the albumin figure remains stationary. In pleurisy of cancerous origin the amount of albumin in the fluid is comparable to that of the microbic exudates. Likewise, the hemorrhagic condition of the fluid is not accompanied by any change in the albuminous content.

The greatest contrast exists as regards the relative content in albumin between the transudates and the exudates. The figure for the former is from 3 to 26 grams per liter. The rule is laid down that any serous fluid containing less than 30 grams of albumin per liter must be regarded as a transudate. In the so-called cardiac pleurisies which have the typical clinical aspect of an inflammatory pleurisy the pleural accumulations have a polynucleosis approaching that of a purulent exudate, but resemble the transudates in their albuminous content. This is a distinction of considerable diagnostic value.

The transudates and the exudates of the peritoneal cavity follow the same laws as those of the pleura. The ascites of cirrhosis of the liver or of heart disease is hypoalbuminous (less than 35 grams per liter), while that of tuberculous peritonitis is hyperalbuminous (more than 40 grams per liter). In peritoneal cancer the albumin figure is likewise high.

The question now arises whether the isolation of special types of albumin in serous fluids furnishes any diagnostic criteria. It has been known for some time that there exists in certain of these fluids a small quantity of an albumin that is precipitated in the cold by very dilute acetic acid. This is a nucleoalbumin which has been closely studied by Patein and which is designated by his name. It is the presence of this substance upon which is based the reaction of Rivalta, namely, transudates do not yield any precipitate with slightly acidulated water while exudates give a marked reaction. Mosny, Javal, and Dumont find that whereas in the case of infectious exudates this reaction always occurs, it nevertheless fails in the case of so-called cardiac pleurisies.

Albuminodiagnosis cannot replace cytodiagnosis, although the two methods give identical results in the infectious pleurisies and in the cases of pure hydrothorax. But in the cancerous exudates and in the so-called cardiac pleurisies the former method has a value peculiarly its own. In the exudates of cancer there is no characteristic cytology, although occasionally an atypical cell may furnish a diagnostic clue. In some cases of cardiac pleurisy there may be a neutrophile polynucleosis, an eosinphilia, or even a lymphocytosis. These cellular changes which are the result of pleural irritation rather than of secondary infection are not accompanied by any change in the albumin content which remains low, and by reason of this fact enables one to make an exact diagnosis of the nature of the fluid. Sufficient data have been gathered, however, to show that the albuminodiagnosis of serous fluids is of real clinical value.

ENDOURETHRAL TREATMENT OF HYPERTROPHY OF THE PROSTATE.

HYPERTROPHY of the prostate, affecting, as it usually does, patients in the later years of life, perhaps enfeebled by other diseases and by septic absorption, presents a therapeutic problem often demanding the exercise of rare judgment as well as skill on the part of the surgeon. It seems almost incredible to us now that the true cause of the obstruction to the outflow of the urine remained unrecognized for so long.

Since the advent of the cystoscope and urethroscope, a number of methods for direct endourethral attack of the hypertrophied prostate have been devised. H. H. Young was one of the first to attack the prostate by this route, and devised the so-called punch operation for the removal of the prostatic bar—a method which has given very satisfactory results in his hands. Luys, however, criticises the method (*La Clinique*, June 12, 1914) on the ground that "one guillotines the vesical neck and acts only upon that; one is not able sufficiently to graduate its effects; besides, unfortunately, it

produces a hemorrhage which may be serious and which one cannot arrest immediately; and, finally, the operation cannot be applied in the presence of marked hypertrophy of the lateral lobes." Endoscopic examination of the urethra in cases of prostatism almost always shows two causes of mechanical dysuria: the forward bulging at the vesical neck, producing the prostatic bar; and the junction of the two hypertrophied lateral lobes, creating an anteroposterior tunnel extending from the prostatic bar to the posterior border of the verumontanum, in which runs the often markedly narrowed, elongated, and tortuous urethra. It is thus evident that in most cases not only should the bar be removed but the prostatic tunnel must be enlarged, so that the prostatic urethra shall no longer be compressed.

To accomplish this Luys recommends the galvanocautery and electrocoagulation (Oudin). After introducing the author's direct vision cystoscope, the area to be cauterized is anesthetized. He has found that there is very little pain from the cauterization and but little discomfort from the sensation of heat in the surrounding structures. The absence of pain is also partially accounted for by the passing of a strong current of air through the cystoscope, and this likewise serves to remove the smoke which is produced at the moment of cauterization so that the view is only momentarily obscured. Another advantage of the method is the almost complete absence of hemorrhage when cauterizing the posterior part of the prostatic lobes. As the verumontanum is approached the vascularization is much more marked. The incisions into the lobes are made with the galvanocautery and if there is enough bleeding to be troublesome this is controlled by electrocoagulation. The eschar from galvanocauterization is very insecure and may be evacuated immediately upon contact of the urine, thus allowing hemorrhage to continue; that from electrocoagulation, on the other hand, is very tenacious, and when the bleeding has once been arrested by this means there is very little tendency to immediate or secondary recurrence. One lobe is treated at the first sitting, another eight days later, and the treatment is continued at like intervals as long as is necessary for the destruction of the bar and hollowing out a large tunnel for the urethra. During the first few days after the cauterization there is very little if any improvement in urination, owing to the intense hyperemia following the burn; but by the fourth day the patient passes a much larger stream and there is constant improvement thereafter. At the end of about one month the mucous membrane of the urethra is found to be soft, pink in color, and without granulations. Luys admits that the endoscopic treatment of hypertrophy of the prostate requires considerable time and much patience on the part of the surgeon as well as of the patient; but in consideration of the excellence of the results, the slight amount of danger, and the fact that the patient does not have to enter the hospital but can attend to his regular occupation during the course of the treatment, he feels this method deserves acceptance and should be employed in suitable cases.

THE TECHNIQUE OF CECOPEXY.

ATTENTION was called recently in this column to the frequent coincidence of cecum mobile and movable kidney and it was said that when the latter condition called for operation it was often necessary to anchor the cecum and ascending colon as well. A number of methods have been suggested for this purpose. Wilms incised the parietal peritoneum and by blunt dissection made a pocket or "peritoneal pouch" into which the cecum was sutured. Rehn, Coffee, and others have simply stitched the cecum and ascending colon to the posterior parietal peritoneum. The most recent addition to the technique of cecopexy is contributed by Duval (*Revue de Chirurgie*, May, 1914). He quite correctly calls attention to the fact that it does not seem logical to attempt to fix an abnormally mobile organ to so extensible a structure as the peritoneum; and although success has followed this method in some cases, many failures have also been observed. He has accordingly adopted the technique of colopexy which he has described in conjunction with Quénu, namely, the fixation of the intestine to the tendon of the psoas parvus or, when that is lacking, to the inner border of the psoas magnus.

The technique is as follows: The patient is placed in the Trendelenburg position and an oblique iliac incision is made, extending as far as the external border of the rectus. The external oblique aponeurosis is split in the direction of its fibers, as also are the internal oblique and transversalis muscles, but as it is necessary to have ample access to the pelvis, the fibers of these muscles are also cut to the extent of about 1 cm. upward and downward at a point about corresponding to the center of the incision. A large retractor is now introduced, the cecum is delivered, and the small intestines pushed inward and upward, where they are retained by a large compress. The appendix is then removed, and the degree of mobility and dilatation of the cecum are ascertained, cecoplication being done, if necessary. The iliac artery is now located, and immediately outside of this the peritoneum is incised parallel to the artery and running from about the middle of the iliac fossa to the point of fixation of the colon to the lumbar fossa. This incision may be accompanied, or supplemented, by a gentle detachment of the colon to the extent of a few centimeters. This detachment has the advantage of creating a raw surface whose cicatrization will perhaps contribute to the fixation of the cecum. The lips of the peritoneal incision are dissected laterally, the tendon of the psoas parvus or, in its absence, the internal border of the psoas magnus is bared. In this latter contingency it is necessary to liberate the external aspect of the iliac artery and to retract the artery inward in order to pass the sutures. Three or four non-absorbable sutures (linen) are passed in the tendon of the psoas, then in the posterior aspect of the cecum including its posterior longitudinal band, so that the cecum is fastened securely in the iliac fossa. The lips of the incised iliac peritoneum are also sutured around the cecum. When a cecoplication has been done, the sutures

for the plication may sometimes be made to do service for the fixation to the psoas.

This seems the most rational technique that has yet been devised and well worthy of trial. Duval has employed the method in six cases with uniform success. It is recommended by the author as the method of choice for pure cecum mobile; but when, as Coffee suggests, this condition is coincident with loose right kidney, it should be equally valuable, in suitable cases, as an adjunct to nephropexy.

The Acetone Treatment of Inoperable Cancer.

The palliative treatment of inoperable cancer naturally calls for due exhibition of such remedies as have shown themselves of value individually in antagonizing some one or more symptoms, local or systemic, directed both to the tumors and their metastases and to the constitutional condition. In special institutions this may be carried out in great detail. Combinations and successions of individual measures may, through inhibiting proliferation and the pain, fetor and secretion, as well as by holding in check the cachectic ravages, lengthen the expectation of life in a certain number of inmates to a period hardly conceivable. We do not refer entirely to such resources as are actual rivals of the knife (radiotherapy, radium), but to minor measures as well. Among the latter is the acetone treatment, introduced by Gellhorn of St. Louis some four or more years ago. In the *Münchener medizinische Wochenschrift*, May 26, is a review by Vogt of Dresden of 100 personal cases of inoperable cancer treated by Gellhorn's method. After a thorough curettage, which forms a crateriform opening, pure, undiluted acetone is allowed to remain in the latter for 20 minutes; the cavity is then cleansed and tamponed, and the operation is repeated every few days. The immediate effect of the acetone is to produce a seemingly normal granulating surface.

Experimental Bright's Disease.

It has for years been a dictum that experiment on animals throws no light on human nephritis. Many irritating drugs, such as sublimate and cantharides have caused lesions in the tubular apparatus of the kidneys, but never in the other portions of the organ. The lesions thus induced have, moreover, been degenerative, and not inflammatory. In a recent report read before the K. K. Gesellschaft d. Aertze, Vienna (*Berliner klinische Wochenschrift*, June 15), Wiesel and Hess announce a solution of the problem, as follows: They injected uranium salts into the peritoneum and adrenalin in the blood, and thereby produced forms of acute and chronic nephritis differing in no wise from these diseases as they occur spontaneously in mankind. The disease begins as a degeneration of the convoluted tubes of the cortex, accompanied by genuine glomerulitis, which in turn is succeeded by hyaline degeneration and rapid appearance of interstitial foci with thickening of the blood vessels. The general process is degeneration of the parenchyma, with proliferation of the connective tissue. The succession is acute glomerulonephritis, subacute parenchymatous nephritis, and chronic contracted kidney. The rationale seems simple—adrenalin causes a marked constriction of the blood vessels in the glomeruli, so that the uranium retained therein exerts its peculiar toxicity.

News of the Week.

Plague in New Orleans.—The onset of illness in the first recognized case of plague in New Orleans was on June 24. Since then there have been reported five additional cases, the last one having taken ill July 18. According to Public Health Reports for July 17, measures for the eradication of plague at New Orleans have been mapped out and a force organized and put to work by Surg. Gen. Blue, acting under the direction of the Secretary of the Treasury. Dr. Blue has left Asst. Surg. Gen. W. C. Rucker in immediate charge of the work in New Orleans and has made a tour of inspection of Gulf and river ports. The measures being taken to eradicate plague and to prevent its spread from the city are as follows: All vessels leaving New Orleans are fended off from the dock 8 feet and rat guards 36 inches in diameter are applied to all lines and cables connecting the vessels with the dock. All gangways are guarded by watchmen while down. Prior to loading, all vessels are fumigated to destroy rats, sulphur being burned to make a 4 per cent. sulphur dioxide gas in the spaces fumigated. All general freight shipped overland and oversea is inspected to ascertain whether there is a possibility of its harboring rats or mice. Foci of plague, both human and rodent, are being treated by removal of the inhabitants; by fumigation of all buildings; and by deratization by the summary destruction of rat-harboring places, intensive trapping and poisoning, and enforced rat-proofing. Passed Assistant Surgeon Creel has been made executive officer in charge of the working force. Surgeon Corput is in charge of measures applied to outgoing vessels. Passed Assistant Surgeon Simpson is in charge of the field work in the city. Assistant Surgeon Williams is in charge of the laboratory. That portion of the city bounded by Canal Street, Claiborne Street, Louisiana Avenue, and the river has been divided into three districts, to be placed in charge of Assistant Surgeons Kearny, Carmelia, and Akin. July 10 the inspection of the bodies of all persons dying in the city was begun. This inspection is made daily between the hours of 6 and 9 P.M. The force making the rodent survey consists of 188 men engaged in trapping. They have in use 12,779 traps, which they are systematically setting throughout the suspected district and adjoining territory. Gangs of men have been started distributing rat poison. A laboratory has been fitted up and the laboratory examination of the rats trapped is in full force. On July 16, 1,039 rats were caught. The number of rats being caught is increasing at the rate of about 100 daily. The residents of the city are being informed of the nature of the situation and the necessity for their frank cooperation. This is being done through a publicity campaign and daily addresses at meetings. Effective rat-proofing laws have been drafted and submitted to the city authorities for enactment. Three plague-infected rats have been found thus far.

New Hospital to Open.—The opening of the new isolation hospital of Hartford, Conn., which was originally planned for July 1, has been postponed owing to delay in the finishing of the building. The hospital has cost about $100,000, and when it is completed Hartford will be well equipped to handle contagious cases.

Wide Drug Crusade.—Those who were instrumental in securing the passage of the Boylan anti-

drug law in New York State are said to be planning a national movement with a view to securing Federal legislation restricting the sale and use of habit-forming drugs. The chief difficulty so far encountered in securing good results in this State by the enforcement of the Boylan law has been the ease with which drugs can be obtained in New Jersey and Connecticut.

City Death Rate Still Low.—For the week ending July 11, the death rate was the next to the lowest in the city's history, being only slightly larger than that of the previous week when the low record was established. There were 1,180 deaths, or a death rate of 11.02 per 1,000 of population. The death rate for the first twenty-eight weeks of the year was 14.51 per 1,000, or 0.33 less than that for the corresponding period of last year.

State Vital Statistics.—During the month of May the total number of births in New York State was 19,675, with an excess of 657 males over females. The birth rate for the entire State was 23.5 per 1,000 of population, Batavia leading with a rate of 31.8, while New York City had a rate of 26. The lowest rates were recorded in the manufacturing towns where women are largely employed in mills and factories. The average birth rate in cities of the first class was 26.1; of the second class, 22.1; and of the third class, 22.9. The deaths throughout the State numbered 12,872, or 6,803 less than the total births. Oneida had the highest death rate, 30 per 1,000, while Watertown had the lowest, 9. The average for the entire State, exclusive of the deaths occurring in State institutions, was 15 per 1,000. For the first class cities the death rate was 15.31; for the second class, 15.1; for the third class, 16.6, and for the rural districts 15 per 1,000. Heart disease caused the greatest mortality during the month, 188 deaths per 1,000; tuberculosis was second, causing 160.4 deaths per 1,000; and Bright's disease third, with 128.5 per 1,000. The suicides numbered 133.

Record Immigration Year.—The highest record for immigration into the United States, made in 1907, has undoubtedly been broken in the fiscal year ending June 30, 1914. During the year which ended on June 30, 1907, foreigners to the number of 1,285,349 entered the country, and during the eleven months ending May 30, 1914, the number was 1,254,548, so that it is estimated that the total for this year will reach at least 1,355,000. There has been a marked increase in the number of persons, principally men, coming in from every country taking part in the Balkan war, although there was a greater number, 312,818, of Italians than of any other nationality.

Centenarian Dead.—William Clark, the oldest citizen of Cleveland, O., died at his home on July 14, aged 103 years.

Additional Milk Stations.—Six new milk stations were opened in New York City during the week of July 11, as a result of the work done by the Mayor's Special Committee on Baby Week, and still more will be opened shortly.

Medical Examinations.—Of the fourteen applicants who took the examination before the State Board of Health of Rhode Island recently, ten were successful and have received licenses to practise medicine in that State.

Roof Garden for Blind.—On the roof of the Bank of the United States at 81 Delancey Street, New York, there has been fitted up, through the generosity of the president of the bank, a roof garden for the blind of the neighborhood. Attendants will be present and a library of books in raised letters has been provided. Entertainments also will be given. The roof is one hundred feet above the sidewalk and is said to be the only place of its kind on the East Side.

Volunteers' Hospital.—The eighth annual report of the Volunteers' Hospital, New York, shows that during the year ending September 30, 1913, a total of 37,706 persons were helped. The major operations numbered 362; 1,214 ambulance calls were answered; and in the dispensary 11,879 new patients and 20,031 old ones were treated. The cost of maintenance for the year was $25,226, and at the close of the fiscal year the hospital faced a deficit of $2,517.

Reciprocity between New York and Virginia.—A reciprocity agreement between the State of New York and the State of Virginia has been entered upon for the endorsement of each other's medical licenses, providing the applicants have complied with all the specified requirements.

Personals.—Dr. GEORGE W. CRILE of Cleveland, O., has been selected by the Trustees of the American Medicine Gold Medal as the recipient of the medal for 1914, Dr. Crile being in the judgment of the trustees the American physician who has performed the most conspicuous and noteworthy service in the domain of medicine and surgery during the past year.

Dr. WILLIAM H. WALSH, superintendent of the Philadelphia Municipal Hospital for Contagious Diseases, and recently acting chief resident physician at the Philadelphia General Hospital, has been appointed medical administrator of the new Children's Hospital now in course of erection in Philadelphia. Dr. Walsh is a graduate of the Medico-Chirurgical College of Philadelphia.

Dr. ROBERT N. WILLSON, Jr., of Philadelphia, has been appointed visiting physician to the Philadelphia General Hospital in succession to Dr. William E. Hughes, resigned.

Dr. HERMAN B. SHEFFIELD of New York has been awarded the Alvarenga Prize for 1914, amounting to $180.00, for his essay entitled "Idiocy and the Allied Mental Deficiencies in Infancy and Early Childhood," submitted in competition under the motto "Corpus Mentis."

Dr. PAUL FRANKLIN CLARK, formerly associate in pathology and bacteriology at the Rockefeller Institute, New York, has been appointed assistant professor of bacteriology in the University of Wisconsin.

Dr. HOMER F. SWIFT, formerly resident physician in the Hospital of the Rockefeller Institute and assistant in medicine, has been appointed associate professor of medicine at the College of Physicians and Surgeons, Columbia University, and associate attending physician, Presbyterian Hospital, New York.

Rockefeller Institute Appointments.—The Board of Scientific Directors of the Rockefeller Institute for Medical Research, New York, announces the following appointments and promotions: Dr. Hideyo Noguchi, hitherto an associate member in the Department of Pathology and Bacteriology, has been made a member of the Institute. Dr. Alfred E. Cohn, hitherto an associate in medicine, has been made an associate member for the term of three years. Dr. Wade H. Brown, hitherto an associate in the Department of Pathology and Bacteriology, has been made an associate member for the term of

three years. The following assistants have been made associates in the departments specified: Dr. Harold Lindsay Amoss, Pathology and Bacteriology; Dr. Arthur William Mickle Ellis, Medicine; Dr. Thomas Stotesbury Githens and Dr. Israel Simon Kleiner, Physiology and Pharmacology; Dr. Alphonse Raymond Dochez, Medicine. Dr. Dochez has also been appointed resident physician in the Hospital of the Rockefeller Institute to succeed Dr. Swift. The following fellows have been made assistants: Dr. Frederick Lamont Gates, Physiology and Pharmacology, and Dr. Louise Pearce, Pathology and Bacteriology. The following new appointments have also been made: Mr. Chester Harmon Allen, M.S., fellow in chemistry; Dr. Alan M. Chesney, assistant resident physician and assistant in medicine; Dr. Harold Kniest Faber, fellow in pathology; Dr. Ross Alexander Jamieson, assistant resident physician and assistant in medicine; Dr. Benjamin Schönbrun Kline, Fellow in physiology and pharmacology; Dr. John Jamieson Morton, Jr., fellow in pathology; Mr. James Kuhn, Sr., M.A., fellow in chemistry; Dr. Joseph Richard Turner, fellow in pathology.

Gifts to Charities.—By the will of the late Elizabeth E. Smith of Philadelphia, the sum of $5,000 is bequeathed to St. Timothy's Hospital, Philadelphia. The Jewish Hospital of the same city receives a bequest of $500 by the will of the late Esther Baum. The Memorial Hospital, Johnstown, Pa., and the Washington and Jefferson Hospital, Washington, Pa., receive bequests of $1,000 each by the will of the late James M. Swank of Philadelphia.

Indian Conference.—A conference of the Physicians of the United States Indian Service of the Northwest was held at the Fort Lapwai Indian Sanatorium, Fort Lapwai, Idaho, on June 23 to 25, 1914. The conference was directly in charge of Dr. Joseph A. Murphy, U. S. Indian service. The sessions of the first day were devoted to a consideration of the question of tuberculosis among the Indians, the papers presented being supplemented by discussions and clinical demonstrations. Trachoma among the Indians was the topic for discussion on the second day, and on the third day the subjects of oral hygiene and general infectious diseases were taken up. After a general discussion of all the medical problems of the Indian Service, the conference adjourned to meet in Denver in 1915.

Coming Medical Meetings.—The twenty-seventh annual meeting of the Medical Society of the Missouri Valley will be held at Colfax, Ia., on Thursday and Friday, September 17 and 18, 1914. Various medical clinics will he held in Des Moines on Saturday, September 19. Further details as to program, etc., may be obtained by application to the secretary, Dr. Charles Wood Fassett, St. Joseph, Mo. The third annual convention of the American Association for the Study of Spondylotherapy will be held in Chicago on September 21 to 24, 1914, under the presidency of Dr. George C. Jarvis of Ashland, Ore. Programs may be obtained from the secretary of the organization, Dr. S. Edgar Bond, Richmond, Ind.

Obituary Notes.—Dr. Henry Clay Eno of New York, a graduate of Yale University in 1860 and of the College of Physicians and Surgeons, New York, in 1864, and for many years attending surgeon to the New York Eye and Ear Infirmary, died at his home on July 16, aged 73 years.

Dr. J. Clark Stewart of Minneapolis, Minn., a graduate of the College of Physicians and Surgeons, New York, in 1884, professor of the principles of surgery in the University of Minnesota College of Medicine and Surgery, and a member of the American Medical Association, the Western Surgical Association, and the Minnesota State and Hennepin County Medical Associations, died at his home, after a long illness, on June 25, aged 60 years.

Dr. Dean Samuel Ellis of Worcester, Mass., a graduate of the Jefferson Medical College, Philadelphia, in 1883, and a member of the American Medical Association, and the Massachusetts and Worcester District Medical Societies, died at his home, after a long illness, on June 30, aged 58 years.

Dr. George S. Morgan of New London, Conn., a graduate of the New York Homeopathic Medical College and Hospital in 1879, died at his home on July 5, aged 59 years.

Dr. Howard K. Edgerton of Lebanon, Tenn., a graduate of the University of Nashville, Medical Department, in 1889, and a member of the Tennessee State and Wilson County Medical Associations, died at his home on June 30, aged 48 years.

Dr. Ernest A. Hendricks of Tuscola, Tex., a graduate of the Birmingham Medical College, Birmingham, Ala., in 1908, and a member of the State Medical Association of Texas and the Taylor County Medical Society, died at his home from tuberculosis after a long illness, on July 1, aged 30 years.

Dr. John Joseph Mitchell of Boston, a graduate of the Harvard University Medical School in 1902, died recently at his home in Charlestown.

Dr. Sumner Ferdinand Quimby of Gloucester, Mass., a graduate of the New York University Medical College in 1881, for over thirty years medical examiner of Gloucester, and a member of the American Medical Association and the Massachusetts and Essex District Medical Societies, died suddenly at his home on July 10, aged 62 years.

Dr. Samuel Claggett of Petersville, Md., a graduate of the University of Maryland School of Medicine, Baltimore, in 1898, and a member of the American Medical Association, the Medical and Chirurgical Faculty of Maryland, and the Frederick County Medical Society, died at the University of Maryland Hospital, from Bright's disease, after a short illness, on July 10, aged 41 years.

Dr. Rufus C. Webb of Rayne, La., a graduate of the Medical Department, Vanderbilt University, Nashville, Tenn., in 1883, president of the Rayne Health Board, and a former member of the Louisiana State Legislature, died at the Touro Infirmary, New Orleans, after a long illness, on July 5, aged 52 years.

Dr. James C. Rippard of Waycross, Ga., a graduate of the College of Physicians and Surgeons, Baltimore, in 1881, and a member of the Medical Association of Georgia and the Ware County Medical Society, of which he was a former president, died at his home from heart disease, after a short illness, on July 4, aged 57 years.

Dr. John H. Redding of Waycross, Ga., a graduate of the Southern Medical College, Atlanta, in 1881, and a member of the Medical Association of Georgia and the Ware County Medical Society, died at his home, after a brief illness, from pneumonia, on July 6, aged 65 years.

Dr. Harold T. Houg of Racine, Wis., a graduate of the Medical Department of Marquette University, Milwaukee in 1910, and formerly instructor in sur-

gery in that school, died at his home, after a long illness, on July 5, aged 28 years.

Dr. WILLIAM McD. AMOS, retired, of San Dimas, Cal., a graduate of the College of Physicians and Surgeons, Keokuk, Ia., in 1871, died at his home, after a short illness, on July 2, aged 72 years.

Dr. ALBERT ROBERTS PYNE of Toronto, Canada, a graduate of the Toronto School of Medicine, in 1887, died at his home, from paralysis, after a long illness, on July 6, aged 65 years.

Dr. ANDREW BAYLIES of Worcester, Mass., a graduate of the New York University Medical College in 1879 and a member of the Massachusetts and Worcester District Medical Society, died at his home on July 7, aged 75 years.

Dr. EDMOND QUANDT of Detroit, Mich., a graduate of the Detroit College of Medicine in 1902 and county physician of Wayne County, died at his home, after a long illness, from tuberculosis, on July 5, aged 34 years.

Dr. GEORGE W. SEIFERT of San José, Cal., a graduate of the Jefferson Medical College, Philadelphia, in 1883, and a member of the Medical Society of the State of California and the Santa Clara County Medical Society, died suddenly at San Francisco, from heart disease, on July 2, aged 54 years.

Dr. AUGUSTUS B. KNOWLTON of Columbia, S. C., a graduate of the Medical College of the State of South Carolina, Charleston, in 1893, a member of the American Medical Association, the South Carolina Medical Association, and the Columbia Medical Society, and surgeon in charge of the Knowlton Hospital, Columbia, died at his home, after a long illness, on July 12, aged 46 years.

Dr. SHADRACH BURTON of Dallas, Tex., a graduate of the Eclectic Medical College of Pennsylvania, Philadelphia, in 1871, died at his home on July 6, aged 83 years.

Dr. AARON HERRING of Sparks, Kan., a graduate of the Ensworth Medical College, St. Joseph, Mo., in 1890, and a member of the Kansas and Doniphan County Medical Societies, died at his home, after a short illness, on July 9, aged 61 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

RESEARCH DEFENSE SOCIETY, NEW PRESIDENT ON EXPERIMENTS—GENERAL VAILLARD'S LECTURE ON HOUSE FLIES AND THE PUBLIC HEALTH—MILK SUPPLY REGULATION—CONFERENCES.

LONDON, July 10, 1914.

AT the annual meeting of the Research Defense Society held last week the new president, Lord Lamington, delivered an address in which he took a somewhat unusual line, so far as public speeches go, though many of his remarks will be familiar to your readers. He held that the question of cruelty to animals should be considered in relation to that of the allegations of a brutalizing effect on the human mind. Many were perplexed by the preying of one class of animals on another as if their one desire was to wound. But really if the wishes of dogs or cocks could be consulted he presumed they would enjoy nothing more than a good fight. If it was not physical pain that caused most suffering to animals it was when the instinct of self-preservation took alarm that they suffered. Anyone who has observed wild animals when wounded knew that unless alarmed they seemed indifferent to the wounds. When people talked of killing old horses out of kindness he asked whether they might not prefer to live with all the disabilities of old age. One, he said, must recognize that pain does not affect animals with the same intensity as it does man, and further, uncivilized man does not feel it in the same degree as civilized and there are African races which seem totally insensible to it and refuse to take anesthetics for operations. He questioned whether those Indians who held the religious belief against taking animal life had not a sounder basis for their faith than anti-vivisectionists who had only the idea of stopping the infliction of pain. But they should remember that only 5 per cent. of experiments on animals were of a surgical nature or involved operation and many were made under anesthesia and the animals were killed before recovering consciousness. As to inoculations he had seen guinea pigs infected with cancer moving about and feeding without apparent discomfort. The Royal Commission's report would be considered to convince any one that the actual pain produced would be infinitesimal.

They should consider in comparison the mutilation of farm animals. In spring and early summer, said the president, the farms of the country seethe, so to say, with vivisection, sensitive organs being cut out of animals in full consciousness—this by the million annually. This is no exaggeration; one can find it in the statistics returned by the Board of Agriculture every year. Lord Lamington then diverted attention to benefits gained by experiments not only as regarded human life, but the life and health of the higher animals themselves.

The reports of the committee and treasurer were brought forward by Lord Knutsford, who expressed pleasure that the Dog's Bill had been rejected by the House of Commons for it would prevent research as to distemper—a horrible disease of dogs. He supposed any of the members would consent to an operation if it would save pain to thousands in the future and why should the dog be denied the same privilege? The report showed a satisfactory condition of the society which now numbers above 5,000 members and is very active, more than 100 meetings having been held during the year to promote its object, which is the steady education of public opinion concerning the true character of experimentation on animals and the advantages which have been gained therefrom in the past and are to be expected in the future.

After the meeting there was an exhibiton of moving pictures relating to the subject, *e.g.* bacilli of cholera and typhoid, spirochetes, trypanosomes, mosquitos, etc.

General Vaillard, the president of the Health Board of the French Army, has been here and delivered a lecture at the Royal Society of Medicine. He took for his subject "Houseflies and Public Health," opening with a description of the insects' life history and quoting Howard's estimate of the possible numbers that a single fly might produce in the climate of Washington, with which no doubt you are familiar. He then considered their influence on the spread of disease. In cholera a close relation had been noticed between the progress of the disease and the appearance or disappearance of flies. In the Spanish-American war and in the Boer war the army surgeons blamed the flies as carriers of typhoid. They found at Ladysmith that supplying filtered water to the troops did not eradicate the fever, but by simply protecting the food

from being visited by flies they rapidly reduced the epidemic. In the same way flies spread dysentery and infantile diarrhea. They also shared in the distribution of tuberculosis, granular ophthalmia, poliomyelitis, and leprosy. A fly might be charged with more infecting agents than the most polluted water—in some circumstances might be equivalent to pails of contaminated milk or water. A campaign against flies should be a part of all measures for preventing the dissemination of infectious diseases. To achieve success the public must be educated on the subject so that they would support the necessary measures. Individuals could easily prevent flies entering a room and to destroy them if they did enter means were not lacking. Traps, sticky and poison papers were numerous. Pyrethrum powder was very active when fresh and of good quality. Milk containing 15 per cent. of formalin gave excellent results. Cresol fumigations were not sufficiently known, but deserved special attention for they destroyed mosquitos as well as flies and were particularly applicable to kitchens, stables, yards, and generally all places where the insects could harbor for the winter. The suppression of these shelters was especially important as in them the insects produced new generations for the next summer. But the essential thing was to suppress their facilities for breeding. If they abounded in country places, army camps, dirty villages and towns, or parts of cities it was because they found putrescent or putrified matters which suited them for breeding in and for the development of their larvæ. Therefore the most effective measures were the destruction of these media and general cleanliness. The search for the shelters where they hibernate must always be a factor in every campaign against flies, for the destruction of the adults in their winter quarters entailed the suppression of the joint generation in summer.

General Vaillard mentioned some of the natural enemies of the fly—the spider, certain beetles, the centipede, etc.—but as they do not seem likely to help in the campaign I may pass them by. He credited the researches of English workers, the local government board, County Council, and some of our cities which, like Glasgow, had set a good example, with having begun the campaign and announced that in France the public were awaking and that at his instigation the "Conseil d'Hygiène et de Salubrité" of Paris had approved the propaganda, so it may be hoped that collective efforts may be made to abolish the scourge.

In the Standing Committee of the House of Commons there has been some more skirmishing about the Milk Bill. It was proposed to provide for the sale of a "certified" milk, the term being protected. This would follow your example in New York. The president of the Local Governing Board said he would willingly adopt the plan and Dr. Addison said that what was sold as "infants'" milk was often inferior to the ordinary supply, but of course "certified" would have to mean inspected. Objection was made that the plan would be received with dismay by farmers unless one word, certified or other, and one alone, were allowed and strictly protected. Another member supported the scheme as likely to benefit equally the producer and the consumer.

This milk question also bulked largely at the Conference on Infant Mortality on July 2 and 3 as well as at others, for we have been surfeited with conferences of late, those mentioned being followed on the 6th and 7th inst. by the Royal Sanitary Institute and on the 7th and 8th by that for the Prevention of Tuberculosis, to say nothing of those on the Insurance Act and on sanitorium treatment which have intervened.

OUR LETTER FROM VERA CRUZ.

(From Our Special Correspondent.)

BACILLARY DYSENTERY AMONG THE TROOPS—SUCCESSFUL TREATMENT WITH SALINES.

VERA CRUZ, June 30, 1914.

GASTROINTESTINAL disorders commenced in the United States soldiers immediately after disembarking from the transports in Vera Cruz and after eating food that had been unavoidably exposed to flies. There is dysentery present among the natives, and carriers are constantly present.

The city water is obtained from the Jamapa river and purified by slow sand filtration; following the arrival of the troops, these beds were overtaxed and a very poor quality of water resulted. All troops are using this same supply, but as the various regiments were infected in varying degrees, some heavily and others scarcely at all, other means of transmission than water were to be sought for.

Flies were numerous and kitchens unscreened, leaving an unavoidable exposure of food to these insects. Army officers from previous experience and careful scrutiny of conditions feel sure that so far a greater portion, at least, of intestinal disorders have been due to the mechanical transmission of infection by food and flies. Thus we again have Osler's familiar syndrome in preventive medicine—"flies, fingers, and food."

Enteritis (diarrhea) has been the greatest cause of admission, but these cases have responded promptly to a purge, rest, and liquid diet for a few days. This has not been the case with dysentery. From the first, patients have been admitted with a very severe type of bacillary dysentery. Incubation period varies from a few hours to two days, commencing with numerous bloody and mucous stools, abdominal pain, rectal tenesmus, and violent toxemia. The number of stools vary from fifteen to forty in twenty-four hours; they first show blood, mucus, bile-stained particles, and epithelium in single cells. Later, the stools become less numerous, blood and mucus greatly reduced, and epithelium appearing in masses or sloughs. The stools at this time are very offensive. About the tenth day of the disease, blood and mucus disappear, and the stools number about two a day; the tongue is clean, no pain, and the patient sleeps well. From now on convalescence usually commences and takes about a month.

There have been twenty-one dysentery admissions, three amebic—caused by the *Amœba hystolytica*—and eighteen bacillary. The medical officers here no longer recognize any other types of dysentery than amebic and bacillary.

Of these bacillary cases the more severe type appeared within the first six weeks after arriving, and although cases are being admitted from time to time, they are of a very much milder nature, are free from complications, and run an early and rapid convalescence.

Treatment of these bacillary patients has proven to be very interesting and instructive. It shows clearly that some methods recommended are not to be used, being not only worthless but dangerous. Of this class will be mentioned the opium and ipecac treatments. Both of these methods were tried and

the conclusion drawn is that both are harmful. The only death occurred in a case so treated. It is true that three cases recovered on which ipecac was used, with morphine to control the pain, but it was commenced late in the disease—about the eighth day. No improvement could be noticed following its administration. Ipecac was also tried on another case, that rapidly became worse after taking this drug; recovery took place when the patient was transferred to the United States. In the fourth case on which ipecac was used, the only death so far, the decline was very noticeable after taking thirty-five grains of ipecac salol coated.

This method of treatment having been proved an utter failure, anti-dysenteric serum and salines were tried. The serum was given in four cases, commencing on the eighth, third, fifth, and second day of the disease, respectively, reckoning from the first bloody stool. From ten to twenty c.c. per day was given subcutaneously about the chest. No improvement could be seen during five days of this treatment, and it was stopped. Of the four cases thus treated three developed complications; one, hemiplegia with acute local urticaria at the sites of inoculation; the second, multiple arthritis involving all large joints and a general erythema; the third case developed acute urticaria at all the sites of inoculation, becoming generalized in twenty-four hours, and covering almost the entire body. This patient suffered intensely, and, on the sixteenth day of the disease, developed multiple neuritis, involving both legs and the left forearm. These complications showed improvement within twenty-four hours, and with the exception of the hemiplegia almost entirely disappeared by the twentieth day.

Saline treatment is considered the treatment of election by the Army in Vera Cruz. Since it was commenced, there have been no deaths, and a steady improvement has been shown in all cases. Further, it has been used on patients believed to be as seriously affected as the patient that died under ipecac. It is carried out as follows: The patient is immediately put to bed and required to use the bed pan (rest is considered to be a very important element). The diet is liquid, and cornstarch enemata given low once a day, magnesium sulphate in 20 c.c. doses of the saturated solution is given every four hours, followed in one hour by ten drops of aromatic sulphuric acid in water. The stools are at first increased in number, but within two days they are greatly reduced in number and a marked improvement shown in quality, pain disappears, and the tongue becomes cleaner. When there is no longer blood, large sloughs, or offensive odor, and the number of stools is reduced to about three in twenty-four hours, the tongue at this time being clean, magnesium sulphate and aromatic sulphuric acid are reduced to twice daily. Bismuth subnitrate in 60 grain doses with 3 grains of salol is given every six hours. The following day, an egg and a piece of toast is added to the diet. The next day, magnesium sulphate is stopped as a routine, and the diet increased by adding a broiled scraped meat ball, boiled rice, boiled onion, eggs and toast.

Bismuth is decreased and the diet increased as the patient shows improvement. It is not uncommon to find a purgative necessary soon after commencing regular diet. Sodium phosphate in 15-grain doses is given before breakfast. The course of the disease and convalescence has averaged about a month in the more severe cases, and between two and three weeks in the milder types. Experience has shown that neither opium nor alcohol is to be given, pain is easily controlled by turpentine stupes to the abdomen, and alcohol is never necessary.

The amebic cases have responded promptly to emetine given hypodermically. In the single acute case the parasites disappeared in two days; emetine in one-third grain doses, three times a day, was used, but as a precautionary measure was continued for eight days after no parasites could be found in the stools. In the chronic cases it seems best to give emetine in one-third grain doses once or twice a day, but it is necessary to continue the administration much longer than in the acute form. Quinine enemata, although of questionable value, have been used as a routine. One quart of warm quinine sulphate solution (1-5,000) is given low twice a day.

Progress of Medical Science.

Boston Medical and Surgical Journal.

July 9, 1914.

1. Acute Abscess and Gangrene of the Lung. I. J. Walker.
2. The Anatomy and Physiology of the Seminal Vesicles with Regard to the Treatment of Their Lesions. W. C. Quinby.
3. Recent Studies in the Pathology of the Seminal Vesicles. J. D. Barney.
4. Arthritis Associated with Lesions of the Genitourinary Tract. E. G. Brackett.
5. The Erythema Group. H. Morrison.

1. Acute Abscess and Gangrene of the Lung.—I. J. Walker presents the following statistics based upon a review of the literature of the past ten years: Total number of cases of acute abscess of the lung, 132; males, 98; females, 32; sex not mentioned, 2. Total number of cases of acute gangrene, 40; males, 27; females, 5; sex not mentioned, 8. Average age in cases of acute abscess, 24.5 years; in cases of acute gangrene, 38.6 years. In acute abscess of the lung the right side of the chest was involved in 60 cases, the left in 45 cases; both sides in 5 cases; side not mentioned in 22 cases. In gangrene the right side of the chest was involved in 21 cases, the left side in 9 cases, both sides in 2 cases; sides not mentioned in 8 cases. In acute abscess the lobes were found to be involved as follows: Upper, 21 times; lower, 76 times; middle, twice; both upper and lower, 5 times. In twenty-eight cases the lobe was not mentioned. In acute gangrene: Upper, 10 times; lower, 24 times; middle, none; both upper and lower, 6 times. In acute abscess adhesions were present in 63, absent in 2, not mentioned in 57. In acute gangrene they were present in 17 cases; not mentioned in 23 cases. In 104 cases of acute abscess the lesions were single; they were multiple in 16 and were not mentioned in 12. The mortality in cases of acute abscess treated medically was 54 per cent.; in those treated surgically, 25 per cent. The mortality in cases of gangrene treated medically was 89 per cent.; in those treated surgically it was 44 per cent.

3. Pathology of the Seminal Vesicles.—J. D. Barney points out that vesiculitis may occur from infection with the tubercle bacillus. When one vesicle is involved its fellow may also be safely accused. Radiograms with collargol demonstrate the presence of inflammatory changes and their future as a diagnostic aid seems bright. Dense adhesions, usually surrounding the junction of the vas and vesicle, not only make operation difficult, but in most cases would make successful separation of the two structures impossible. Disease of the vas at its ampulla accompanies disease of the vesicle and the conservation of the former structure in the hope of preserving the continuity of the seminal duct is of doubtful value to the patient.

4. Arthritis Associated with Lesions of the Genitourinary Tract.—E. G. Brackett states that one may consider the joint manifestations connected with the genitourinary tract under two heads: (1) Those from the Neisser germ, and (2) those from the colon bacillus. The occurrence of an arthritis in the course of the acute urethritis is so familiar that only reference to it is made. The usual result is recovery with little or no impairment, but unfortunately this is not always the case. Of the less common and less favorable type there are two distinct forms. First, the acute monarticular or residaul monarticular involvement, running an acute and persistent clinical course, and resulting in loss of joint function. Its distinctive characteristics are the following: An arthritis of sudden appearance, giving evidence of a very acute synovial inflammatory involvement, as shown by acute pain, sensitiveness, deformity, which are persistent symptoms, and all of which indicate an inflammatory process in both parts of the capsule, a process which later shows an inherent tendency to marked contraction, with very strong adhesions or even destruction. In addition to these clinical signs, the presence of the bacillus is frequently found in very many cases. In other words, an acute inflammatory, non-suppurative destructive arthritis, a very distinctly different picture from that of the other forms of arthritis, and one which for contrast one may term a bacterial infection. The second type of infection is the more common variety. Its distinctive characteristics are an arthritis not of sudden appearance; perhaps with a history of previous attacks, often of acute but not extreme virulence; polyarticular in distribution, with marked but not extreme pathological changes in the capsule, with a strong tendency to the formation of adhesions, but not tending to destruction, except by prolonged and repeated attacks. In other words, one has a mildly inflammatory process, a multiple, slowly damaging arthritis from toxic infection. The injury in these cases is by interference with nutrition rather than by the acuteness of the inflammatory process. The second form of arthritis is the involvement of the joints by the invasion of the colon bacillus. Much less is known of the special joint manifestations of this than of the Neisser germ, and the actual differentiation must rest on the localization of the focus, and through this of the detection of the kind of infection. Although much less is understood of the characteristic joint manifestations of this infection, some general points are suggestive. The onset is sudden or gradual; the lesions are polyarticular, the spine is frequently invaded, and there is persistent acute involvement.

New York Medical Journal.

July 11, 1914.

1. Treatment of Summer Diarrheas of Children. F. M. Crandall.
2. Obstetrical Paralysis. T. T. Thomas.
3. Transplantation of a Testicle from the Dead to the Living Body. G. F. Lydston.
4. A Plea for Saner Methods in the Treatment of Pulmonary Consumption. T. J. Mays.
5. Myasthenia Gravis. S. P. Goodhart.
6. A Combined Fracture and Orthopedic Operating Table. C. H. Sanford and H. Fitz-Simmons.
7. Hygiene of Nutrition. H. P. DeForest.
8. Physiological Treatment of Catarrhal Deafness. A. C. Geyser.
9. Hereditary Cerebellar Ataxia. S. A. Blauner.
10. Hourglass Contraction of the Uterus Following the Use of Pituitary Extract. T. H. Cherry.

1. Treatment of Summer Diarrheas of Children.—F. M. Crandall states that four general measures of treatment are indicated—mechanical, dietetic, hygienic, and medicinal. At the outset mechanical measures are usually indicated to clear the digestive tract of fermenting material. Stomach washing is rarely necessary, but should be resorted to if the child continues to vomit curds or food or sour and putrefying matter. Prompt unloading of the lower bowell by means of irrigation is very important. High irrigations are valuable until convalescence is thoroughly established. At the outset of an acute diarrhea all food should be prohibited, but water should be given freely unless it induces vomiting. Milk should be resumed with great caution and sometimes must be long withheld. As a rule a laxative at the outset is strongly indicated. Castor oil is usually the one to be selected. A saline may fulfil the requirements very well. When the stomach is irritable calomel in small divided doses is frequently the laxative to be chosen. The type of disease should influence largely the laxative to be chosen. In the last half of June and the first half of July the prevailing type is the serous diarrhea, marked by large watery passages, ranging from a few up to twenty or thirty a day. During the following six weeks these serous cases are comparatively rare and true enterocolitis is more common. This means that the acute cases of the earlier summer have settled down to a true organic or inflammatory disease. During August the passages are of the thicker and more grumous type. New cases are much less frequent than in the earlier summer. In the late summer and early fall colitis appears, and the passages are of the so-called dysenteric type. They consist largely of mucus and blood and are accompanied by tenesmus and high fever. With cases of the serous type, with twenty or thirty large movements a day, it is often a question whether it is wise to administer a laxative. When mucus and blood appear in the stools, castor oil should be given and persisted in, even at the expense of some nausea and vomiting. Astringents, so much used in the past, are irrational and ineffective. Bismuth either alone or with some simple adjuvant, is today the most commonly used drug in summer diarrhea. Opium is contraindicated in the first stages of acute diarrhea, before the intestinal canal has been freed from decomposing matter; when the passages are infrequent or of bad odor; when there is a high temperature or cerebral symptoms are present, and when its use is followed by increase of temperature or the passages become more offensive. It is indicated when the passages are very frequent with pain; when the passages are excessively frequent, large, and watery; in dysenteric diarrhea, in which case it should be preceded by castor oil or a saline; in late stages with small frequent, nagging passages, and when the passages consist largely of undigested food, and the bowels act soon after the food is taken into the stomach.

2. Obstetrical Paralysis.—T. T. Thomas details his reasons for believing that most obstetrical palsies are of shoulder joint origin, as follows: In all of his cases in which the parents could recall the facts, the testimony was that following birth the child cried violently when the affected shoulder was manipulated. There were no abnormal electrical reactions in any of his cases. All of those without subluxation ended in complete recovery, except one with some restriction of abduction, and external rotation at the shoulder and an old injury at the elbow, and another about six months old, which is rapidly improving. All of the author's cases in which there seemed to be a permanent palsy, showed posterior subluxation of the shoulder joint. The chief evidence supporting the plexus theory is that obtained at operation on the plexus, all of which can be explained by the joint lesion, except the actual rupture of the roots found in a few cases which need further confirmation. The frequent occurrence of posterior subluxation of the shoulder joint was not taken into account by those most favorable to the plexus theory.

The presence of the bent-down condition of the acromion, in the author's opinion, will establish the occurrence of the subluxation at birth and therefore the dependence of the palsy upon the joint lesion. Since the roots of the plexus are all mixed motor and sensory nerves, sensation should be frequently and seriously disturbed if the cause is a rupture of the plexus, yet sensation is rarely disturbed. The Duchenne-Erb type of paralysis is generally agreed to be common to the frequent adult cases and the obstetrical palsies. The plexus lesion and the muscles paralyzed are agreed to be the same in both groups, yet the very frequent posterior subluxation in the obstetrical palsies accounted for by the effects of the paralysis, never occurs in the adult cases. Why not the same effect from the same paralysis in both groups? It is well known that traumatic dislocations of the shoulder frequently precede the paralysis in the adult cases, yet according to the present-day supporters of the plexus theory, the dislocation in the children always follows and is due to the paralysis. Why this important difference? The establishment of a traumatic origin at birth would clear up all the difficulty. Duchenne, who first described obstetrical palsies and ascribed them to injuries of the brachial plexus, found these posterior dislocations frequently associated. He said that many of them were due to manipulations of the physician during delivery—*i. e.*, they were traumatic in origin and occurred at birth. In the author's opinion the plexus theory is the greatest obstacle to the complete recovery of most of these cases, and if these dislocations were recognized at birth and completely reduced there would be few permanent obstetrical palsies.

3. Transplantation of a Testicle from the Dead to the Living Body.—G. F. Lydston, believing that obstinate chronic skin diseases, notably psoriasis, were a promising field for the therapeutic administration of the sex gland hormone via implantation implanted in the right scrotal sac of a man suffering from psoriasis, a testicle—with the epididymis excised—removed from an apparently healthy subject about twenty-one years of age, dead thirty hours before from contact with a live wire. The operation was done ten hours after removal of the testis from the dead subject—*i. e.*, forty hours after death. The postoperative course was uneventful. The wound healed by primary union, and there was very little swelling about the site of the implantation. The highest temperature recorded was 100° F. On the third day after the implantation improvement was noted in the psoriasis. The eighth day after the operation the lesions were so improved that they could scarcely be recognized as psoriasis.

Journal of the American Medical Association.

July 11, 1914.

1. The Future of Dermatology in America. R. L. Sutton.
2. The Influence of Diet on the Toxicity of Substances which Produce Lesions of the Liver or the Kidney. E. L. Opie and L. B. Alford.
3. The Technic of th eIntradural Injections of Neosalvarsan in Syphilis of the Nervous System. U. J. Wile.
4. Hay-fever. R. C. Lowdermilk.
5. The Isolation of Spirochæta Pallida from the Blood in Syphilis. H. F. Hartwell.
6. The Leucemias under Benzol. S. W. Sappington and W. A. Pearson.
7. The Value of the Determination of the Cholesterin Content of the Blood in the Diagnosis of Chol-lithiasis. E. Henes, Jr.
8. Dystrophia Adiposogenitalis. S. W. Boorstein.
9. The Influence of Hookworm Disease on the Eyes. J. W. Jervey.
10. The Treatment of Albuminuria in Pregnancy. E. J. Ill.
11. Treatment of the Toxemias of Pregnancy. A. J. Rongy.
12. Mold Fungi Streptothrix Foersteri, Recovered from the Gastric Contents. C. Stanley.

2. Diet and the Toxicity of Substances Acting on Liver or Kidney.—E. L. Opie and L. B. Alford conclude that the toxicity of phosphorus which causes fatty degeneration of the liver is greater in animals which have received a diet of meat than those which have received diets consisting in large part of carbohydrates or of fat. Animals on a diet rich in carbohydrates are much less susceptible to nephritis produced by potassium chromate and uranium nitrate than animals on a diet consisting of meat or of fat. A diet of meat increases the toxicity of potassium chromate, which produces necrosis of the convoluted tubules of the kidney. A diet consisting of fat increases the toxicity of uranium nitrate, which alters the loop of Henle and produces nephritis.

4. Hay Fever.—R. C. Lowdermilk reports his experience with pollen toxin in the treatment of hay-fever. The toxin was prepared from a mixed pollen of species of ambrosia and solidago ground up with fine sand and suspended in salt solution. The fluid was pipetted off, centrifuged and sealed in glass ampules, each containing 1 c.c. For convenience the unit suggested by previous workers was used—namely, the quantity of toxin extracted from one microgram of pollen. Each cubic centimeter or ampule contained 10,000 units. From the stock solution two serial decimal dilutions were made, containing 1,000 and 100 units to the cubic centimeter, respectively. By using a tuberculin syringe graduated in hundredths of a cubic centimeter it was possible to administer doses containing any desired number of units, while the total volume of the dose never exceeded 1 c.c. The site of injection was painted with tincture of iodine and the injection was made subcutaneously in the usual manner. In no case was there any serious trouble at the site of injection. The dosage was determined by the nature and state of the reaction. The interval between doses was from five to eight days at first, but this was later reduced to one or two days, depending upon the time the reaction of the previous dose took to subside. In three patients who had long suffered from the disease, the treatment was begun about three months after the time of the annual onset and all obtained immunity after from six to eight doses had been received. In sixteen patients who had been treated after the annual onset of the attack thirteen were cured. The three not benefited began treatment more than a month after the onset of the symptoms. The reaction from the toxin is described as follows: It begins in from one-half to two hours with the exaggeration of the usual symptoms of an attack; sneezing, lacrymation, itching of the eyes, cough, dyspnea in asthmatic subjects and sometimes edema and urticaria. In one of the cases mentioned the reaction was very severe, but terminated suddenly after eighteen hours with no ill after-effects. In all cases complicated with a bacterial infection, injections of autogenous vaccines were given, sometimes following and sometimes alternating with the toxin.

6. The Leucemias under Benzol.—S. W. Sappington and W. A. Pearson report that in a case of chronic myeloid leucemia under benzol treated previously and concurrently with Roentgen rays, the leucocyte-count remains relatively low, though the formula is changed in favor of large mononuclears. The spleen remains the same size, but the patient generally is improved. The patient has been under observation two years. In a case of chronic lymphatic leucemia, benzol without roentgen assistance restored the white count to normal. Later roentgen rays were used for a short period. The patient has now been without benzol or roentgen rays for six months, yet the leucocyte-count remains low and almost within normal limits. The formula, however, has returned to a high percentage of lymphocytes. The spleen did not diminish in size, and is now further enlarged. The patient has been under observation one

year. In a case of acute leucemia benzol seemed to have had no effect one way or the other on the blood or the size of the spleen. The necropsy findings were typical of acute leucemia; there were no liver necroses or damaging effects of benzol apparent. Metabolism studies did not reveal any marked losses.

7. Cholesterin Content of the Blood in the Diagnosis of Cholelithiasis.—E. Henes, Jr., points out that almost all gallstones are formed largely, if not entirely, of cholesterin. A hypercholesterinemia seems to be the fundamental and primary etiologic factor in the formation of gallstones, and this hypercholesterinemia is easily determined. In cases of cholelithiasis without fever, a hypercholesterinemia is invariably found. Conditions simulating cholelithiasis can be differentiated therefrom by a cholesterin-serum determination. Particularly does this apply in differentiating ulcus duodeni from cholelithiasis. The hypercholesterinemia of cholelithiasis persists for a considerable length of time after the operative removal of the stones. Operation without removal of the bladder apparently does not free the patient from the probability of subsequent stone formation.

10. Treatment of Albuminuria in Pregnancy.—By E. J. Ill. (See MEDICAL RECORD, June 27, 1914, Page 1190.)

11. Treatment of the Toxemias of Pregnancy.—By A. J. Rongy. (See MEDICAL RECORD, June 27, 1914, Page 1191.)

The Lancet.

July 4, 1914.

1. Hygienic Aspect of the Coalmining Industry in the United Kingdom. F. Shufflebotham.
2. Meditations on 1000 Consecutive Abdominal Operations. A. E. Giles.
3. Diseases of the Pituitary Gland and Their Effect on the Shape of the Sella Turcica. E. G. Fearnsides.
4. A Case of Triplets Successfully Breast-fed. J. Morrison.
5. A Pathological Investigation of Pituitary Tumor. W. Johnson.
6. Removal of a Foreign Body from the Larynx by Suspension Laryngoscopy. D. McKenzie.
7. The Milk and Dairies Bill and the Bacteriological Examination of Milk. R. T. Hewlett.

1. Hygienic Aspects of Coalmining.—F. Shufflebotham states that miners' nystagmus seldom occurs before the age of 25, and not usually before a miner has worked for ten years under ground. One is not dealing with a disease localized to the eyes, but with a general disease, one symptom of which is oscillation of the eyeballs. There may be and generally are symptoms such as headache, nausea, attacks of giddiness, muscular tremors, and twitching of the muscles in different parts of the body, especially the muscles of the eyelids, face, and neck; neurasthenia may be a prominent symptom, with its associated conditions, such as a quickened pulse, exaggerated reflexes, increased vasomotor irritability, sleeplessness, and nervous depression. All these symptoms may be present in any given case of miners' nystagmus, but in many cases some only of the symptoms are present, and at given times the prominent symptoms, the oscillation of the eyeballs, may actually be absent, although the patient is undoubtedly suffering from the disease which one knows as miners' nystagmus. The commonest complaint associated with miners' nystagmus is the jumping about or the flickering of the lights in the pit or the gas lights on the surface. The four most important factors in miners' nystagmus are: (1) Defective illumination in the mine caused by the low candle power of the safety lamp; (2) the peculiar cramped position in which miners work, especially the holers and other workers employed at the coal face; (3) the refractive errors found among the miners themselves; and (4) the frequent injuries which miners sustain during their employment, and more especially injuries to the eye itself; but it cannot be said in any case that miners' nystagmus can be caused by any one of these conditions alone, and the real truth probably lies in the fact that the onset of the disease is due to a combination of circumstances. The only hope of diminishing the number of cases of miners' nystagmus is by improving the illumination of the mines, and in the author's opinion it should be obligatory on colliery owners to supply better illumination along the roadways and at the working face, so that the incidence of this disease in the future shall be materially diminished.

2. One Thousand Consecutive Abdominal Operations.—A. E. Giles reviews a series of 1,000 consecutive abdominal operations performed by him at the Prince of Wales's Hospital, Tottenham. There was a marked drop in the mortality of the last 500 as compared with the first 500 cases, the percentage being 3.4 in the later series and 5.2 in the earlier. The improvement may be attributed to three principal causes: (1) The personal factor of experience; (2) a higher standard of asepsis; (3) improved technique, such as the systematic use of gloves during operation and the introduction of the iodine method for the preparation of the skin in the area of the operation.

3. The Pituitary Gland and the Sella Turcica.—E. G. Fearnsides points out that in acromegaly there is always some definite evidence of an increase in size of the pituitary fossa. Cushing has divided the enlargements of the sella turcica occurring with primary growths arising from the pituitary body itself into three types: (1) Those associated with thickening of the clinoid processes and dorsum sella; (2) those showing thinning from pressure absorption of these parts; and (3) those showing more or less destruction of all the outlines of this region, and he states that tumors arising from the pituitary stalk in the interpeduncular region and situated above the sella—the so-called superimposed tumors—give rise to changes in the sella turcica only after they have reached a considerable size. In addition to the changes in general metabolism, disease processes arising in the pituitary body owing to the anatomical relations of the gland to the optic tracts, to the third cranial nerves, and to the crura cerebri, early give rise to the localizing nervous signs. The appearance of these, together with the changes known to occur when the activities of the pituitary body are deranged or with radiographic changes in the conformation of the sella turcica, renders diagnosis of pituitary disorder more certain than of the other intracranial conditions. In doubtful cases a change in the size and shape of the sella turcica as seen in the *x*-ray plate is the most certain evidence of pituitary disorders.

5. Pituitary Tumors.—W. Johnson reports four cases of pituitary tumor in which a pathological examination was made, and in two of which the degenerative changes in the optic tracts were also studied. The only change which was possible to demonstrate in the visual fibers as the result of the lesion of the optic chiasma which had caused eye symptoms in both of the latter cases for upwards of two years was a degeneration in the optic tracts. This degeneration was not found extending further back than the primary optic ganglia. The amount of change present in one case was more than was indicated by the visual loss. The statement that certain optic fibers reach the occipital cortex without relaying in the cell stations in the primary optic ganglia would appear to be refuted by the fact that no degeneration was found in the optic radiations and the fibers entering the calcarine cortex. Finally both cases showed that the uncrossed visual fibers tended to occupy the outer and lower portion of the optic tracts.

British Medical Journal.

July 4, 1914.

1. The British Medical Association in Australasia. J. A. MacDonald.
2. Fracture in the Neighborhood of Joints Treated by Plating. G. H. Colt.
3. Hemostasis by Application of Living Tissue. Sir Victor Horsley.
4. New and Economical Method of Radium Therapy by Means of Emanation Needles. W. C. Stevenson.
5. The X-Ray Treatment of Tuberculous Glands. H. Mowat.
6. A Suspected Case of Foot and Mouth Disease in Man. V. Whitby.
7. Clinical Test for the Estimation of the Percentage of Glucose. G. C. Parnell.
8. Cyclopia. D. Dougal and T. M. Bride.
9. Left Duodenal Hernia in a Child. F. C. Pybus.
10. Reduction of Old Elbow Dislocation by Operation. F. D. Bird.
11. Naphthalene for the Destruction of Mosquitos in Covered Cisterns and Wells. A. W. Bacot.

3. Hemostasis by Application of Living Tissue.—Sir Victor Horsley states that it is difficult to stop bleeding and hemorrhagic oozing from soft tissues except by the employment of a ligature or pressure with a gauze tampon, or by irrigation with hot liquid. For a long time the author employed amadou for this purpose in experimental investigations where asepsis was not required, and with good results, as it adhered well to the bleeding point. To obtain, however, the same result in aseptic operations is not so simple. The factors which had to be obtained were asepticity, adhesiveness, and thrombokinesis. It occurred to the author that probably the best material would be living vascular tissue, that from the injured surface of a cut fragment of muscle. In all probability, thrombokinetic processes would most readily start, not merely on account of the plasma and plasmatic corpuscles of the tissue, but also the thrombokinetic by-products in the effused blood and the development of the so-called blood platelets. Such a fragment of the animal's own muscle offered all these advantages, and also asepticity. If the bleeding point, for example, from the cut surface of the brain, liver, or any soft tissue, be gently pressed with gauze, and this instantly be replaced by a piece of living muscle, and pressure be again applied from fifteen to twenty seconds, it will be found that the muscle fragment closely adheres to the tissue to which it is applied.

4. Radium Therapy by Means of Emanation Needles.—W. C. Stevenson describes an economical method of employing radium in the treatment of malignant growths by means of hollow needles enclosing glass capillary tubes containing the radium emanation. The needles are ordinary steel serum needles. Their external diameter is 1.4 mm., their thickness, 0.3 mm., and the diameter of their bore, 0.8 mm. The glass capillaries have as maximum dimension an external diameter of about 0.76 mm., an internal diameter of 0.46 mm., and a thickness of 0.15 mm. One cm. of these capillaries would theoretically be capable of holding the emanation equilibrium of about three grams of radium at atmospheric pressure. The emanation needles have decided advantages. They are an economical method of using the therapeutic properties of radium. Clinically they are easily and safely employed, without an anesthetic or the use of an operating theater. They admit of very accurate dosage. They permit a tumor to be subdivided into areas which can be efficiently treated by small quantities of emanation. The collection of needles reach the deep parts, and radiate them as uniformly as it is possible to do at the surface, provided that the sources of radiation are within range of the soft rays—that is, the needles are not more than 3 cm. apart, which is about the average distance of human tissues traversed by these soft rays.

5. X-ray Treatment of Tuberculous Glands.—H. Mowat points out that the great advantage of the *x*-ray treatment of tuberculous glands is that it saves the patient the unpleasantness of undergoing in many instances a severe operation. The results are equally satisfactory whether the glands are large or small, numerous or scanty, superficial or deep, because by means of filters the penetrating power of the rays can be controlled and by using hard tubes those glands deeply situated can be reached. Even when the glands have broken down and are fungating great improvement results, as is noted in one of the author's cases, which unfortunately ceased to attend the hospital when showing marked improvement. It is advisable to use a hard *x*-ray tube, and it is also necessary to filter the rays through aluminum or felt; the author generally filters through 1.5 mm. of aluminum. The current should range from 2 to 3 milliamperemeter, and the rays should be applied directly to the affected parts, a suitable lead glass screen of the requisite size being used. The exposure given should be, at any rate, one full Sabouraud dose, but in some cases it is advisable to exceed this by about a quarter. Cases may be treated twice a week. Most of those reported were only seen once a week or even less frequently, owing to the difficulty of persuading the patients to come to the hospital, had the attendances been more regular even more rapid cures would have resulted.

Berliner klinische Wochenschrift.

June 29, 1914.

Laminectomy and Spondylitic Paralyses.—Tietze refers to the recent work of Albee in connection with tuberculosis of the vertebræ in complimentary terms and states that he is beginning to use it. He makes the claim, however, that Henle introduced the same method in Germany about two years ago without being in the least aware of Albee's priority. He would, therefore, term the procedure the Albee-Henle method. The point of interest in this connection is that Albee has used his method a few times in connection with the radical operation for spondylitic paralyses. The latter are for the most part spastic in character, and are due to compression of the cord. They sometimes become changed to flaccid palsies. The compression may be due to several local causes which narrow the canal, as fracture of a vertebra, in which extension of the spine may suffice for treatment. Conditions which require laminectomy, are peripachymeningitis, spondylitis, tuberculous abscesses, etc. Tietze was the pioneer surgeon to perform Foerster's operation of division of the posterior roots for spastic paralysis of cerebral origin, which required a preliminary laminectomy, but in this type there was no necessary compression of the cord. In the present case decompression of the cord necesitates laminectomy. The spastic paralyses vanish with the decomposition. In connection with the latter operation the local tuberculosis commonly present requires extirpation, just as in ordinary Pott's, without compression and spastic paralysis. It is in this connection that Albee's method comes in place to restore the mechanical functions of the spine by implanting a piece of bone.

Communication of Hodgkin's Disease to Guinea Pigs.—Schaeffer prefers to use for this condition the term lymphogranulomatosis, once held to be a malignant tumor formation, than a species of granuloma, with further suspicion of a tuberculous origin. The author has injected matter from a Hodgkin's nodule into a mouse and the animal developed a local and general granulomatosis. Aside from intracellular acid-fast bacilli of unknown character, no possible living cause could be detected, although certain morphological features may be characteristic, as giant cells of the Sternberg-Pattauf type. The supposed Much type of granulated

tubercle bacillus was quite absent, but the acid-fast bacillus already mentioned could not be distinguished from Koch's bacillus, and may explain the presence of the giant cells. The author does not commit himself to a theory of paratuberculosis, but marshals all the evidence in its favor, and thinks the tuberculous theory accounts well for most of the facts.

Münchener medizinische Wochenschrift.

June 23, 1914.

Chronic Ankylosis of the Vertebral Column.—Fraenkel claims that it is no longer justifiable to speak of the von Bechterew or Marie-Strüppell disease. We know today that we are dealing with an anatomical process which may involve other joints. This is often enough in evidence through the changes in the ligamentous structures, but cases are not rare in which we may see a rigid spine without these particular manifestations. In this second group of cases the sole lesion is ossification of the cartilages between the joints of the articulating processes. This essential lesion shows that we are dealing with a pure joint affection such as occurs in other joints, as the sacroiliac symphisis. This stiffening of the spinal column must be distinguished from spondylitis deformans, which, originating in the intraosseous disks causes the vertebræ to lose their alignment, while marginal exostoses appear on the vertebræ and by pressure upon the adjacent transverse processes give rise to a special type of immobilization. Yet in this condition the joint surfaces are intact. The prognoses of these two affections is very different, for, while in spondylitis deformans it is favorable, the reverse is the case with joint ankylosis type, or, as some term it, "spondylarthritis ankyloproctia."

Hemiplegia in the Course of Typhoid with Recovery.—Wulf remarks that acute and chronic infectious diseases predispose to affections of the nervous system, and this is as true for intoxications (lead, alcohol). It is only rarely that these causes proceed so far as to determine focal intracranial lesions (hemorrhage, thromboses, emboli, abscess, etc.), in comparison with the frequent participation of the meninges. The same contrast holds good for the spine. The peripheral nerves are highly predisposed to participation in infections and intoxications. Summary of the author's solitary case is as follows: A man, aged forty-four, admitted for abdominal typhus, showed in the third week hemiplegia, which readily disappeared without the appearance of complications. The lesion should have been either a simple hemorrhage or embolism with softening. No point for the production of an embolus could be found, so that one of the intestinal ulcers was temporarily accused. Another explanation hardly justifiable was that of a typhoid degeneration of the blood vessels. Lumbar puncture seemed to exclude thrombosis and abscess, and also encephalitis, which latter can manifest itself as an apoplectic attack with complete recovery.

Deutsche medizinische Wochenschrift.

June 14, 1914.

Influence of Iodine on the Capacity for Procreation.—Loeb and Zöppritz overhaul the sparse literature of this subject. In 1820 Coindet announced that the drug could dry up the milk secretion and cause atrophy of the breasts. This teaching was incorporated in most of the pharmacologies, although Harnack claimed that the stomach was primarily affected. Hugo Schulz taught that iodine caused menstrual disturbances and the legend also was fostered that the same drug caused atrophy of the testicles and impotence. This belief can be traced back to Hufeland. Scanzoni and others placed iodine and its combinations among the abortifacients. Experimental data are few, and the authors have sought to add to them, using the mouse as a subject. The animals retained all the normal libido and ability to copulate under iodine feeding, but no pregnancies resulted. Both sexes were undoubtedly sterile. When iodine was removed from the diet, pregnancies at once followed; when given to pregnant animals, abortion resulted. The general health was not affected in these cases, nor was the nutrition. The conclusion must invariably be that no measurement of iodine medication is possible, unless the thyroid can be isolated; for the drug may activate the iodine in this gland.

Cause of Variola in Pure Culture.—Seiffert has sought to test the claims of Fernet and others concerning the preparation of pure cultures of the as yet hypothetical cause of smallpox. He concludes as follows: His own work causes him to regard that of Fornet as defective, while proof of the cultivation of the said germ is as yet wanting. The author's work, in brief, gave negative results throughout. In addition, sources of possible error continually cropped out, and these alone were sufficient to cause him to abandon Fornet's line of work. There is no evidence that a cultivation of any sort was present. Neither Fornet nor anyone else has as yet made headway in this direction, and there is no hope that ordinary commercial vaccine will be supplanted by cultures.

Vertebral Metastases after Hypernephroma.—Harttung shows that the bone metastases are noted before the tumor. They are osteoclastic in type. It is well known that true primary malignancy of the vertebræ is very rare. He alludes to bone metastases following cancer of the stomach, but appears to be silent on thyreogenous bone malignancy. The author's one case occurred in an elderly woman, in whom the entire vertebral column was affected, giving it a Gibbons curve. Naturally, radiography was indispensable for diagnosis and showed extensive destruction of the dorsal vertebræ between the second and tenth, inclusive. The existence of a malignant growth in the body was at once surmised, and the results of a simple urinary examination were sufficient to accuse the kidney. Laminectomy did not expose any tumor masses, but the pressure within the spinal canal was relieved and the pain was abolished. The patient lived but a short time. The tumor was not of the embryonal type which attacks young children, but was of nephrogenous origin. It lay encapsuled, occupying the lower pole of a kidney, and was of the size of a small fist. No microscopic data are given, but there was evidence of a true metastasis.

Fracture of an Incisor Tooth; Dental Cyst.—P. Turner reports the case of a patient, aged 12 years, who had a fall two years ago and fractured one of the right upper incisor teeth. Three months ago a swelling of the right upper jaw was noticed. This had increased slightly since then. There was a well-marked bulging forward of the facial aspect of the right superior maxilla. Digital pressure in the region of the canine fossa gave typical "egg-shell crackling." The hard palate on the right side was depressed, and there was a widening of the anterior part of the alveolar process. There was no exophthalmos and no nasal obstruction or discharge from the right nostril. The right central incisor was fractured and the pulp exposed; the right temporary canine had not been shed and was loose. A skiagram showed that the pulp cavity of the fractured tooth was exposed, and that the apex, which was imperfectly formed, projected into the cyst cavity.—*Proceedings of the Royal Society of Medicine.*

Insurance Medicine.

Life Insurance and Arterial Disease.—Dr. Brandreth Symonds, Chief Medical Director of the Mutual Life Insurance Company of New York, says in a letter to Dr. Louis Faugères Bishop, published in the latter's work on arteriosclerosis, that in the etiology of this condition one small circumstance indicates that a tendency to cerebral arterial diseases may be hereditary. In studying the influence of apoplexy or paralysis in the family record, he has found that the presence of two or more cases in the family history materially increased the mortality. In these cases heredity, infection, or environment seemed to have a decided effect in determining the mode of exit, for 21 per cent. of the deaths were due to apoplexy or paralysis, as compared to 8 per cent. among all men. Symonds is convinced that overeating is a more important factor in the causation of arterial disease, probably more so than the overuse of alcohol. The exact method by which overeating operates as a cause of arterial diseases cannot be stated at present, and it may operate in a number of differyent ways. He states that a great deal of reliance should be placed on the measurement of the blood pressure when taken by experienced men.

Five Years' Work of the Insurance Committee in Germany.—In 1895 a commission of three German physicians and three medical representatives of German insurance societies was formed, and the first session was held in February, 1896. In 1904, Medical Director Handel being deceased, the author, Dr. Samwer of Gotha, was elected to succeed him. He had as colleagues three medical directors and three official sanitary experts, and for four years these colleagues took part in all problems connected with the simplification of insurance medicine. In 1908 the commission was dissolved temporarily and its work was taken over by the German War Department. In January, 1909, the commission was revived and given until May of the same year to report. Since that period, with some changes of personnel, the commission has been convened at intervals and reports have been made. The changes of personnel were not arbitrarily made, but each member was elected for a given term.

In the five years' period which began in 1909 fifteen sessions were held in various parts of the Empire, and were well attended. About 400 complaints were heard, of which two-thirds came from the outside medical men and one-third from the medical directors of companies.

It is manifestly impracticable to reproduce the work of the commission, even in abstract. Certain precedents and decisions were determined from time to time. Thus the medical director can remove an examiner but the latter can appeal to the standing committee. An insurance society may order an examination by a second examiner, the proceedings to be confidential. If several examiners are available at one place, the local agent can leave the choice to the prospective risk.

Much space is devoted to the examiner's fee, the conditions affecting the examiner, etc. The fee for an examination at the applicant's home, whether the journey is a special one or undertaken in common with a journey for another purpose; whether special care in examinations is deemed requisite—all such points enter into the question to a surprising extent. For example, while no extra fee can be claimed for a superficial examination of the ear, 3 marks can be charged, should the ear be filled with wax, for removing the latter.

As a result of the work of the commission from 1909 to 1912, covering almost four years, a treaty has been worked out which gives the duties and privileges of the various parties concerned. We find no mention of the permanence of these regulations, which doubtless will require but few modifications.—*Blätter für Vertrauensärzte der Lebensversicherung*, March-April, 1914.

The Comparative Uselessness of Fehling's Solution in Testing for Sugar.—In a discussion on "Diabetes" before the Life Assurance Medical Officers' Association of Great Britain on March 4, 1914, Dr. Cammidge said that he had given up the use of Fehling's solution for a good many years. In his opinion the most satisfactory, the most reliable, and the most easily used test was Benedict's. Among its advantages were, firstly, that it was a single solution, and did not require mixing before use. Secondly, it kept indefinitely. Thirdly, it contained no caustic alkali, so was less difficult to handle and boil. Fourthly, not more than eight or ten drops must be used for the test, consequently there was no smell on boiling. Fifthly, the result was absolutely distinct and was quite as good by gaslight as it was by daylight. Sixthly, it was rather more sensitive than Fehling's so that if no reaction was obtained it might be concluded that the urine was sugar free. Cammidge was of the opinion that it was admirably adapted for life assurance work and that if it were regularly used, many of the mistakes one constantly saw would be avoided.

The Significance of Temporary Glycosuria.—Dr. Otto May read a paper on March 4 before the Life Assurance Medical Officers' Association of Great Britain dealing with the above matter. He pointed out that a question of perennial interest in life assurance work was the prognostic significance of temporary glycosuria. By this term was meant the discovery during the examination of the presence of dextrose in the urine of an apparently healthy person, while a further examination after a variable period failed to reveal its presence, although the proponent was on his usual diet. The practical point on which information was needed was: What proportion of these cases ultimately developed into true diabetes. In other words, was a medical examiner justified in recommending such a life for acceptance at first-class rates or was the risk of the ultimate development of diabetes mellitus sufficiently great to warrant the proposal being considered only on special terms?

May's conclusions on "temporary glycosuria" were summarized as follows: 1. True "alimentary" glycosuria, *i.e.* glycosuria in a healthy person consequent on excessive ingestion of sugar was a very rare occurrence. 2. Most cases of temporary glycosuria were due to a temporary or permanent lowering of the "assimilation limit" of the organism for sugar. 3. If practicable, an attempt should be be made to determine this "limit" by test-meals of sugar. If this limit was about normal, the life might be accepted at tabular rates or with a slight loading; if, on the other hand, the "limit" was definitely lowered, the life should be declined or accepted only at considerably increased rates.

Book Reviews.

DEVELOPMENT AND ANATOMY OF THE NASAL ACCESSORY SINUSES IN MAN. Observations based on two hundred and ninety lateral nasal walls, showing the various stages and types of development of the accessory sinus areas from the sixtieth day of fetal life to advanced maturity. By WARREN B. DAVIS, M.D., Corinna Borden Keen Research Fellow of Jefferson Medical College; Assistant Demonstrator of Anatomy in the Daniel Baugh Institute of Anatomy, Philadelphia. From the Laboratories of the Friedrichshain Krankenhaus, Berlin, Germany, and the Daniel Baugh Institute of Anatomy, Philadelphia. Drawings by Dorothy Peters. Octavo of 172 pages with 57 original illustrations. Cloth. Price $3.50 net. Philadelphia and London: W. B. Saunders Co., 1914.

THIS work is based upon the careful study of such a large series of specimens that the ultimate conclusions are necessarily worthy to be considered as representing the proper conception of the average or normal conformation of these areas. As the author says, the literature covering this subject is abundant, and yet there is certainly a place for this work; for the combination of text and plates furnishes one of the most complete if not the *most* complete presentation of this subject extant. The relations and the conformation of the various sinuses are very imperfectly understood by the average practitioner, and probably it would not be far from the truth to include in this category the average surgeon also; but a perusal of this book, together with a study of its truly magnificent plates, should put a speedy end to all confusion as to the anatomy of these parts. Paper and press-work are of a commensurate high quality, so that the book is one of which the publishers as well as the author may well be proud.

COMMUNICABLE DISEASES: An Analysis of the Laws and Regulations for the Control Thereof in Force in the United States. By J. W. KERR, Assistant Surgeon General and A. A. MOLL, A.B. Prepared by Direction of the Surgeon General. Treasury Department, United States Public Health Service. Washington: Government Printing Office, 1914.

THIS volume is a valuable contribution to medical literature and should be of especial interest to public health officers, pediatricians, and school medical inspectors. It is a thorough digest of all federal and State laws and regulations pertaining to the control of communicable diseases. An idea of the comprehensive nature of its subject matter may be gleaned from a summary of a few of the topics discussed, such as federal laws pertaining to foreign commerce, railway sanitation, biological products, etc.; State laws on quarantine, placarding, hospitals, disinfections, disease carriers, hotels, school sanitation, jails, laundries, barber shops, etc. All appendix contains the text of court decisions on many subjects with reference to the control of communicable diseases. The text of all State and federal laws on this subject is given in full.

PHARMACOLOGY—CLINICAL AND EXPERIMENTAL. A Groundwork of Medical Treatment, being a Textbook for Students and Physicians. By Dr. HANS H. MEYER, of Vienna, and Dr. R. GOTTLIEB, of Heidelberg, Professors of Pharmacology. Authorized translation into English by JOHN TAYLOR HALSEY, M.D., Professor of Pharmacology, Therapeutics, and Clinical Medicine, Tulane University. With 65 text illustrations, 7 in colors. Price $6.00. Philadelphia and London: J. B. Lippincott Company, 1914.

THE experimental and clinical aspects of modern pharmacology are admirably presented in this volume, which is probably the latest and most complete treatise on this subject that has been written. The authors divide drugs into two classes—organotropic and etiotropic—and describe and analyze the organotropic pharmacological actions separately for each organ or functional system. There are separate chapters on the pharmacology of the motor nerve endings, of the central nervous system, of the sensory nerve endings, of the vegetative nervous systems of the eye, of the digestion, of the reproductive organs, of the circulation, of the respiratory system, of the renal function, of the secretion of sweat, of the metabolism, of the muscles, of the blood, and of heat regulation, of inflammation; and on etiotropic agents, on factors influencing pharmacological reactions. The text is elucidated by a large number of diagrams and graphic formulæ, and full references to the literature are appended at the end of each chapter. The therapeutic indications of the different drugs described are discussed in detail. The book is highly interesting and clearly written, and the translation is an excellent one.

THE OCCUPATIONAL DISEASES. Their Causation, Symptoms, Treatment, and Prevention. By W. GILMAN THOMPSON, M.D., Professor of Medicine, University Medical College in New York City; Visiting Physician to Bellevue Hospital. Illustrated. New York and London: D. Appleton & Company, 1914.

ALTHOUGH the professional neuroses and various diseases incidental to the victim's occupation, such as lead poisoning, phosphorus necrosis, mercurial tremor, pneumonoconiosis, caisson disease, etc., have long been recognized and been made the subject of considerable study, the literature of the subject is not extensive and confined chiefly to monographs. Of late years, however, some comprehensive treatises have appeared in Germany and Great Britain. The book before us, by Dr. Thompson, is the first of its kind in this country. It comes at a very opportune season, at a time when great concern is being taken in the condition of the worker and when compulsory workingmen's insurance is being put in force in many States. The author's object in writing this work has been particularly to meet the needs of American practitioners of medicine, as well as of those of the laity whose professional or philanthropic interests require a comprehensive summary of the nature and prevalence of the occupational hazards as they obtain in this country.

Part I comprises history, classification, general pathology, and etiology. It is pointed out that the kind of work and the conditions under which such work is done have a distinct influence upon health and are instrumental in favoring the progress of many diseases. For instance, there is an obvious relationship between tuberculosis and the manner of work in which a person is employed and the conditions under which he works. The author draws attention to the good effects which have followed compulsory reporting of occupational diseases in England and notes that a similar system has been instituted in six States of this country. He recommends its general adoption.

Part II is devoted to prophylaxis. The subject of workingmen's insurance against occupational disease is discussed and it is pointed out that in Germany this scheme has met with great success. With regard to effective ventilation of factories and workrooms—a most important factor in preserving the workers in good health—Dr. Thompson is inclined, when it is feasible, to rely on the open window. Emphasis is placed upon the need for the workingman and workingwoman to pay due attention to personal hygiene. That part of the work dealing with treatment is full and useful.

Part III discusses diseases due to irritant substances and shows that with regard to the protection against industrial lead poisoning legislation in this country is woefully lacking. Referring to methyl alcohol, the author insists that stringent laws should be passed forbidding its employment in such a form that it may be dangerous to health or life. Part IV is devoted to a consideration of diseases due to harmful environment. Part V deals with special occupational diseases, and the author notes that neurasthenia is very common among many classes of workers. Part VI treats of the influence of special conditions on the occupational diseases. The question of alcoholism is debated at some length and attention is also drawn to the fact that non-alcoholic stimulants are often abused by workers. Part VII is concerned with miscellaneous occupational diseases grouped by industries not included in the foregoing classification. The mining industry is discussed exhaustively and a considerable amount of space is given to pottery making, china, and porcelain. At the end of the book are some valuable appendices.

Although medical writers of this country have been late in the field in furnishing literature regarding diseases of occupation, Dr. Thompson by the publication of his book has entirely removed any reproach that might attach to them for this omission. The work is the most complete, so far as the reviewer is aware, of any on the subject in the English language. It is well arranged, excellently printed, and clearly illustrated. It is a valuable work from both the medical and the sociological point of view, and the author is to be congratulated upon the production of so comprehensive and practical a treatise in which the crudities almost inseparable from pioneer work are conspicuously absent.

Society Reports.

AMERICAN CLIMATOLOGICAL ASSOCIATION.

Thirty-first Annual Meeting, Held at Atlantic City, June 19 and 20, 1914.

THE PRESIDENT, DR. JAMES M. ANDERS OF PHILADELPHIA, IN THE CHAIR.

Friday, June 19—First Day.

FOLLOWING the invocation by Rev. Henry Merle Mellin of the First Presbyterian Church, Mayor William Riddle welcomed the members of the association.

President's Address.—Dr. JAMES M. ANDERS of Philadelphia made this address. After making grateful acknowledgment of the signal honor which had been bestowed upon him he said that the traditions of the American Climatological Association were highly creditable and its record for scientific achievement was equally noteworthy. It was a recognized fact that the massed and combined intelligence of a large body of professional men was seldom wrong. On the other hand, the presentation of the views of an individual member often failed to be convincing as contrasted with the instinct of either a people or profession. There were certain problems which seemed to him to demand attention. First was the climate of America, a climate of great variety, both health giving and health destroying, according to its organization as well as special characteristics at different seasons and in different localities. Few persons could give up an inherited belief that some connection, manifestly not a feeble one, existed between climate and the public health. It remained for future scientific investigation and study to establish between the two with greater precision the relationships actually existing. The unique records of absolute heat and cold, as well as aridity enjoyed by this country, were particularly noteworthy. It was not only the legitimate function of the association to investigate the various meteorological elements and conditions affecting the state of the climate, both local and general, but also to study such questions as the influence of special climates and particularly the seasons of the year, as predisposing factors in the causation of disease, as well as the therapeutic use of the different weathers to be found in the United States and Canada. It was especially desirable to investigate further into the modifications of climate and weather in small localities since these were often of first-rate importance as aids in the treatment of certain diseases. It would be both profitable and interesting to draw comparisons between their climate and that of other countries. John Burroughs had said that an American resident in England was reported as saying that the English had an atmosphere, but no climate, and then added: "We certainly have a climate, a two-edged one that cuts both ways, threatening us with sunstroke on the one hand and frostbite on the other, but we have no atmosphere to speak of in New York and New England, except now and then during the dog-days, or the fitful and uncertain Indian summer." He continued: "An atmosphere, the quality of tone and mellowness in the near distance, is the product of a more humid climate. Hence, as we go south from New York, the atmosphere effects become more rich and varied, until on reaching the Potomac you find an atmosphere and a climate." Here Walt Whitman saw the full moon "Pour down night's nimbus floods." The association should keep the medical profession's attention constantly fixed on hydrotherapy, a subject that had been too scantily considered by its members in the past. Climatology and hydrotherapy should form a definite branch of medicine, and each of us should be willing and eager to assume an individual share in the contributions and discussions. He said that he trusted to the importance of the subject to maintain a lively interest in this organization which should be capable of exerting a potential influence. The American Climatological Association had been steadily winning its way in the medical profession of the United States and Canada. At no previous time had it been so deeply imbued with the importance of giving serious attention to the various physical methods of the treatment of disease as at the present day. The founders of the association clearly recognized the true relationship of medicine to public health: as a national organization they should not desire to ignore sociological and sanitary problems in so far as they were related to hygiene, climate, and hydrotherapy. In regard to the many public questions affecting the health and welfare of the profession and laity alike, the association should in the future make a creditable showing. Granted the recognition of the true place and importance of climatology and hydrotherapy, Dr. Anders said he was not averse to changing the name of the organization to that of the "American Medical Association of Climatologists and Clinicians," or to calling upon those specially interested in these lines to share in an extension of the clinical portion of their program. The association could readily adapt itself to a broadening of its field of endeavor and it should widen its boundaries. The science of medicine should strive to rid itself of vague, loose, unsystematized knowledge and should work toward a more comprehensive system.

A Memoir of the Late Dr. Egbert Le Fevre.—Dr. A. ALEXANDER SMITH of New York presented this memoir, which was read by the secretary.

The Climate of Southwestern Alberta.—Professor R. F. STUPART, director of meteorological office, Toronto, Canada, presented this communication, which was read by the secretary. Banff was situated in latitude 51 10′ on the Bow River at an altitude of 4,542 feet, well within the Rocky Mountains, and at a distance of ninety miles from the city of Calgary, which was on the prairies at an altitude of 3,389 feet, and also on the Bow River. A fully equipped meteorological station was established at Calgary in 1883. A temperature and precipitation station was established at Banff in 1890, and raised to a first-class station in 1894. In 1904 an observatory with self-recording instruments was placed on Sulphur Mountain, Banff, at an altitude of 8,030 feet, and four miles distant from the village station, the difference between the two stations being 3,500 feet. He was strongly of the opinion that the claims of Banff as a summer sanatorium were distinctly good; the winter was not so severe, and even the coldest months might be altogether desirable for many pulmonary complaints. Certainly as a pleasure resort it might be ranked with any of the places in Europe to which people flocked for ski-ing, tobogganing, and skating.

Dr. CARROLL E. EDSON of Denver, Colo., believed that in such a climate sleeping out of doors was entirely impossible and that the people afflicted with tuberculosis would shut themselves indoors and hasten their death. There they had long winters and short hours of sunshine.

Prolonged Subnormal Temperature in Tuberculosis.—Dr. ARTHUR K. STONE of Boston, Mass., presented this communication. He said that subnormal temperatures were common in this disease, but the exact cause he did not know.

Dr. CHARLES L. MINOR of Asheville, N. C., said that this was a subject that he had been much interested in. It should not be forgotten that there was one common cause of subnormal temperature in tuberculosis, the lower activity of metabolism. There should also be remembered the weakness of the patient with a low vitality; that often such a patient overexerted himself; the cold weather; the carelessness often made in taking temperatures, etc. With regard to the treatment of such cases whiskey was of great value; patients with persistent subnormal temperatures did well when given whiskey.

Dr. GEORGE W. NORRIS of Philadelphia said there was one class of cases to which attention should be called, those with essential hypotension or constitutional low arterial tension where the diastole was never 110. The study of the blood pressure should be of more value to those interested in tuberculosis. According to German writers the blood pressure readings were of little value; but according to the French writers they were of great diagnostic value.

Dr. WILLIAM LEROY DUNN of Ashveille, N. C., said that in his experience there was great disparity between the rectal and mouth temperatures in these cases; when the temperature was taken by way of the mouth the impression was that it was subnormal, but this was disproved when it was taken per rectum.

Dr. C. FOX GARDINER of Colorado Springs, Col., said that not less than 40 per cent. of the clinical thermometers were inaccurate.

Dr. JAMES ALEXANDER MILLER of New York said that there were many conditions which might give rise to prolonged low temperatures in tuberculosis, but it seemed to him that what was needed was a more careful observation. Certain observations had been made by Professor Lee of Columbia and himself with two

thermometers connected with an electric galvanometer in people with normal and subnormal temperatures and they believed that it was not wise to rely upon the rectal or mouth temperatures as shown by these instruments.

Dr. CLEAVELAND FLOYD of Boston, Mass., said that he had obtained some striking results in these patients after they had exercised, the rectal temperature going three or four degrees above the normal; following a period of rest the temperature would become normal.

Dr. CARROLL E. EDSON of Denver, Col., emphasized the importance of the clinical management of these cases; the fundamental basis had not been understood, evidently, and had not been appreciated.

The Prophylactic Value of Water Supplies and Baths, with Special Reference to Industry.—Dr. THOMAS DARLINGTON of New York City said that he had made for four years a special study of water supplies and baths with special reference to industry. It paid to safeguard against accidents, and it also paid to care for the health of the workmen, for their efficiency depended upon their health. He advised raising their health to the highest power and this could be attained by more attention being paid to the drinking water and to the baths. The use of the shower bath lessened their fatigue. Dr. Darlington called attention to "Typhoid Mary," who did not wash her hands and because of that fact spread the disease, and no one really knew just how much of typhoid fever was carried and disseminated by her.

Dr. DE LANCEY ROCHESTER of Buffalo, N. Y., called attention to a sign he once saw in school which read, "No boy belongs in school with dirty hands," and to another sign which read, "Be sure to wash your hands before you eat."

Dr. CHARLES FOX GARDINER of Colorado Springs, Colo., believed that what was just stated should apply to patients with tuberculosis as well. The cleansing of the hands should be impressed more upon the people.

Housing and Its Relation to Climate and Health.—Dr. ESTES NICHOLS of Portland, Maine, asked if in the fight for the health of the American people any association should take a greater part in the battle for better homes than the American Climatological Association. America had been very slow in recognizing the importance of housing and its relation to climate and the health of the masses. Was not the method of housing people, one home on top of another, many stories high, unnatural and unhealthy? Was climate responsible for the present conditions of housing? Was not the system of apartment houses placing a premium on the rearing of children? As climatologists should they not take a more active part in housing reform and city and town planning?

Dr. THOMAS DARLINGTON of New York City said that there was no doubt but that overcrowding lessened the resistance to disease; this was not only true in the cities, but even in camps where the sanitation was bad. To-day they had better plumbing and sanitary conditions in the cities were much improved. It was not so much marsh gas that was harmful in houses as carbondioxide; this was true particularly where there were no electric lights. With regard to the distribution of population it was a fact that 65 per cent. of the immigrants who came to New York City from Europe stayed in New York City. In many instances, even though they might buy pure food they kept it in iceboxes where there was no ice, and therefore they lacked the proper kind of food. This lack of proper food also caused a lessened resistance to disease. The lack of proper food was specially noted in reference to the girls in the eastern districts of New York City. He had seen many of these girls eating tomato salad with its nine calories when it would have been far better for them to have eaten baked beans. The real cause of disease in the tenements was overcrowding and improper food.

Dr. CHARLES FOX GARDINER of Colorado Springs emphasized the importance of proper housing of the masses. If people could be taught to live more outside and separately it certainly would lessen the spread of diseases which resulted from personal contact. The personal hygiene in the houses was of more importance than the housing itself. He spoke of some of the conditions he found in the rural districts of Connecticut, which were worse than he found in the cities of that state.

Dr. ROBERT CHILDS PATERSON of Ste. Agathe des Monts, Province of Quebec, Canada, said that if people were to live in the tenements and in outlying districts they should be provided with proper sanitary conveniences. There should be a proper and sufficient supply of drinking water in every house. The expense of course became greater. He said that north of Montreal he found that the death rate from tuberculosis was higher even than along the Canadian border. The health of the people had been undermined by their methods of life, too little food and too little ventilation. Slops and dish water were merely thrown out of the door or window and the children played around and in them. These conditions were harder to solve, in his opinion, than those surrounding the tenement population.

Dr. NATHANIEL K. WOOD of Boston, Mass., emphasized the importance of hygiene in these problems confronting us and said that the government of the United States had already shown what could be done by stamping out yellow fever and malaria during the building of the Panama Canal.

Dr. GUY HINSDALE of Hot Springs, Va., asked why the air was so pure in the country and answered that it was because the bad air was shut up in the houses.

Tuberculosis in Relation to the Atmospheric Air.—Dr. GUY HINSDALE of Hot Springs, Va., read this paper by title.

Some Unsolved and Debatable Problems in Tuberculosis.—Dr. EDWARD O. OTIS of Boston read this paper. "Die Tuberkulose hat uns lange Zeiten hindurch immer wieder Rätsel zu lösen gegeben," said a recent writer, and it was to some of these problems upon which there existed conflicting and perhaps erroneous opinions, or for which they had as yet not found satisfactory explanation. Dr. Otis first called attention to the undue emphasis placed upon the detection of physical signs in the early-diagnosis propaganda. The general practitioner had now for many years been lectured in season and out of season upon the supreme importance of the early diagnosis of tuberculosis, and he had been unmercifully berated for his dereliction in neglecting to do this, many times justly and sometimes unjustly. In his experience he found him making a diagnosis of clinical tuberculosis upon indefinite physical signs, without giving due weight to the more important evidence of clinical symptoms. The distinction between clinically active tuberculosis and local infiltration without symptoms did not seem to be always clearly comprehended. Drs. Gelien and Hammon had, it seemed to him, very justly estimated the relation between the physical signs and symptoms in making the early diagnosis when they said that "the early diagnosis of pulmonary tuberculosis is more a matter of clinical experience and judgment than of unusual skill in eliciting slight abnormalities in pulmonary physical signs." It seemed to them that in attempting to improve the diagnostic acumen of the general practitioner toward pulmonary tuberculosis more emphasis should be laid upon the observation of symptoms than upon the pulmonary examination.

Marriage and Tuberculosis.—They were doubtless familiar with the oft-asserted solemn warning of a prominent phthsiotherapist that a tuberculous husband and wife should be taught "not to procreate a race predisposed to tuberculosis." It seemed to him that this was too sweeping a statement without modifications. How did they know that children would be predisposed to tuberculosis? The recently published experiment of Brooks would appear to offer substantial proof to the contrary, reasoning from analogy. In this experiment tuberculous cows were bred to tuberculous bulls, and at birth the calves were immediately taken from their mothers and fed upon modified pasteurized milk. Of more than 200 calves thus born not one became tuberculous. Why should they not expect that children born under similar conditions and treated in the same way would show the same results? Why should not a tuberculous husband, if his disease is quiescent and the balance between the infection and the resistance was evenly maintained, have children if his wife was healthy? And still more so if the disease was arrested? He did not suppose there was much difference of opinion as to sanctioning the marriage and childbearing of a woman who had obtained and maintained an arrest of her disease for a number of years, or of opposing the marriage of a woman who was still actively tuberculous or who had only an apparent arrest. When the husband was actively tuberculous, but not in the advanced stage, and his wife was healthy it seemed to Dr. Otis that it was a question for him alone to decide whether he should have children; and if the child was at once removed from the father he did not believe the predisposition bugaboo need cause anxiety.

The Question of Rest and Exercise.—After the acute symptoms had subsided, for everybody agreed that abso-

lute rest should be maintained during the period of fever, when and how much exercise, if any, should be advised? Here opinions and practice varied. Dettweiler and Pratt seemed to have proved pretty conclusively that continued rest during the whole period of treatment produced excellent results. Could they show better results and fewer relapses from exercise, however graduated and supervised? E. Kuhn of Berlin had recently published a long and elaborate argument in favor of breathing exercise by means of his "lungensaugmaske" and adduced much theoretical and experimental evidence of its value. He considered that autoinoculation was produced not by general bodily exercise, as held by Wright and Paterson, but by the increased lung movement induced by bodily movements, and hence his conclusion that breathing gymnastics was the essential element in the production of autoinoculation. Upon how definite a scientific basis Paterson's theory of autoinoculation stood seemed still to be somewhat uncertain. At all events it was well to remember that continued rest had produced and did produce excellent results, and exercise at any stage of the game had its dangers.

He said it would seem to be rank heresy even to suggest that we had been overlooking, or applying without proper discrimination, the open air exposure in the treatment of tuberculosis, but did we always sufficiently individualize our patients in the application of extreme open air methods? He referred more particularly to the more northern latitudes. Even the far advanced incurable cases had frequently been subjected to this treatment; what was gained by doing this and rendering their last days more wretched? The earlier and so-called curable cases, but not all of them, were suitable for the rigorous outdoor system in the northern climate. Some, however, never became accustomed to the life and suffered genuine distress under the constant exposure to the cold.

The Question of Rest or Exercise in the Treatment of Pulmonary Tuberculosis.—Dr. Charles L. Minor of Asheville, N. C., spoke of the constant swing of the pendulum; a point between the two extremes of rest and exercise was the best to be had. The abuse of exercise was bad as well as the abuse of rest. In handling these cases of tuberculosis the management of rest and exercise was the chief thing. The word "exercise" was an elastic term. There should always be considered not alone the physical but the mental exercise. There were certain advantages of exercise in that it created an appetite, maintained the patient's strength and vigor, had its psychical effect, transferred food to muscle, prepared the patient for future work and beneficially effected metabolism. It was a difficult thing to judge exactly what amount of exercise should be allowed these patients. It was important that we should gain the confidence of our patients if we wished to obtain efficient results. It should be borne in mind that the reading of an exciting novel would run up the temperature, and even letter writing should be carefully guarded. Music, because it stirred the soul, was a bad thing, and so was hard study. One of the most troublesome things Dr. Minor had to contend with was the family, and he advised especially to keep the mothers away. He believed that exercises were rather underdone than overdone. Exercise created appetite and this was very important in that it kept up the patients' strength and vigor. The psychical effect was enormous. He always advised a two hours' rest, absolute rest, without reading, after the mid-day meal and without entertaining friends. He advised, however, against pushing the rest point too far.

Dr. Thomas Darlington of New York City said that it seemed to him that the two papers called special attention to one thing, and that was individual care, and that each case should be studied by itself and no set and fast rules laid down. "One man's meat was another man's poison," according to Shakespeare's dictum.

Dr. Charles L. Minor of Asheville, N. C., said that too much emphasis had been laid upon the harmfulness of marriage; we were all too strict on that subject. The effect of hope deferred was the worst thing possible for these patients. They should consider more the man, the woman, the child, and the community.

Dr. De Lancey Rochester of Buffalo, N. Y., said that if we allowed the tuberculous people to marry they should be instructed as to the seriousness of their condition. He believed that tuberculous women should not marry and bear children. He agreed with Dr. Otis in what he stated about the undue emphasis placed upon the physical signs in the early-diagnosis propaganda and that the character of the pulse should be studied as well as its frequency. In many of these cases there was an absence of cough and this should be studied in tuberculosis.

Dr. Charles Fox Gardiner of Colorado Springs referred to children of tuberculous parents who were not tuberculous; whether it was because of the climate or the care they got he did not know.

Dr. James Alexander Miller of New York City believed that Dr. Otis was right in what he had stated about the undue emphasis placed upon the physical signs in the early-diagnosis propaganda, and especially in New York City. It was his experience that there were thousands of cases investigated and reported to be tuberculosis—a diagnosis which was unwarranted from any clinical point of view. In many cases there would be found a slight variation from the normal without any physical signs of tuberculosis. Less than 20 per cent. of the patients in the clinics of New York had tubercle bacilli in the sputum. What Dr. Minor had stated about rest and exercise was true in every respect.

Saturday, June 20—Second Day.

Dry-Air Baths in Treating Tuberculosis.—Dr. Charles Fox Gardiner of Colorado Springs briefly outlined some of the more important recent advances that had been made in physiological medicine bearing on the subject and then he considered the practical side of air therapy as applied to the surface of the body in tuberculosis. The whole aspect of ventilation as affecting the human body, both by respiration and the skin, had assumed a new aspect, and they were now assured that the old idea of vitiated air poisoning the body by being rebreathed, as in respiration, was only partly true; the really poisonous effect of bad air was not due to rebreathing such air but to the blanket of stagnant, warm moist air surrounding the skin. The problem, therefore, was not a chemical but a purely physical one. This had been demonstrated by the simple experiment of agitating foul air by the use of electric fans when the symptoms of illness and distress, induced in people confined to such foul air, disappeared when the air was agitated, although no fresh air had been introduced to relieve them. Dr. Gardiner told of a method he had tried which consisted of an apparatus that, as nearly as possible, represented conditions found in nature when the open air bath was taken. The constant current of changing air found outdoors was artificially produced by an electric fan introducing a current of air that was first passed through screens. Those broke up the current of air, making it flow gently and avoiding any draft. The air at the intake was the room air at 70 degrees; it was not necessary to use cold, outdoor air, moving air being sufficient. This air, after its force was properly broken by screens, passed into a framework covered with the bedclothes, and placed over the nude patient, who remained in bed undisturbed, with the head uncovered and not within the framework. Inside this framework six incandescent lamps gave their heat to the skin and heated the body very much as did the sunshine in the open air bath. The advantages of this device were that it supplied some of the stimulus found in the open air baths, that the temperature and force of the air could be regulated at will, which was difficult out of doors, that by the use of the lights and the moving air humidity was brought to a low point, and, in short, an artificial climate could be created for the surface of the body that could be used in damp and cloudy weather when outdoor exposure was impossible; in pleasant weather the nude sun baths could be used if desired. One advantage was that those very ill were not moved from their position in the bed and by gradually cooling the air in the framework by turning off in succession one lamp after another, a safe and efficient method of reducing temperature without any depressing reaction was obtained. These results had followed his use of the air bath in treating tuberculosis. The skin humidity had been reduced at once from 22 degrees to zero and the general tonic effect had clearly followed that found in the open air cure now so common, without the unpleasant and sudden changes due to overcast sunshine, wind, and dust so often found outdoors. In conclusion Dr. Gardiner said that the warm, moist, stagnant air held by the clothes and coverings in contact with the body of a tuberculous patient was not agitated enough, even during the open air cure. This air, physiologically con-

sidered, was even of more importance to health than the fresh air inhaled. A method by which this surface air in contact with the body could be rapidly changed without danger of discomfort to the patient would prove of much value and should be used as part of the open air cure in selected cases.

Some of the Problems of Private Sanatoria for Tuberculosis.—Dr. FRANCIS M. POTTENGER of Monrovia, Cal., read this paper. His institution had just completed its tenth year and during this time there had been 1521 patients treated. There were two methods of running an institution. One was by military discipline and the other by considering the entire community as a family and expecting mutual regard and support. There were certain rules that must be lived up to rigidly; but in a private institution most of the rules must be somewhat elastic. The patient must be taken as an individual with an individual mind and individual temperament; and it was the province of those in authority to work with that mind and temperament and mold it into obedience. Personally he preferred the family spirit. The importance of early treatment could not be better emphasized than by the results which they had obtained in the past ten years. During the first stage, apparently cured and arrested, 97 per cent.; improved 3 per cent. During the second stage, apparently cured and arrested, 81 per cent.; improved, 14 per cent.; unimproved or died, 5 per cent. During the third stage, apparently cured and arrested, 38 per cent.; improved, 40 per cent.; unimproved or died, 22 per cent. In his short paper Dr. Pottenger took up some of the important questions bearing upon the sanatorium treatment of tuberculosis which were usually omitted from discussion, and he endeavored to show the relationship which the private sanatorium bore to the public on the one hand, and the members of the medical profession on the other. He also attempted to show the true relationship which should exist between the patient body and the medical staff and other attendants, thus pointing out the true place of the private sanatorium in the warfare against tuberculosis.

The Pottery Industry and Its Relation to Tuberculosis.—Dr. H. R. M. LANDIS of Philadelphia read this paper. He said that there was a growing interest in regard to the effect which occupation might have on the health of the working people; this was evidenced by the numerous laws relating to industrial hygiene which had been introduced yearly in the various State legislatures. If, however, they accepted the successful crusades which had been waged against lead and phosphorus poisoning, most of the remedial legislation had been directed towards the minimizing of accidents and very little had been done towards correcting evils which had a remote rather than an immediate evil effect on the health of the worker. The total number of people employed in the pottery industry in this country was about 16,000, and approximately 5,000 of this number lived in Trenton, N. J. Dr. Landis said that his own observations had led him to believe that more care should be exercised on the part of the workman in the disposal of the fragments of clay which were thrown off in the fashioning of the various utensils. Too much of it was allowed to fall on the floor about the work bench, and as a result was walked upon and quickly pulverized into dust. Face masks had been repeatedly advocated, but had never been particularly successful for the reason that the workmen were averse to using them. He believed that these individuals, especially those working in the dusty departments, should be subjected to frequent medical inspections. A compulsory examination three or four times a year would undoubtedly result in detecting many cases which otherwise would pass into the terminal stages of potter's asthma or tuberculosis.

Spontaneous Pneumothorax.—Dr. LOUIS HAMMAN of Baltimore, Md., made a report of a number of cases of pneumothorax coming on in otherwise healthy individuals and in one case recurring once on the opposite side and once on the same side. The absence of the usual symptoms of pneumothorax and the character of the physical signs were commented upon and he expressed the belief that the condition was frequently overlooked.

Lantern Slide Exhibitions.—Dr. THOMAS DARLINGTON of New York City gave a lantern slide exhibition depicting certain industrial conditions in which he had been specially interested during the past four years or more.

Heliotherapy in the Treatment of Bone and Joint Tuberculosis.—Dr. JOHN WINTERS BRANNAN of New York City likewise gave a lantern slide exhibition showing conditions as they existed at Sea Breeze Hospital on Staten Island, New York.

Blood-Pressure Studies, with Special Reference to the "Energy Index" and the "Cardiac Load."—Dr. GEORGE W. NORRIS and Dr. J. K. DAVIES of Philadelphia, Pa., presented this paper, which was based upon clinical blood-pressure studies undertaken with a view of determining the possibility of estimating cardiac efficiency by means of the two above-mentioned indices. The energy index, suggested by Barach, was established by multiplying the combined systolic and diastolic pressure by the pulse rate per minute. The cardiac load, suggested by W. J. Stone, was estimated by dividing the diastolic into the pulse pressure.

Angina Pectoris.—Dr. DE LANCEY ROCHESTER of Buffalo, N. Y., said that angina pectoris was a syndrome connected with many different states and the one condition present with all attacks was the interference with the function of contractility of the myocardium. He discussed the nature of the attacks and the treatment deduced from morbid conditions present. There was no standard of blood-pressure; what was high for one individual was low for another. The treatment must be of the individual and not of the symptoms. The general management of the case was very important in order to prevent recurrence of attacks.

The Comparative Value of the von Pirquet and Subcutaneous Tuberculin Test.—Dr. HUGH M. KINGHORN of Saranac Lake, N. Y., described the subcutaneous tuberculin reaction and gave the technique of giving it. He also told of the indications and contraindications for the test and the amount of fever necessary to constitute a reaction. He also described von Pirquet's tuberculin test and gave comparative results obtained in man with the subcutaneous and von Pirquet's tests.

Advantages of State Control Over County Institutions for the Care of Consumptives.—Dr. H. LONGSTREET TAYLOR of St. Paul, Minn., spoke of these advantages which insured control. It kept the standard high and avoided poorhouse methods. It put experienced sanatorium superintendents in charge and insured frequent inspection by State authorities.

Report of Four Cases of What Appeared To Be Tuberculous Meningitis, Followed by Apparent Arrest.—Dr. CHARLES C. BROWNING of Los Angeles, Cal., made this report and gave a lantern slide demonstration of one of the cases.

Differential Diagnosis of Mild Thyroid Toxemia and Incipient Pulmonary Tuberculosis.—Dr. C. G. JENNINGS of Detroit, Mich., read this paper. He said that mild thyroid toxemia might closely simulate incipient pulmonary tuberculosis. The symptoms common to both were the mild chronic pyrexia, the tachycardia, the debility, the shortness of breath, the indigestion, and the cough. The differential diagnosis would be made by the study of the temperature curve, the peculiarities of the tachycardia, the nervous phenomena, the derangements of digestion and metabolism, the physical examination, and the x-ray laboratory findings.

Percussion of the Lungs.—Dr. N. K. WOOD of Boston considered this subject in two parts—first, an effort to standardize the degrees of dullness, and, second, the advantage of percussing dogs from base to apex over the opposite method. He offered the following conclusions: 1. Present methods of percussion were of little value, because, far from having any universal standard of dullness, there was not in most instances even an individual standard. 2. To a field in which there was no accurate standard, he brought some standard, to him one that was definite and easily acquired. 3. Normal resonance was F to F sharp below middle C; 1 line dullness, or impaired resonance, was A below middle C to middle C; 2 line dullness, or definite dullness, was E flat to F above middle C; 3 line dullness, or very marked dullness, was B flat below intermediate C to intermediate C; 4 line dullness, or flatness, was E to F above intermediate C. 4. No intelligent idea of diagnosis, prognosis, nor of the underlying pathological condition could be formed by percussion without some such definite standard. 5. This standard could be acquired readily by the ear, and by the muscle sense of both hands, measured by the force of the plexor blow, and the resistance under the pleximeter. 6. Upward percussion was an absolute essential of correct work. The old method of downward percussion should be discarded, and no longer taught to medical students.

The Origin and Development of Auscultation and Percussion.—Dr. RICHARD C. NEWTON of Montclair,

N. J., gave a short sketch of the careers and discoveries of Auenbrugger and Laennec and made some observations upon the influence they exerted upon the medical practice of their time and told of the effects of these monumental innovations upon the history of medicine.

Election of Officers.—*President*, Dr. Henry Sewall, of Denver, Col.; *First Vice-President*, Dr. Arthur K. Stone, of Boston, Mass.; *Second Vice-President*, Dr. James Alexander Miller, of New York, N. Y.; *Secretary and Treasurer*, Dr. Guy Hinsdale, of Hot Springs, Va. The next place of meeting will be San Francisco, Cal.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Stated Meeting, Held March 6, 1914.

DR. C. A. MCWILLIAMS IN THE CHAIR.

Appendicitis, General Peritonitis, Postoperative Paralytic Ileus, Enterostomy.—Dr. HERMANN FISCHER presented this patient, a man 52 years of age, who came to the German Hospital on September 19, after having been sick three or four days with acute appendicitis. He was operated upon the same day and a completely gangrenous appendix removed. There was a general peritonitis at the time of the operation. On the second day after the operation there was some abdominal distention, vomiting, and a temperature of 102° F. A distended loop of intestine projected into the wound. As the patient was in very bad condition an enterostomy was done. There was considerable escape of gas, and after two hours the abdomen was soft and flaccid. The patient improved from day to day. They knew that they had a high loop of the jejunum because bile and pancreatin juice flowed out and on the fourth day an attempt was made to close the enterostomy. The wound stayed closed for five days when there was a small opening. Three weeks after the last operation was performed, the loop was resected and the abdomen closed. In somewhat similar cases Dr. Fischer said he had not succeeded so well. There must have been some portion of the abdomen still free from infection; where the entire tract from the jejunum down was infected one was not likely to be so successful.

Ileocecal Tuberculosis.—Dr. M. I. BLANK presented this patient, a young man, whom he had first seen in August, 1912. At that time the patient complained of symptoms of appendicitis and an operation was advised. This was refused and he did not return until five months later when the possibility of tuberculosis suggested itself. Dr. Blank exhibited the specimen removed which showed tuberculosis involving the cecum, part of the ileum, and the appendix. A fistula persisted for six months after the operation and was then closed.

Resection of Large Intestine for Malignancy.—Dr. M. I. BLANK presented this patient. He was one of three patients who had come into the hospital as emergency cases complaining of symptoms of intestinal obstruction. At the time of admission he had been sick for ten days. A large growth which was exhibited was successfully removed from the sigmoid; it was adherent to the posterior abdominal wall. An intestinal anastomosis was performed in December, 1912, and the patient made a good recovery, and was now working eighteen hours a day. A second patient was admitted to the hospital on July 24, 1913, who also gave a history of intestinal obstruction. The tumor mass was low down in the sigmoid and the incision was made in the right rectus muscle below the sigmoid. In the third patient the growth was removed from the hepatic flexure. An interesting point in these cases was that malignancy was not suspected, the patients being operated on for symptoms of intestinal obstruction.

Aneurysm of the Profunda Femoris Artery.—Dr. J. A. CORSCADEN presented this patient. He was 20 years of age and at the time of his admission to the hospital gave a history of pain in the upper right thigh for the past two months. The tumor appeared in the upper third and was more marked on the anterior and outer part of the thigh. The pain was relieved by limping and throwing the weight on the toes. The patient gave a history of having been shot through the thigh seven years before by a 32 caliber pistol; the bullet came out through the gluteal fissure near the median line. The patient had no personal or family history of syphilis. The mass was visible on the outside, and on palpation was found to consist of two parts, an outside hard part and an inner portion firm and hard. There was a systolic bruit heard over a wide area. The *x*-ray showed a shadow and the pulses on the polygraph were synchronous and of equal force and volume. This mass was hour-glass in shape and the outer portion measured 12 x 4 cm. It was somewhat like a myeloma. The microscope showed calcareous deposits, but it was apparently an aneurysm of the profunda femoris artery. It could be assumed that it had ruptured with the formation of a hematoma. Dr. Blank described the operation by which the aneurysm was removed and the arteries united and said that an *x*-ray taken six weeks afterward showed that a shadow still persisted. Ten months later another *x*-ray was taken and a broader shadow was seen. Some thought this shadow was a calcium deposit and others thought that the bullet had chipped off a piece of the femur. The patient had made a good recovery except for loss of function of the internal saphenous nerve.

A Case of Disseminated Carcinoma of the Breasts and Axillæ Treated by Radium.—Dr. SINCLAIR TOUSEY presented this patient, a man who had been referred to him by Dr. Beder. The right mammary gland and nipple had ulcerated away and there was another ulcer below that region. Both were adherent and covered with a red parchment-like epidermis and were surrounded by an indurated margin projecting one-half inch above the level of the skin. Glandular masses larger than a hickory nut but smaller than a hen's egg were present in both axillæ and were widely scattered over the front of the chest. On the right side of the chest the skin over many of these was red and they were evidently in a way to break down into ulcers. On the left side the nodules were smaller, white, and extended from the nipple in a cord-like mass up into the axilla. The disease had been of several years' duration; no operation even for the removal of a microscopical specimen had been permitted. There was no history of syphilis and two careful Wassermann examinations were negative. The clinical diagnosis had always been carcinoma, and if so it was evidently similar to the cases of epithelioma cicatricans, which were sometimes active for as long as eight years before causing death. This patient had lost strength and weight, the skin was adherent to the chest wall, and the use of the right arm was interfered with. The treatment was by contact applications of 20 mg. of radium of 2,000,000 activity in a sealed glass tube three tenths of a millimeter in thickness, enclosed in aluminum one-half millimeter thick, and in thin soft rubber. The treatments were first given three times a week for a month and after that once a week. At each treatment several individual nodules or parts of the nodular borders of the ulcers received an application equal to a total of fifteen minutes in each place. During the first month every growth on the right side had been treated in this way and also the floor of the ulcers, but the left side had not been treated. At the end of this time all the nodular masses on the right side were perfectly flat, the cicatrized ulcers were no longer adherent but could be raised and bent double. The arm could be raised to the greatest extent. The patient felt stronger and had gained five pounds in weight. The left side, untreated, showed marked improvement, strengthening the author's belief that the application of the *x*-ray and radium to cancer developed some antibody which was carried through the system, and in proper dosage produced benefit to cancer foci beyond the effective reach of the direct rays themselves. Treatment was begun on the left side and the subsequent course of the case had been one of steady progress.

Tuberculosis of the Ileum, Perforated Stenosing Ulcer, Resection, Ileocolostomy.—Dr. SEWARD ERDMAN presented this patient, a Greek woman, 26 years of age. A diagnosis of appendicular abscess had been made, but at operation a condition quite different was found. The patient had never been ill until two months before coming to the hospital. At that time she had had a gastrointestinal upset but had recovered from that and remained well until her present trouble. On admission her temperature was 101° F. and the leucocyte count 21,000. An incision of the outer third of the right rectus muscle revealed a pus cavity containing fecaloid pus. This pus collection was extraperitoneal. There was a small opening which when enlarged showed a protruding bowel with a hardened tumor attached to

the anterior abdominal wall. A resection was done and it was found that this left only one-half inch of the ileum so an ileocolostomy was performed. On examination the specimen removed proved to be tuberculous. There was no involvement of the glands or of the mesentery though the wound acted as though there were. There was a sinus which persisted for six months and was still incompletely healed, a granular area remaining. An interesting point in connection with the case was that Greeks and Italians seemed to be more frequently the victims of intestinal tuberculosis than other nationalities.

Progressive Gangrene of the Foot, Due to Arteritis Obliterans, Cured by Arteriovenous Anastomosis.—Dr WILLY MEYER presented this patient, a man 29 years of age, who had come under his care in March, 1913. He was married, had children, and no signs of specific disease. He complained of pain in the lower right extremity and exhibited all the signs of endarteritis. Every remedy used for this condition had been tried without avail. The question was one of amputation, arteriovenous anastomosis, or, what Dr. Meyer said he personally considered much less desirable, double ligation and resection of the femoral vein. The patient entered the hospital on May 20, and an arteriovenous anastomosis of the femoral vessels was done in Scarpia's triangle. Dr. Meyer emphasized the point that in doing the anastomosis it was very necessary to be careful in ligating lateral branches and one should never use catgut but very fine silk for this purpose. The operative field had included an exposure of from three to four inches of the vessels. He did a typical end-to-end anastomosis according to the method of Carrel. An interesting feature in this anastomosis was the marked difference in the caliber of the vein and the artery after anastomosis had been accomplished, the former vessel being the larger one. Previous to the operation there was no pulse in the tibial or the popliteal artery. As the patient had intense pains from the gangrene of the large toe and the metatarsal portion the toe was amputated on the ninth day after the first operation. They all were pleased to find distinct arterial hemorrhage. There was arterial bleeding from the veins. The wound was closed by secondary sutures and healed very slowly. The man was now back at work without pain, gaining weight and Dr. Meyer felt that so far the extremity had been saved by the operation of arteriovenous anastomosis.

Dr. Meyer referred to the work and conclusions of several German authorities who did not think that this operation was of very much value. Dr. Meyer said that, in his opinion, theorizing was of like importance. It was the practical results that proved the utility of a procedure. He referred to a patient of Bernheim's, of Johns Hopkins Hospital, in whom arteriovenous anastomosis was done in all four extremities and all four were saved. The operation was certainly successful in a certain number of cases.

Progressive Gangrene of the Toes, Due to Trophoneurosis, Cured by Repeated Hypodermoclysis with Ringer's Solution.—Dr. WILLY MEYER presented this case. The patient was a young man of 28, who had another form of gangrene. There was no endarteritis as pulse in interior and posterior tibiæ was strong, there was no diabetes, no syphilis. The trouble was evidently due to trophoneurosis. Dr. Geo. W. Jacoby diagnosed syringomyelia of the cervico-dorsal segment. An older brother had had the same trouble and died after various amputations of both lower extremities in another hospital. This prompted Dr. Meyer to be conservative. This summer he had read that J. Koga of Ito's clinic in Kyoto, Japan, had treated thirteen cases of endarteritis occurring in individuals between the ages of 24 and 48 years of age by hypodermoclysis of saline and then of Ringer's solution with successful results in all the cases. The pain had stopped and the condition of the patients had improved. While arteriovenous anastomosis was a most fascinating field of operative endeavor it was a major operation and should not be resorted to until other measures had been given a reasonable trial. The present case was not one in which there was endarteritis. In endarteritis Ringer's solution was indicated. This patient had trophoneurotic gangrene of the toes, was anemic and reduced in every respect. In view of the sad experience of the patient's brother. Dr. Meyer decided to proceed cautiously. In general anesthesia the hypersensitive ulcers were thoroughly burned with Paquelin's cautery and later the effect of hypodermoclysis with saline or Ringer's solution tested. He first administered saline solution of four to five hundred c.c. every other day. After giving several injections of saline solution he gave Ringer's solution and the patient liked this better, finding it much less painful. After the patient had had about fifteen injections of saline and Ringer's, to his surprise, two of the eschars on the toes came off and underneath were strong, healthy granulations. The pain which had been intense for months ceased and the patient slept well and the wounds healed. He was now back to work and the foot was of comparatively good color, though at times part of it was blue. Dr. Meyer called the attention to the theory of Koga that the juvenile grangrenes were due to increased viscosity of the blood, that repeated hypodermoclysis thinned the blood or disposed of the elements in the blood that caused increased viscosity, thus improving the blood itself. If this theory was correct the results might not be permanent as the viscosity of the blood would not remain permanently altered in all probability. But then the simple treatment could be repeated.

A third case was presented. A young man, who had come under Dr. Meyer's observation with an obstinate ulcer of the foot at the German Hospital nine years ago and had been successfully treated by the transplantation of skin grafts. There was now endarteritis in both upper and lower extremities, pulses were absent and pain was constant and intense. He had been treated lately with Ringer's solution and was very much improved.

Cases of Muscle and Ligament Affections.—Dr. W. P. HERRICK presented a number of patients showing the beneficial effects of massage and movements in muscle and ligament affection. The first patient had ruptured the muscle fibers of the trapezius and had been cured by massage. A second patient who could scarcely raise the left arm had been greatly improved by two treatments. A third patient had sustained a strain of the foot and could not use that member, but had been cured by strapping and massage. Another patient was that of a boy with both cerebral and cerebella paraplegia. He had been unable to go upstairs and his muscles were entirely undeveloped; he was now apparently all right and his muscles in fairly good condition. Other patients who had suffered from flat foot, drop foot, disturbed innervation, and anterior poliomyelitis who had been helped by these methods of treatment were also presented.

Dr. SINCLAIR TOUSEY said that a question had been put to him as to whether after the disappearance of the nodules others sprang up. He had seen no new nodules appear and the patient said that none had appeared.

Dr. WILLIAM C. LUSK said that in regard to Dr. Meyer's case in which he had performed aretriovenous anastomosis, Leo Buerger had called attention to the fact that the veins as well as the arteries were obliterated. His experience in examining amputated extremities was that in six out of 19 that he had examined the venous circulation would have been inadequate to supply the limb.

Dr. CHARLES GOODMAN said he had tried the method of reducing the viscosity of the blood by infusions of physiological saline solutions in three cases with only temporary relief of the symptoms. Arteriovenous anastomosis had given varying results in different series of cases. Bernheim had collected fifteen successes out of fifty-two operations operated by thirty-two different surgeons. It had been suggested that the large number of failures could be accounted for by the lateness with which the patients had come to operation and because blood-vessel surgery was still in its infancy. Personally he had done fifteen operations with varying degrees of success. He had also performed a long series of experiments which controverted the arguments against arteriovenous anastomosis. That the reversal of the circulation was possible had been proven by Carrel. It had been demonstrated to take place in a dog in three hours. The fact of the reversal of the circulation had been proved by many other observers. A foot previously cadaverous took on warmth, and the pulsation of the veins could be demonstrated below the anastomosis. The valves of the veins offered only a temporary barrier to the passage of the blood; the one nearest the anastomosis gave away first and then the succeeding ones could be observed to follow. The etiology of the condition was obscure and until this was better understood we could not be sure of our therapy. the life of the limb. They had tried many varieties of In the laboratory of Beth Israel Hospital experiments were now being carried on which it was hoped would throw some light on this subject. It was sure, how-

ever, that in some instances this operation prolonged anastomoses but had found that the end-to-end anastomosis was the simplest and the least likely to be followed by thrombosis. As to whether Dr. Meyer's case was cured, Dr. Goodman said he did not think that one could say positively that a cure had been effected; they would have to know more about the etiology before they could make such a statement. He had studied a few cases for years, some for ten or twelve, and it had been his observation that the process was an ascending one and that later the veins became involved, neither did the disease limit itself to a single vessel, but parts of a number of vessels, both arteries and veins, might become affected.

Dr. J. A. Corscarden said that the veins were likely to be as much involved as the arteries, and the involvement was not necessarily continuous in either the veins or the arteries. Before operating one might determine whether the veins or arteries were at fault by constriction bands.

Dr. H. F. Wolf said that he thought the condition depended three-quarters on the red blood corpuscles and not on the viscosity of the blood, for after a time the viscosity of the blood became the same as before it had been altered by the Ringer's solution. Some cases were improved by baking, but the toes must not be included in the baking. Some cases had been improved by a new method of diathermy. In treating these cases with diathermy one should not use the high frequency current so popular in this country, but a low voltage and a high amperage, when the danger of burning would be lessened. He cited one case which had improved rapidly under this treatment.

Dr. Charles R. L. Putnam said he wished to add a favorable case in which a midtarsal amputation had been done for angioneurotic edema. There was gangrene of the stump and they did an arteriovenous anastomosis by the Bernheim method. As soon as the blood went through the veins the breaking down of the valves could be seen as had been described. The patient was still well though the edema had gone down to the ankle.

Dr. Willy Meyer, closing the discussion, said that the Wassermann test had been negative and that he had an end-to-end anastomosis. There were very few cases which would have been successful and he had feared that the operation would not do much good in this instance, but he attempted it on account of the youth of the patient. In one case in their wards there was total gangrene of the foot and he advised amputation only to find that the other extremity had been amputated at the thigh. Although this man was in much pain he still hoped that the leg might be saved by the hypodermoclysis. There was no other method that offered the hope of such a result. This much could be said: one could use the hypodermoclysis method for a few weeks; if this failed then arteriovenous anastomosis, and if this was not successful one could then amputate.

Ileocecal Tuberculosis.—Dr. Joseph Wiener presented this paper. He stated that our knowledge of this subject dated from 1891, in which year Billroth in Vienna, and Hartmann and Pilliet in Paris, simultaneously insisted on the fact that tubercular lesions existed in the cecum, lesions which before that time had been taken for carcinoma. Since then they had found that the cecum was more frequently the seat of tuberculosis than any other part of the alimentary canal. Both sexes were equally affected. It was found oftenest between the ages of twenty and forty years. Clinically there were two sets of symptoms, first those of peritoneal reaction, and secondly, those of intestinal stricture. As the disease when left to itself was always fatal, operation was indicated in all cases. The writer said that thirteen years ago he had been fortunate enough to operate on a very complicated case, which finally turned out to be ileocecal tuberculosis. Since that time he had been on the lookout for these cases and had succeeded in recognizing about ten others at operation. Cases of simple tubercular ulcers in the appendix were not included in this paper. These cases were often mistaken for appendicitis with inflammatory exudates. Most of their cases were operated on at the Mount Sinai Hospital since 1906. Many, perhaps most of these cases, came to operation with the diagnosis of appendicitis. In some of these cases there was a tubercular ulcer inside of the appendix or cecum, with an inflammatory exudate around the intestine. If some or all of this exudate were removed the pathologist was right in calling it inflammatory, but if one asked for serial sections through the appendix or cecum then often a small tubercular ulcer would be found which would clear up the diagnosis. The first case which the writer encountered was one of this kind. At the first operation the greater part of a large inflammatory tumor around the cecum was removed, and on section was pronounced chronic inflammation. At a subsequent operation, more of the tumor and the greater part of the appendix were removed, and again pronounced chronic inflammation. At a third operation for the closure of a fecal fistula, the stump of the appendix was removed and again the report came back, chronic inflammation. A more careful examination showed a typical tubercular ulcer in the appendix. The most practical classification of these cases had been made by Hartmann who distinguished two classes: First, ulcerative enteroperitoneal tuberculosis of the cecum, and second, hypertrophic cecal tuberculosis, the so-called ileocecal tubercular tumor. In the first class one found either ulceration with perforation and abscess formation, in which case the disease was serious and hard to cure, especially as fecal fistula often developed; or one found ulceration with stenosis, and frequently adhesions to the adjoining viscera or to the parietal peritoneum. Class two was the chronic form to which Billroth, Czerny, Terrier, and Hartmann had called attention. These cases usually presented a palpable tumor often of considerable size. The neighboring lymph glands were usually enlarged. In discussing the etiology of ileocecal tuberculosis the essayist reviewed the opinions of various authorities and concluded that the lesion was usually primary. A tubercular ulcer in the appendix would not always give symptoms. In one hundred consecutive autopsies of cases that died of tuberculosis, Sonnenberg found two cases of tuberculosis of the appendix, which had given no symptoms. Preexisting ileocecal disease was a predisposing factor to the development of ileocecal tuberculosis. In discussing the pathology of this condition the writer said that in the enteroperitoneal tuberculosis of the cecum one first found tubercles in the mucous membrane surrounded by an inflammatory zone. These tubercles coalesced and formed a flat ulcer with undermined edges. If such ulcers healed they produced more or less stenosis. As the process progressed tubercles developed on the serosa, and through these the lymphatics became infected. As a result there was an adhesive peritonitis and the neighboring loops of small and large intestine became adherent to one another and to the parietal peritoneum, and thus a palpable tumor resulted. In this way the disease might be limited to the affected area. Sometimes the ulcer caused a perforation of the intestine and resulting abscess. Adhesions to the parietal peritoneum came only late in the disease. This free motility was an important sign in the differential diagnosis. In the enteroperitoneal form of the disease the symptoms were not characteristic. There was gradual increasing pain in the right iliac fossa lasting several months; later vomiting, nausea, and belching. At times there was a slight evening temperature, loss of weight, and sometimes diarrhea with blood and mucus. After a time the mass was felt and was usually hard and not sharply defined. The symptoms in ileocecal tubercular tumor were similar to those just described at first, but later there was a stricture of the gut and one found severe colic, and the usual picture of intestinal obstruction. It was difficult to differentiate the enteroperitoneal form from appendicitis, and in the early stages it was difficult to differentiate the hypertrophic form from the foregoing and from appendicitis. It had also to be differentiated from carcinoma. In carcinoma one did not find the symptoms of intestinal obstruction, certainly not early in the disease. The pain was not so severe, and the tumor was apt to be more fixed. In tuberculosis the tumor was apt to be smooth and in carcinoma nodular. In children one must also differentiate from ileocecal intussusception. The treatment consisted of artificial anus formation, complete intestinal exclusion, ileocolostomy, with or without intestinal exclusion, and partial or complete excision of cecum and ileum. The removal of the appendix was indicated in practically every case. Artificial anus formation was rarely indicated and then only as a temporary expedient in desperate cases. Complete intestinal exclusion was performed in a few of these cases, but it would rarely be indicated today. Ileocolostomy with or without intestinal exclusion was a simple operation with low mortality and would cure a large number of cases. They had been accustomed to do it by the same technique as was employed in doing a Moynihan gastroenterostomy, using clamps and linen sutures. If there was no ab-

scess after removing the appendix the abdomen was closed without drainage. The anastomosis should be made far enough away from the diseased area to allow of a subsequent resection of gut. This lateral anastomosis could be combined with intestinal exclusion. This would be indicated in cases involving a large part of the ileum and ascending colon, but in many cases the anastomosis alone would bring about a cure. As to the excision of the intestine, extensive adhesions around the diseased area formed a contraindication, on account of the great risk involved, to an immediate excision. If the tumor could not be lifted out of the abdomen the dangers of excision were too great. If the tumor was freely movable and an excision was to be done, after lifting the tumor out of the abdomen, the mesentery of the ileum and the mesocolon were ligated close to their intestinal attachments and divided. The ileum and cecum were clamped and the intestine cut away. Mikulicz did the resection in two stages. At the first operation the tumor was brought out of the abdomen and the abdominal wound was carefully sutured. At the second operation the intestine was resected. It seemed better to do a lateral anastomosis at the first operation, and then if necessary at a second sitting to do the resection. Proceeding along these lines many cases would be cured at the first operation, and with a low mortality rate; whereas the intestinal resection would always give a high mortality.

Dr. Samuel G. Gant expressed the opinion that ileocecal tuberculosis was not as rare as Dr. Wiener's paper would indicate. In fact the region was a favorite site for tuberculous foci, hypertrophic or neoplastic tuberculosis was a rare condition but was located in the ileocecal region more often than elsewhere. Owing to the absence of lung complications here some authorities considered hypertrophic tuberculosis of primary origin caused by bovine bacilli. Patients afflicted with hypertrophic tuberculosis did not have a typical tuberculous appearance and the swelling could be differentiated from carcinoma by its slow growth, smooth contour and elasticity, absence of cachexia, and by the fact that the patient had lost but little in weight. Intestinal exclusion alone or as a preliminary step to ileoccecal excision gave the best results.

Dr. Joseph Wiener said that a large majority of cases occurred in young adults under thirty years of age so that carcinoma would seem by this fact to be ruled out.

Massage and Movements for Certain Affections of Muscles and Ligaments.—Dr. W. P. Herrick presented this paper. Before entering on the discussion of his subject he warned his hearers that massage and movements were not a "cure-all," but valuable aids for certain conditions. The neglect of these measures gave a sound plank to the rotten ships of charlatanism and cults and in abandoning certain patients to these chance fates they were leaving undone some things which they ought to have done and were losing a meed of praise that was rightfully theirs. A visit to the clinics and hospitals of the city where this line of treatment was employed showed much good work; this was especially true of orthopedic and neurological institutions, but it was surprising that priority so limited massage to the treatment of fractures, old dislocations, etc., with a scattering of cellulitis, contractures, and the like, when massage was essentially adapted to muscular structures and accessible ligaments which offered a great field, as did some of the disturbances of the digestive tract, peripheral nerves, etc. Massage was mainly manual and should naturally interest surgeons, those who worked with their hands. Even a little practice gave delicacy and firmness of touch, with detection of indurations, or atrophies of muscles, or tender points of spinal exit, or peripheral distribution of nerves. The subject, however, was rarely taught in our colleges and this resulted in indifferent knowledge and interest and restricted the physiological application, tending to make it a last rather than an early resort. It was well known that muscle and ligament affections were often precursors of deformity and predeformity was a natural branch of prophylactic surgery whose growth should emulate prophylactic medicine. The importance of massage and movements for impaired nutrition or function of muscles and ligaments was the key-note of this paper.

The essayist pointed out how massage and movements aided impaired nutrition and function, hastened repair, and broke the vicious cycle of injury or disease. The writer stated that massage was contraindicated in acute infection, but was indicated in traumatism of ligaments and muscles, was an aid in restoring function and nutrition of muscles, and beneficial in disturbed innervation of muscles. In considering the traumatisms he spoke of contusions, ruptured muscle fibers, myosites, and sprains, and cited cases illustrating the benefit in these conditions of massage and movements. In myositis, which often followed a forgotten strain or injury, and was oftenest located in the lumbar, deltoid, or trapezius muscles, there was generally tenderness with loss of power, severe pain or attempted function, often indurated area, and these conditions responded well to massage. In the application of massage as affecting the nutrition and function of muscles Zabludowski found in man that after severe exercise a rest of fifteen minutes brought about no essential recovery, while after massage for the same period the exercise was more than doubled, showing prompter recovery from fatigue. Professor Maggiora of Turin also showed that muscles concerned in a special movement could do about twice as much work after a few minutes' massage, as without it. In this connection the essayist cited a case of cerebral and cerebellar diplegia which had been greatly improved by massage. Massage might aid relaxed muscles to regain their tone, especially when overstretching was prevented, and contractured muscles might to a limited degree be stretched. An anesthetic for breaking down adhesions or tenotomy for a contractured muscle might be preferable to massage or movements alone, but either was aided by subsequent manual treatment. Similarly relaxed ligaments through increased nourishment, especially with adjacent tendons aiding through development of their muscles, might regain normal function, and contratured ligaments be elongated. The common conditions of weak foot and flat foot well illustrated some of these conditions. In considering the effects of massage on innervation of muscles, the essayist urged the importance of early treatment in temporary conditions of impairment and emphasized the point that nerve centers were associated, and apparently in a nerve trunk fibers went from one center to several associated muscles and a muscle received fibers from several associated centers, so, though many cells might be destroyed, all nervous control of the muscle might not have been lost, but simply in abeyance or diminished. Thus it seemed possible that certain cells might vicariously take up functions of destroyed cells, while many believed that muscular function hastened completion of nervous control. The natural indications in this class of cases then were to early combat atrophy with nourishment, to encourage function and improve it by education, to nourish regenerating axis cylinders, and to avoid interference with function in obviating deformity, though a destroyed muscle might demand tendon transplantation.

The author also considered the effects of massage and movements on the muscles and ligaments in anteriorpoliomyelitis and said that these had been shown in hundreds of Lovett's cases and of Dr. Fraser's of Rockefeller Institute which would soon appear. In closing Dr. Herrick related the history of a case of poliomyelitis of ten years' standing as an indication of methods in late stages of the disease. In 1903, feeling that the brace severely interfered with function and nutrition, they determined to substitute massage and function endeavoring to foresee and obviate deformity by any other means possible. The case chosen was a little girl, five years of age, who had an anterior poliomyelitis of two years' standing. She had been treated with electricity and had worn a brace. Examination showed three-fourths of an inch shortening of the left leg, with atrophy of the leg and thigh. Drop foot was present so that the toe was dragged in walking with some inversion of the foot. The brace was removed, a laced raised shoe ordered, and massage and motion exercises instituted. The muscles developed up to those of the other limb, though it was a year or two before she was able to run normally. She was now taller and heavier than her mother, wore a thick sole on one side, but otherwise was entirely normal and indulged in normal exercise as running, dancing, ice-skating, etc. Subsequent cases had strengthened their belief in this method so that now after the acute stage they taught the mother to give the massage and it was given at the clinic three times a week. They found muscles recovering function years after the attack. Dr. Herrick also described the method of muscle strapping which they employed.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held May 26, 1914.

Dr. GEORGE W. KOSMAK IN THE CHAIR.

Report of a Case of Gangrene of the Lung Following Operation for Ectopic Gestation; Resection of Rib; Recovery.—Dr. LILLIAN K. FARRAR reported this case, which occurred in a woman thirty years of age. She had had no children, but one spontaneous miscarriage. She gave a history of vaginal discharge beginning immediately after her marriage nine years previously. Her present illness began in December, 1906, when, after a delayed menstrual period, she flowed profusely and had sharp cutting pains. She was sent to the speaker, in March, 1907, with the diagnosis of ectopic gestation. Pelvic examination revealed a cervix hard in consistency, a uterus slightly enlarged and displaced to the right, and the left tube palpable and moderately prolapsed. To the right of the uterus was a large mass indefinite in consistency, markedly pulsating, and moderately tender on palpation. A moderate amount of decidua was removed by curettage. On opening the abdomen the right tube was found enlarged at the distal end to the size of a goose's egg, deep dull red in color, and firm in consistency. A large number of old blood clots were adherent to the intestine. The right tube and ovary were resected, and the left tube and appendix removed. The patient was returned to the ward in good condition. That evening the speaker found the window open back of the patient's bed and a strong wind blowing on her. The following morning the patient's temperature rose, her pulse and respiration were accelerated, and she could not speak above a whisper. In a few days her sputum became copious, tenacious, and with a marked sickening odor. The abdominal condition progressed in an absolutely normal way. Ten days after operation the patient developed dullness and bronchial breathing over an area about the size of a silver dollar in the right lung, posterior and to the right of the angle of the scapula and in the fifth interspace. Twenty days after operation the sputum contained a moderate number of pneumococcus bacilli and elastic tissue. On April 14, twenty-two days after operation, the temperature became septic and the pulse and respiration more rapid. The patient was aspirated at the level of the sixth rib, but no fluid was obtained; she was then aspirated at the level of the sixth rib, one inch to the right of the angle of the scapula, and on finding fluid, greenish in color, two ribs were resected. The culture from the fluid obtained gave a pure culture of the pneumococcus bacilli in agar-agar and calcium broth. The lung was retraced and converted into a gray-green pulp. At its lower border was a cavity about an inch in diameter coated with a greenish white slough. The odor was intensely sickening. The patient made a slow recovery from this time. The points of interest in this case were: (1) The marked anemia of the patient following the prolonged flow of blood. (2) The exposure to cold when the vitality of the patient was lowered following operation. (3) The presence of blood clots adherent to the intestines. The primary union of the wound. (4) Aseptic embolism carried into the pulmonary artery. (5) The area of central Pneumonia without physical signs until the tenth day. (7) The presence of the pneumococcus not demonstrated until the twentieth day. (8) The septic temperature on the twenty-second day, and the purulent effusion on the twenty-seventh day.

Rupture of the Corpus Luteum with Free Intraperitoneal Hemorrhage.—Dr. MILTON R. BOOKMAN reported this case. This patient was admitted to the Lebanon Hospital February 29, 1912, with the history of having been suddenly seized with severe cramp-like pains in the abdomen two days before, followed by vomiting and retching. The pains became localized in the lower half of the abdomen. The only abnormality revealed by physical examination was some muscular resistance over the lower half of the abdomen, especially over the right side; this was not distinct rigidity, but more in the nature of a voluntary spasm. At operation performed on the day of her admission the peritoneum was found to be dark violet as in cases of ruptured extrauterine pregnancy. A considerable amount of fluid and dark clotted blood escaped at this time. The right ovary was found enlarged to the size of a small hen's egg, and there was considerable bleeding from a small hole near the hilum. As several sutures cut through the ovary, it was ablated, and the appendix, showing considerable congestion, was also removed. The patient made an uneventful recovery. The pathological report showed that there was some fibrous degeneration in the ruptured corpus luteum. The appendix showed some exudative inflammation and marked congestion of its peritoneal coat. The sequence of events in this case was undoubtedly a catarrhal appendicitis of a mild grade, and, with increasing abdominal pressure from the vomiting, there followed the rupture of the corpus luteum with the symptoms overshadowing those occasioned by the appendical inflammation. A few cases of intraperitoneal hemorrhage due to a rupture of a normal Graaffian follicle had been reported. Hadley had made a study of eighteen cases and concluded that there seemed to be no reason to doubt that the actual process of the formation of ovarian hematoma was one of rupture of several or many Graaffian follicles into one another, instead of on the surface of the ovary separately. The difference between the ovarian hematoma and the case in which the blood suffused the peritoneal cavity was simply one of degree; in the former the blood was extruded slowly from the tear in the ovary and had time to clot, while in the latter the blood was poured out into the free peritoneal cavity with the symptoms of intraperitoneal hemorrhage. The classification into the affections of the Graaffian follicle and those of the corpus luteum was also misleading, inasmuch as the Graaffian follicle was but the immediate precursor of the corpus luteum. In young girls cases were often seen in which they complained of severe pain at the menstrual period with a slight elevation of temperature and some nausea or vomiting; these cases were usually ascribed to "catching cold" or to an attendant catarrhal salpingitis where the condition was no doubt due to a small pelvic hemorrhage from a corpus luteum that had been ruptured. The so-called pelvic hematoma were no doubt caused by similar process with the subsequent encysting of the blood, and many of the adherent ovaries with normal tubes might be ascribed to a similar cause. Infection with the formation of corpus luteum abscesses was fairly frequent, and, according to Cohen, was usually due to the gonococci or tubercle bacilli, rarely to streptococci, staphylococci, or penumococci, the colon bacilli and the anaerobic organisms playing a minor part. The diagnosis was difficult. From a low appendicitis of a mild type it was very difficult to differentiate, although a high white cell count might help one. From a ruptured extrauterine pregnancy the condition might be differentiated by the absence of uterine bleeding and pressure, decidual fragments, and perhaps physical signs. From the literature it seemed that rupture of a corpus luteum had never been diagnosed. The treatment of the mild cases in which this condition might be suspected was mainly symptomatic. In the severe cases in which there was profuse bleeding, operative interference was indicated. The prognosis in all cases was good except where there was a coexisting hemophilia or leucemia.

Liver from Case of Eclampsia, Showing Extensive Subcapsular Hemorrhage.—Dr. GEORGE W. KOSMAK presented this report. The patient was an Italian, nineteen years of age, admitted to the Lying-In Hospital seventeen hours after delivery in a state of coma. Her pregnancy had been apparently normal until the previous day, when she was seized with convulsions, and was delivered the following morning at her home. She had twenty-one convulsions, went into coma, and died a little over thirty-six hours after her admission to the hospital. At autopsy the liver was found enlarged, weighing 2,470 grams, and presented numerous subcapsular hemorrhages scattered over its entire surface. Sections of the liver showed many hemorrhagic areas throughout the substance of the organ. Microscopical examination showed necrosis, autolysis, and disintegration of the hepatic cells of the central two-thirds of the liber lobule. There were also many hemorrhagic areas throughout the liver substance which had destroyed the hepatic cells from pressure. Many of the cells showed cloudy swelling, but there was only a very small amount of fatty degeneration present. The kidneys showed an acute diffuse nephritis, the spleen a few petechial hemorrhages, and the lung an edematous condition, many of the air vesicles being filled with blood.

A Case of Suppurative Appendicitis Occurring During Pregnancy.—Dr. WILHELMINA AFTON RAGLAND reported this case, which occurred in a patient twenty-eight years of age, in the third month of pregnancy.

She was admitted to the hospital complaining of severe cramp-like pain in the right lower abdominal quadrant, from which she had been suffering for a week. She appeared to be in fairly good condition except for attacks of pain lasting about a minute at intervals of one-half hour. Her past history was negative save for an attack of typhoid fever at the age of eight years, and of *ardor urinæ* at the age of eighteen, which had lasted but a few days. She had been treated for the past week for appendicitis by her family physician, who referred her to the hospital. The physical examination was negative except for an indefinite cystic mass in the right lower abdominal quadrant, extending from the symphysis pubis to about five cm. below the umbilicus. It seemed to be confined to the right side of the median line, but the abdominal walls were tense and rigid, and examination caused considerable pain. The tumor-like area seemed to be adherent to the uterus, and ovarian cyst and hydronephroma were also considered in the diagnosis. The condition of the patient did not change materially until the fourth day, when it was found that the abdomen was five cm. larger around the iliac spines than when the patient entered the hospital. The fifth day with the patient under an anesthetic the mass was palpated and operation was decided upon and proceeded with immediately. A large abscess was opened and the proximal end of the appendix was found leading into the sac. After operation the temperature rose to 103 F.; marked distention of the abscess and great distress followed and continued for six days. At the end of this time the fetus was spontaneously expelled. The placenta remained behind and was removed by the placental forceps. The temperature then subsided and the patient was comparatively comfortable for three days, when an indurated mass was palpated in the right fornix by vaginal examination. This gradually disappeared and the patient in time made an excellent recovery.

The interesting features of this case were: (1) The absence of any history of constipation, either before or during pregnancy. (2) This was apparently a primary attack of appendicitis. (3) The leucocyte count (14,000). (4) The late abortion, six days after operation, and two weeks after the onset of the attack. (5) The adherent placenta which was attached to the portion of the uterus which formed the abscess wall and thus led to the belief that the abortion was due to direct migration of the *B. coli communis* into the placenta. (6) The low grade of the sepsis. Three blood cultures which were made during the course of the illness were negative.

Constitutional States in Relation to Gynecological Conditions.—Dr. ROSALIE SLAUGHTER MORTON presented this communication in which she stated that the surgical treatment of gynecological conditions had in many instances been so brilliantly successful, and this, together with the general tendency to specialize, had caused a loss of interest in and a lack of attention to the relation of systemic states to gynecological conditions. As a result of the failure to recognize this relation between constitutional states and gynecological conditions many patients had received little benefit from the treatment given by gynecologists in certain cases. All the constitutional states in women might have a gynecological significance, and, broadly speaking, depended upon nutrition and elimination. They might be divided into disturbances of the circulatory, respiratory, nervous, digestive, and renal systems, improper formation or adjustment of the bony framework, and improper functioning of the ductless glands and the skin. A determination of the extent to which any or all of these affected the generative organs, or were affected by them was the most important sociological and gynecological consideration of our day. The essayist limited herself to a brief discussion of each of these nine heads mentioned. She called attention to the effects of postural deformities, such as round shoulders and incorrect standing, which might lead to anemia, malnutrition, pelvic neuralgia, and amenorrhea. Lordosis was apt to have a marked effect on the pelvic contents, allowing a sagging of the intestine. Interference with the circulation and misplaced pressure were very often responsible for the evil effects of both postural errors and lordosis.

The writer discussed the effects of pathological conditions of the gastrointestinal tract on the pelvic contents and emphasized the frequency with which lesions of the gall-bladder and appendix complicated or obscured the diagnosis of ovarian disturbance. Pelvic pressure due to colonic angulation at the hepatic flexure produced by gall-bladder adhesions caused dilatation and prolapse of the cecum, which not only led to acute congestion of the right ovary, but interfered with the emptying of the rectum to a degree which induced chronic constipation, toxemia, and neuritis, as well as uterine congestion. Dr. Morton had devised an abdominal speculum by means of which the entire abdominal cavity might be inspected through the small incision used in the average gynecological operations. The observer by turning the speculum could inspect without handling the cecum, ascending colon, stomach, splenic flexure, descending colon, sigmoid, and various portions of the ilium. Rheumatism and malaria were systemic conditions giving gynecological symptoms; the dysmenorrhea due to these yielded only to constitutional treatment. The essayist then discussed the manifold gynecological effects of alterations in the circulation and gave the results of a comparative study of blood pressure in men and women, showing that the rhythmical fall of blood pressure at definite intervals occurred in both men and women. The daily records of men and women gave curves which were indistinguishable in character. Loss of blood from hemorrhages of the genital organs might be productive of anemia and changes in the heart muscle and the circulation as well as in the blood picture. Anemia was a frequent cause of painful menstruation. Uterine prolapse, version, and flexion were so commonly associated with poor tissue tone in anemic girls and in those who in customary phrascology "outgrew their strength," that systematic outdoor exercise from little girlhood was a valuable preventive measure. Congenital smallness of the arterial system associated with narrow arch of the aorta might be associated with sexual infantilism. Severe primary anemias or pernicious leucemia led usually to amenorrhea. If the uterus was the seat of hemorrhage due to atony of the uterine muscle which encouraged a continuance of the bleeding, treatment of the anemia and improvement of the general health lessened the tendency to metrorrhagia more successfully than local treatment. If this failed hysterectomy might be necessary, as the speaker said that girls under twenty had been known to bleed to death as the result of uncontrollable menorrhagia and metrorrhagia.

Dr. Morton showed the importance of the consideration of the pathological conditions of the genitourinary system in its relation to the gynecological condition. Patients often sought the advice of a gynecologist for what Goodwin called the "intangible, imponderable, invisible pelvic pains of neurotic women," and in the opinion of the author these were frequently due to undiagnosed nephritis, which, though showing only a trace of albumin, might so lower the nerve tone of the patient that she had no resistance with which to meet the periodical physiological pelvic congestion which made no tax upon normal women. The essayist reviewed the relations of cystitis, pyelitis, and gonorrheal infection of the genital tract, and stated that the relation of the nervous system to gynecology had proved a profitable field for much valuable work and speculation. The essayist reviewed evidence showing that insanity had no marked influence on gynecological conditions and that such conditions were not more frequent among the insane than among others. Operative measures in the insane might result in improved physical condition without any alteration of the mental state. In a study of the effects of fatigue incident to modern industry Dr. Morton's figures indicated that the number of men who sought relief in three large department stores investigated was in about the same ratio as among the women. It seemed that the physically perfect woman had physical endurance equivalent to that of man and had no pelvic complications.

Instances might be cited showing that where women had sufficient outdoor exercise they stood the strain of mental work quite as well as men. The normal changes to and from the child-bearing period were almost imperceptible in a perfectly healthy girl and woman. Dr. Morton also considered the influence on the genital organs of non-toxic doses of poisons, the effects of opium, morphine, codein, heroin, and acute infectious diseases, and reviewed the theories in regard to the functions of the ductless glands, taking up successively the ovary, the mammary gland, the hypophysis, pituitary, pineal, suprarenals, thyroid, and parathyroids.

Books Received.

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DIE ENTSTEHUNG UND BEHANDLUNG DER KARZINOME. By Hofrat Dr. A. THEILHABER in München. Paper; illustrated; 182 pp.; 7 marks, gbsk 8.20. Verlag von S. Karger, publisher.

DIE OPERATIVEN ERFOLGE BEI DER BEHANDLUNG DES MORBUS BASEDOWII. By San-Rat Dr. OTTO KLINKE. Paper; 112 pp.; 4 marks. Verlag Von S. Karger, publisher.

DIE AKUTE UND CHRONISCHE INFEKTIÖSE OSTEOMYELITIS DES KINDESALTERS. By Dr. PAUL KLEMM. Paper; illustrated; 261 pp.; 9 marks, gbsk M.1020. Verlag von S. Karger, publisher.

THE OCCUPATIONAL DISEASES, THEIR CAUSATION, SYMPTOMS, TREATMENT, AND PREVENTION. By W. GILMAN THOMPSON, M.D. D. Appleton & Company, New York and Philadelphia, 1914.

LES ANOMALIES DE L'URINE. By A. ESAICH. Paper; 164 pages. Pblished by Vigot Frères, Paris, France.

ANATOMY AND PHYSIOLOGY. By ELIZABETH R. BUNDY, M.D. Cloth; 408 pages; 3rd edition; illustrated; $1.75 net. Published by P. Blakiston's Son & Co., Philadelphia, Pa.

DIE PERSÖNLICHE PROPHYLAXE DER VENERISCHEN KRANKHEITEN. By Dr. med. MAX MÜLLER. Paper; 64 pages; price 1.80 m.

DER GEGENWÄRTIGE STAND DER PATHOLOGIE UND PROPHYLAXE DES DIABETES MELLITUS. By Priv.-Doc. Dr. K. A. HEILBERG. Paper; 52 pages; price 1.40 m.

THE PRACTICE OF SURGERY. JAMES G. MUMFORD, M.D. Second edition; cloth; illustrated; 1032 pages; price $7.00. Published by W. B. Saunders Company.

A TREATISE ON CLINICAL MEDICINE. By WILLIAM HANNA THOMSON, M.D., L.L.D. Cloth; 667 pages; price; $5.00. Published by W. B. Saunders Company.

TEN SEX TALKS TO BOYS. By I. D. STEINHARDT, M.D. Cloth; illustrated; 187 pages. Published by J. B. Lippincott Company.

THE OPENING AND DEDICATION OF THE HALL OF THE GEORGIA MEDICAL SOCIETY. Cloth; illustrated; 19 pages.

BAKTERIOLOGISCHE UNTERSUCHUNGEN DER GENITALSEKRETE. By Dr. MAUNU AF HEURLIN. Paper; illustrated; 226 pp.; 12 marks. Wm. Wood & Co., publisher.

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Therapeutic Hints.

The Treatment of Acute Bronchitis.—William Hanna Thomson notes that the indications for treatment in an attack of acute bronchitis are to promote the free flow of the secretions and to allay the spasm. The former indication is met by the use of oils. Of these linseed oil is the best. It is given as an emulsion prepared according to the following formula:

℞ Irish moss, 1 ounce.
Marshmallow root, 2 ounces.
Water, 3 pints.
Boil one-half hour; strain to 3 pints; add linseed oil (15 ounces) to make emulsion.
Oil of wintergreen, 2 drams.
Oil of cassia, 2 drams.
Glycerin, 5 ounces.
Simple syrup, 10 ounces.
Dilute hydrocyanic acid, 160 minims (1 minim to each tablespoonful.)

The dose of the above is one tablespoonful.

A second formula rontains the same ingredients with the addition of the following:

Chloral hydrate, 15 grains.
Magendie's solution, 5 minims to each ounce.

The author has rarely found an attack of acute bronchitis which is not relieved within forty-eight hours by the use of this remedy.—"Clinical Medicine."

The Treatment of Obesity.—J. Carles points out that in the treatment of obesity the various types of this condition must be borne in mind. Thus in its etiology the following factors play an important rôle: overfeeding, heredity, digestive disturbances, and anomalies of the internal secretions. Ovarian extract is of value in the obesity of the menopause or in that following ovariotomy, and testicular extract is of value in the obesity resulting from atrophy of the testicles. Thyroid administration is indicated in cases of obesity associated with a larval myxedema. But in this condition it is important to give only very small doses of the remedy, e.g., from 0.025 to 0.50 gram per day. There is an infectious or a toxic type of obesity whose etiological cause may be difficult to control. To this category belong the obesity following typhoid fever and that associated with syphilis or florid tuberculosis.—*Journal de Médecine de Bordeaux.*

An Empirical Remedy for Asthma.—C. Leclerc states that the magicians of Anam and Tonkin have for a long time employed in the treatment of asthma a substance obtained from the salivary secretion of sperm-whales. The natives collect this secretion whenever one of these animals is caught. This secretion when dried is of a sticky and elastic consistency, of a grayish color, and of a slightly bitter taste. It is employed in doses of 1 or 2 grams per day. The remedy is called "long-duyen-huong." It quickly relieves an attack of asthmatic dyspnea. It causes no gastric derangement but gives rise to a metallic taste which is similar to that produced by potassium iodide. The fact also that it lowers arterial pressure like potassium iodide leads the author to believe that "long-duyen-huong" owes its antispasmodic property in all probability to the presence of potassium iodide in organic combination.—*Gazette des Hôpitaux.*

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Original Articles.

SERUM TREATMENT OF PNEUMONIA.

BY JOSEPH C. ROPER, M.D.

NEW YORK.

FROM THE FIRST MEDICAL DIVISION OF NEW YORK HOSPITAL.

AT New York Hospital in February, 1909, an attempt was made to produce a potent immune serum for the treatment of cases of lobar pneumonia. The method employed in immunizing the horse was based on theoretical possibilities suggested by a series of experiments performed on rabbits. In these experiments, however, other antigens than those of the pneumococcus had been used.

In the preparation of our animal a vaccine was used which contained 5 strains of pneumococci, including typical and atypical types. These organisms were killed at various temperatures and injected subcutaneously in increasing doses at three-day intervals. The general condition of the horse seemed to be but little affected by the injection of the antigen until toward the end of the period when the animal lost weight and showed other evidences of poor condition.

After six weeks of vaccination the use of the serum was undertaken whenever a frank uncomplicated case of pneumonia presented itself. During the time the serum was being withdrawn for use the injections were continued. Bleeding, however, was never done until at least twenty-four hours after an injection. Having in mind the possibility that even after twenty-four hours the serum might contain uncombined antigens as well as antibodies, it was deemed unwise to begin with large

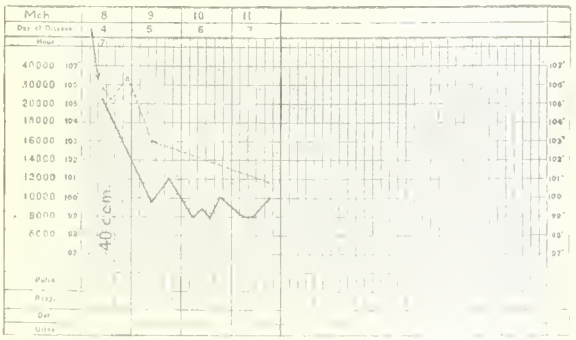

CHART 1.—Dotted lines show leucocyte levels. Arrows indicate points at which serum was given. Figures indicate amounts of serum in centimeters.

doses. The first cases treated therefore received very small doses, given subcutaneously. These having been followed by no noticeable immediate improvement or bad effects, larger doses were given and the intravenous method was adopted.

The results for a time were encouraging as far as the mortality was concerned. Thirteen of the first fourteen patients treated recovered. There

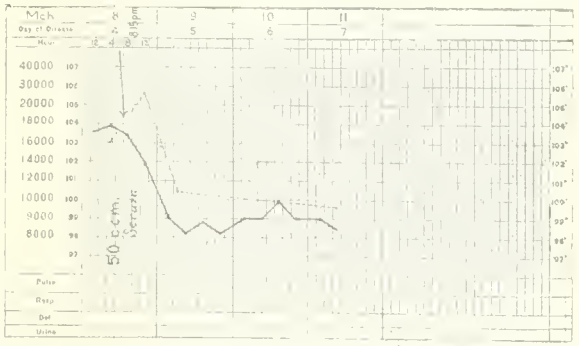

CHART 2.—Dotted lines show leucocyte levels. Arrows indicate points at which serum was given. Figures indicate amounts of serum in centimeters.

seemed to be an improvement in the general condition of these patients following the injection of the serum, but the temperature curve showed no material change, and there was no shortening of the course of the disease. In all twenty cases were treated. As remarked above, all but one of the first fourteen recovered. Of the six, toward the end of the series three died, and the total mortality was 20 per cent., approaching but somewhat lower than the average hospital mortality for this disease.

While at that time it seemed possible that failure in the later cases of the series might be due to the change in the health of the horse producing the serum, the results on the whole did not seem to warrant the conclusion that an active serum had been produced. In going over the records after five years this conclusion seems justified. No clear-cut results were obtained, and the work was temporarily given up. It will be remarked that the doses administered were very small when compared with those considered adequate at the present time. Neufeld, calculating from protection experiments on animals, has concluded that at least 75 c.c. of an active serum should be administered to an adult.

Table I gives a record of this series.

In January, 1913, a second attempt was made to produce an efficient serum. The horse in this instance was treated with increasing doses of a vaccine prepared as before. Five strains of pneumococci were used (including Neufeld I). A *Streptococcus mucosus* isolated from one of our cases was added at a later time. Daily intravenous injections of the vaccine were given.

After two months' treatment serum was withdrawn as required, the daily vaccination being continued but twenty-four hours always intervening between vaccination and bleeding. Only frank

*Read at the 263d Regular Meeting of the Practitioners' Society, May 1, 1914.

cases were treated, and to avoid coincidence as far as possible an attempt was made to confine the work to relatively early cases. The number of these is not large, as very few pneumonia patients enter the wards of a general hospital before the fourth day of disease. The only cases in this series with a history of three days since onset were alcoholics. These patients are often hazy concerning their early symptoms.

TABLE I. SERIES OF 1909

No.	Date	Day	Serum c.c.	How Given	Immed. Effect	Final Result	Complication
530	March 11	9	5	Subcut.	None	Recovery	Empyema
551	March 11	7	5	Subcut.	None	Recovery	
565	March 11	6	5	Subcut.	None	Recovery	
562	March 11	7	5	Subcut.	None	Recovery	
607	March 15	12	8	Subcut.	None	Recovery	
	March 16	13	12	Intraven.	None	Recovery	
	March 19 and March 21	16 and 18	16 and 5	Intraven.	None	Recovery	
640	March 16	4	7	Subcut.	None	Recovery	
	March 18	6	20	Intraven.			
18,122	March 20	4	20			Death 8th day	Alcoholic Pneumococcus Septicemia
	March 22	6	20	Intraven.	None		
	March 24	8	32				
18,118	March 20	3	20	Subcut.	None	Recovery	
	March 22	5	20	Intraven.	Defervesc.		
18,117	March 19	4	20	Subcut.	None	Recovery	
	March 20	5	20	Intraven.			
	March 22	7	20	Intraven.			
685	March 24	5	16	Intraven.	None	Recovery	
	March 27	8	24	Intraven.			
	April 3	15	12	Subcut.			
703	March 24	7	20	Intraven.	Def. None	Recovery	
707	March 24	5	20	Intraven.	None	Recovery	
708	March 24	6	20	Intraven.	None	Recovery	
715	March 24	4	20	Intraven.	None	Recovery	
18,155	March 27	6	30	Intraven.	None	Death	Alcoholic Distention
732	March 29	10	20	Intraven.	None	Death	
744	March 29	6	20	Intraven.	None	Recovery	
747	March 29	5	20	Intraven.	None	Recovery	
	March 31	7	20				
748	March 29	3	20	Intraven.	None	Death	
	March 31	5	20	Intraven.	None		
	April 3	8	28	Intraven.	None		
	April 5	10	12	Subcut.	None		
752	March 31	7	22	Intraven.	None	Recovery	

The serum was given intravenously to all the cases of this series, and doses were used which approximated those advised at the present time. Three patients were treated with the first lot of serum. Two of these defervesced immediately (Charts 1 and 2), but the third, while going on to eventual recovery, showed no immediate effect. No defervescence occurred in the other cases treated, but some of the patients developed phenomena almost as striking. Four had chills following within two hours after the administration of the serum. In one the temperature went to 108 and in a few hours dropped to 98 (Chart No. 3). Two had temperature of 106° following their chills and a drop shortly afterward to 99° (Charts Nos. 4 and 5). The fourth showed much less disturbance (Chart No. 6). The temperature of all four returning to a high level in a short time, and the course of the disease was unaffected. Some of the remaining cases showed an apparent improvement in their general condition, while others were entirely unaffected.

Leucocyte counts were made in all these cases before giving the serum and two, four, and six hours after giving, but no effect could be found which might be attributed to the serum.

Blood cultures were made in all the cases, but were positive in only two. Excluding the case due to the *Streptococcus mucosus*, two patients died of twelve treated, a mortality of about 17 per cent.

Table II gives a record of this series.

It will be noticed that no attempt was made in this work to differentiate the type of pneumococcus involved. A polyvalent vaccine was used, and the serum should have been a polyvalent serum, and if active it was expected that it would give enough definite results to warrant going into the work in greater detail.

Pneumonias may be divided into those due to typical and atypical organisms, the former being common and the latter uncommon. A polyvalent serum active against the typical varieties should show results in the great majority of cases.

TABLE II. SERIES OF 1913

No.	Date	Day	Serum c.c.	Effect	Result	Complications
187,372	March 8	4	40	Defervesc.	Recovery	
436	March 8	4	50	Defervesc.	Recovery	
422	March 8	6	40	None	Recovery	Extension
	March 10	8	110	None		Serum rash
443	March 10	4	50	None	Death 6th day	Alcoholism. Strept. muc.
187,386	March 12	5	100	−2°	Recovery	
187,515	March 17	3	40	None	Death	Deler. tremens. Pneum. from lung P.M.
187,476	March 17	4	100	Chill −1.6° 104.2–102.6	Recovery	
187,732	March 29	5	100	Chill 105.8–98.6	Recovery	
187,755	April 1	5	75	Chill 108–98	Recovery	
	April 4	8	50	None		
187,979	April 10	3	40	Chill 106–99	Death	Organizing pneum. Alcoholism
187,791	April 1	6	30	None	Recovery	Empyema pneumococcus
	April 4	9	20			
187,898	April 7	3	55	None	Recovery	Alcoholism
	April 10	6	50	None		
188,151	April 22	5	70	None	Recovery	

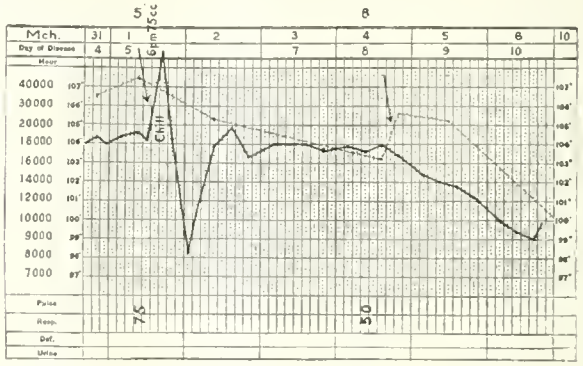

CHART 3.—Dotted lines show leucocyte levels. Arrows indicate points at which serum was given. Figures indicate amounts of serum in centimeters.

Roemer has produced polyvalent sera which Neufeld found protected animals against the typical varieties of pneumococci. Using a polyvalent serum prepared as advised by Neufeld and Haendel,

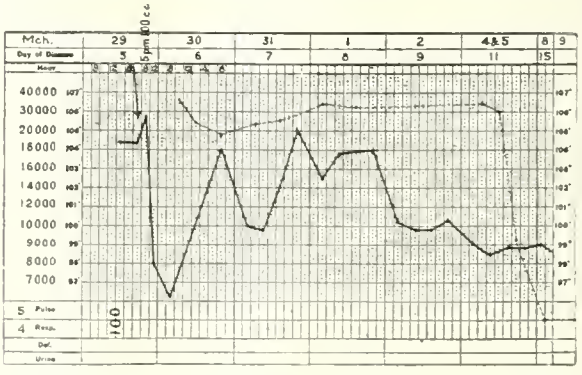

CHART 4.—Dotted lines show leucocyte levels. Arrows indicate points at which serum was given. Figures indicate amounts of serum in centimeters.

Weitz has treated thirty-seven cases. He injected 10 to 40 c.c. intravenously, some patients receiving one dose and others two or more at one-half, one or two-day intervals. Of sixteen cases treated on second day, two were normal on third day; ten

were normal on fourth day; 1 was normal on fifth day; three were unaffected (one died). Of fourteen cases treated on third or fourth day, nine were normal after two days, two showed no change, and three died. Of seven cases treated on fifth or

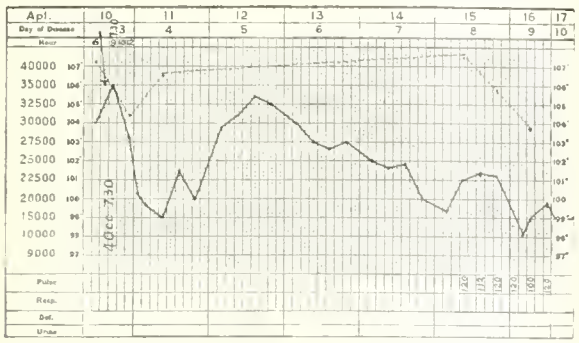

CHART 5.—Dotted lines show leucocyte levels. Arrows indicate points at which serum was given. Figures indicate amounts of serum in centimeters.

sixth day, four died. He concluded that the serum exerted a specific influence and should be used early in the course of the disease. The results on the cases of septicemia were especially striking. One patient with between 2000 and 3000 colonies to the cubic centimeter before treatment had but twenty-one colonies to the cubic centimeter the day after the administration of the serum. None were obtained in subsequent cultures or from the blood or organs post-mortem. This feature of the effect on the organisms in the circulation has been noted by Cole also, all of his cases being bacteria free after treatment. Against the use of polyvalent serum it may be argued that the antibodies against the individual strains may be relatively lower than when a single typical strain is used for immunization, and further, that although the several strains of a polyvalent vaccine may differ morphologically and culturally, they may be identical from an immunilogical point of view.

It has been shown by Neufeld that the various types of the pneumococcus may be identified by protection experiments, using immune sera prepared against the different strains. Mice were injected with several times the lethal dose of virulent pneumococci and a short time after were given a dose of immune serum. If, however, the period between the injections were prolonged or if the dose of pneumococci was very large no amount of

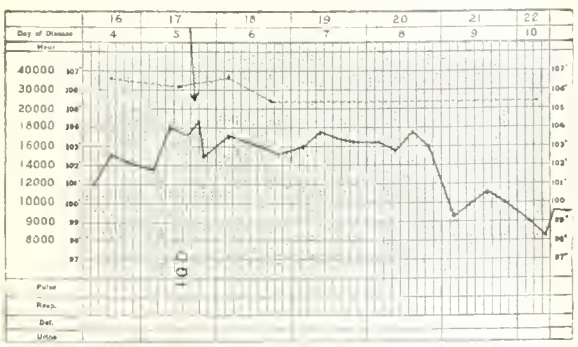

CHART 6.—Dotted lines show leucocyte levels. Arrows indicate points at which serum was given. Figures indicate amounts of serum in centimeters.

serum would protect. For agglutination tests mice were injected intraperitoneally. The peritoneal exudate is available in four or five hours.

Working along these lines, Cole and his coworkers have divided the pneumococci into four groups, which he classifies as types 1, 2, 3, and 4. Type 1 includes organisms causing almost 50 per cent. of our pneumonias and capable of producing an immune serum which protects against and agglutinates only members of this group. Type 2 contains organisms causing a smaller number of cases of a more severe type and capable of producing a serum specific for this group. Type 3 is the *Streptococcus mucosus*. Type 4 includes all organisms not agglutinated by sera specific for types 1 or 2. Immune sera have been prepared by Cole against some of these types, and are now being used in suitable cases.

The basis for the work on the immunology of pneumonia was the observation made by Fraenkel that animals that had been infected with pneumococci and recovered were immune. G. and F. Klemperer showed that the blood of immunized animals had protective properties and that the blood of patients recovered from pneumonia would protect rabbits against infection with the pneumococcus.

Some workers have failed to demonstrate this protection, but working with classified types Dochez has found it present especially after the crisis. It appeared much earlier in patients treated with specific serum by Cole than in untreated cases.

The mechanism of recovery and protection is uncertain. The original theory of an antitoxic action similar to that obtaining in diphtheria has been abandoned, as no one has been able to show that the pneumococcus produces toxins corresponding to those demonstrated for the diphtheria and tetanus organisms. No direct bacteriolytic action has been demonstrated. Neufeld claims that bacteriotropins favoring phagocytosis and digestion constitute the only factor so far definitely established. These bacteriotropins he discovered in pneumonia in 1904, about the time that Wright demonstrated opsonins in normal blood. The properties of both are similar if not identical. These bacteriotropins so alter virulent pneumococci that they are readily taken up by the phagocytes. As the final digestion is accomplished by the leucocytes, their importance in the mechanism of recovery will be easily appreciated.

Conclusions: Striking as were the abrupt terminations of the disease on the administration of the serum in two of our cases, the probability that they were merely coincident with a natural defervescence must be borne in mind. It would be a satisfaction to think that in the cases having chills the serum had furnished bacteriotropins enough to cause phagocytosis and consequent lysis of the pneumococci. In this way enough endotoxins to cause the disturbance might be liberated. This disturbance might be likened to the pseudo-crisis which occasionally occurs near the termination of a pneumonia. The reactions did not seem to be anaphylactic in nature. To the patient who had shown the most marked reaction a second dose (50 c.c.) was given three days later with no result.

However, so many factors enter into the interpretations of the result of therapy with a polyvalent serum that speculation is profitless. Until our knowledge has progressed attention should be confined, as Neufeld and Haendel advise, "to the action of high value serum on typical cases only until value in typical cases has been established. Strains from cases resisting treatment should be identified and classified."

276 WEST SEVENTY-THIRD STREET.

A CASE OF SIGMOID DIVERTICULITIS SIMULATING MALIGNANCY:

DEMONSTRATED BY RADIOGRAPH; OPERATION AND SPECIMEN.

By ROBERT ABBE, M.D.,

NEW YORK.

A LAWYER, aged 60 years, had a short attack of sigmoid colitis, so called, during the past summer, followed by loss of weight, from 168 to 146 pounds.

In March, 1914, a rather sudden partial obstruction

FIG. 1.—Bismuth enema. Inconclusive narrowing of the sigmoid.

occurred with acute tenderness over a hard resisting mass in the left iliac fossa. Temperature 101°, leucocytes 22,000, polymorphonuclears 80. From this he recovered in ten days, by enemas and rest, a small hard mass remaining fixed in the left iliac fossa.

Diagnosis between neoplasm and diverticulitis being

FIG. 2.—Four days later. (Picture reversed as the plate was placed against the abdomen.) Bismuth remains in the liverticula after all other bismuth was eliminated.

difficult, a bismuth injection was given and a radiograph taken by Dr. Lewald, but only a narrowing of the sigmoid shadow which was irregular in outline was shown to suggest new growth. Dr. Lewald suggested a bismuth meal as more likely to demonstrate the nature and seat of obstruction by distending the dilatation from above.

On the third day after the colon bismuth injection

FIG. 3.—Second day after bismuth meal—old and new diverticula shown, with bismuth.

had been eliminated, a meal was given and a radiograph taken at once. To our great surprise the picture showed round spots of bismuth in the affected area of the sigmoid unlike any remnants of ordinary bismuth injections not yet eliminated.

Numerous serial radiographs were taken during successive days, following the bismuth meal, and in every one up to the tenth day the same round spots remained unchanged, although the meal and the injection had been long since completely discharged.

There were groups of two and three and several single round bismuth shadows always in the same anatomic situations. These admitted of but one interpretation, namely, bismuth fluid retained in diverticula of the wall of the sigmoid.

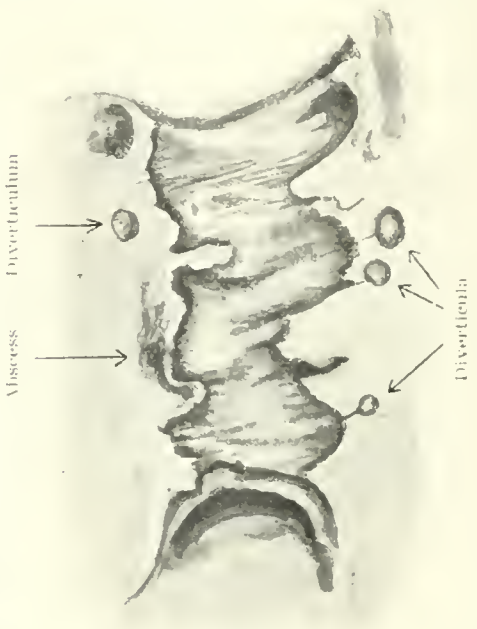

FIG. 4.—Section of the sigmoid mass through the thickened mesentery, diverticula and abscess shown.

Operation was done April 4 as for a left inguinal colostomy. A loop of the sigmoid was drawn outside the abdomen and a hard dense mass found in the wall

and adjacent mesentery with adhesions to the fossa. With much care this was loosened and two enlarged lymphatics found in the adjacent mesentery. Microscopic study of these showed inflamed lymph nodes without malignancy. The mass, however, had a suspicious feeling, being, in gross, as large as a small pullet's egg, but not involving the anterior wall of the sigmoid.

Search was made for diverticula, and many were easily demonstrated. Any one would have held a small white bean, but no fecal contents were in them. They were rather like pockets with large and small openings into the bowel and contained only gas.

A large loop of bowel was brought outside the abdomen and stitched there, for resection later.

On the fifth day under gas anesthesia a five-inch piece of bowel was removed and a Dupuytren clamp applied to the spur of the adjacent loops. This came away a few days later and the usual closure followed uneventfully.

The specimen removed was distended by formalin and hardened in the same, so as to dilate any pockets in the diseased part.

The picture shown later was a brilliant demonstration of the efficiency of bismuth picture showing diverticulitis, inasmuch as each group of shadows was situated precisely as shown in the sigmoid specimen.

It is difficult to demonstrate all of these in one section, but by a probe passing into each one from the mucous side before cutting through it—all were identified. One sample shown is characteristic of all. One diverticulum had formed an abscess in the mesentery outside the intestinal wall. Serial sections throughout the inflammatory mass showed no trace of malignaney.

Two other striking illustrations of intestinal diverticulitis have come under my care, and are worthy of brief record on account of the new interest of the subject.

The first occurred fifteen years ago in a man who had vague left iliac pains. Exploratory laparotomy showed the sigmoid free and uninflamed but studded with several growths like mushroom vegetations, fairly uniform in size and averaging the size of a small bean. Diverticulitis was then unknown and I supposed I had to deal with multiple malignant growths dependent on some hidden pelvic tumor, but on pressing them I found each one contained gas and discharged into the intestine with a pop, showing that not one of them had fecal contents. In this way I emptied most of them and inverted the peritoneum over one of them with a stitch, but saw no reason to do anything else. The patient recovered.

The second case was in a man who had sudden and complete obstruction of the sigmoid at the upper edge of the pelvis—after months of intestinal colic of varying degree. I was called upon to make a left inguinal colostomy to save his life. He insisted on a later operation to resect the supposed cancer obstruction. With the assistance of Dr. Frank Hartley and Dr. Schley, I made a median exploratory opening and found a dense growth adherent to the promontory of the sacrum and the hollow below. Most painstaking inspection with every opportunity to study it convinced us all that it was not only malignant but inoperable. We gave a bad prognosis.

After two years he remained well except that there had been a general septic arthropathy following the onset of his trouble, and no malignant development followed.

The patient now insisted on another attempt to close the fistula. Dr. Hartley operated and now found a less dense and more movable mass which he was able to resect. Time had removed the inflammatory products about the mass.

Study of the mass now showed typical diverticulitis with abscess of the wall. The patient has maintained his health now for a period of five years after the operation except for his stiff joints.

13 West Fiftieth Street

ULCER OF THE LESSER CURVATURE.*

By J. RUSSELL VERBRYCKE, JR., M.D.,

WASHINGTON, D. C.

INSTRUCTOR IN GASTROENTEROLOGY IN THE MEDICAL DEPARTMENT OF GEORGETOWN UNIVERSITY.

Gastric ulcer at some distance from the pylorus differs considerably from pyloric and duodenal ulcer both as regards symptomatology and treatment indicated. Often the location of the ulcer is not accorded sufficient importance in giving advice to the patient.

With our modern methods of localization we are learning that ulcers of the lesser curvature of the stomach are quite frequent. Brinton's statistics, which have been quoted for some years in the textbooks, showed that 27 per cent. of gastric ulcers were on the lesser curvature. Welch found 288 out of 793 ulcers to be in this location while on the other hand Osler states that 90 per cent. of gastric ulcers are at the pyloric end. This last statement certainly does not correspond with what we are finding at the present time.

The thread test and the radiograph afford us the only reliable means of localization of ulcer. It has been said that the longer the length of time after meals before the pain appears the further from the mouth is the ulcer. This is true in many cases and usually serves to differentiate duodenal from gastric ulcers, but it has been recently shown by Einhorn that this rule is by no means invariable. It is certain that in gastric ulceration the time of appearance of the pain is no indication of the position of the lesion. In fact many patients do not have pain as will be shown later.

In the last two years I have had twenty-five cases of ulcer of the lesser curvature definitely localized. I have reviewed the histories of these patients with reference to the probable duration of the ulcer, the principal symptoms and diagnostic signs present. There were all ages represented, the age incidence corresponding to that of ulcer generally. The duration was from four months to twenty years, the average being a little over six years.

Pain was present at the time of examination in but fifteen out of the twenty-five patients. Three had had pain in the past while seven had no pain at all. Of those having pain two complained of pain immediately on swallowing; four in fifteen minutes; one in a half hour; one in one and a half hours; and in six the pain was of a very indefinite character. This is rather interesting in view of the general statement made in most of the latest textbooks that pain is the most characteristic symptom of ulcer of the stomach and that it appears immediately after meals.

It may be stated that, as a rule, the pain in ulcer of the lesser curvature is not apt to be as severe or as characteristic as that accompanying ulcer at the pylorus and that the time of appearance of the pain is not a reliable index as to its position.

Nine of the series vomited. Five others had vomited at some time in the past but eleven had never vomited. The vomiting that occurs in ulcer of the lesser curvature is due as a rule to the irritative effect of the ulcer while that in pyloric ulcer is apt to be the result of obstruction, occurs a longer time after meals, and in larger amount.

*Read before the Georgetown Clinical Society, March 17, 1914.

Pylorospasm, with consequent vomiting, can occur, however, with ulcer at a distance from the pylorus.

Nausea was found to be somewhat more frequent, being present in twelve, while in six it was very rare or slight. Two used to have nausea and five never did.

Heartburn was complained of by eleven; five had it very slightly or had it in the past; nine were never troubled.

Twelve had pyrosis; in three it was rare; ten never had it. Eleven had acid regurgitation.

It may be seen that the foregoing symptoms were present in about the same number of patients. They are in nowise characteristic of the condition and are far from constantly found.

A certain periodicity of symptoms was noted in nearly all of the patients but was not as clean cut or marked as is the case in chronic pyloric or duodenal ulcer in which cases it is almost diagnostic.

Eighteen patients had lost weight varying from a few pounds to sixty pounds. In six the weight was stationary while one had gained.

The stomach contents were examined after a test breakfast in twenty, the hydrochloric acid being high in twelve, normal in six, and subnormal in two.

A spot of localized tenderness was found in twenty-one patients and absent in four. The tender point, then, seems to be far more constant than any of the subjective symptoms. It does not, however, seem to be necessarily directly over the ulcer and may be found in nearly any part of the epigastrium. In eleven, the largest number, it was found in the mid-epigastrium; it was just below the xyphoid in three; on the right side in five, on the left side in one, and not well localized in one. A dorsal spot was found in but three of the twenty-five patients.

In ulcer generally the writer believes occult blood in the bowel movement to be probably the most important single sign. It was present in this series in twenty-two and absent in but three. Examination at intervals will show it present at some time in practically every case.

FIG. 1.—The thread test.

FIG. 2.—Showing marked incisure at A

FIG. 3.—Spasmodic hour-glass contraction at A.

We now come to a consideration of the two methods which, in addition to helping us with the diagnosis, afford us the only means of localizing the ulcer, the thread test and the radiograph.

The thread test was tried in twenty-four patients in twenty-one of whom it was positive and in three negative. Most of the patients had repeated tests as it is the safest plan to give two or three tests and compare the threads before drawing conclusions from this test.

FIG. 4.—Spastic defect in filling of the antrum (A) and the duodenal cap (B).

A thread smeared over a considerable length is of no value (see Fig. 1). It may indicate profuse bleeding from an ulcer but it is just as likely to mean that the gastric mucosa is congested and soft, bleeding at the slightest touch, as do the gums at times. When the thread is covered with blood over a considerable area it is my custom to give the patient one drop of a 25 per cent. solution of silver nitrate in a whole glass of water immediately on awakening for several mornings and then repeat the test. At this time the thread will usually be negative unless the bleeding is due to an ulcer in which case there is apt to be a localized mark. The test should then be repeated once more to determine if the mark is in the same place.

Several threads all marked at the same point are good evidence of the existence of ulceration. I have never known this to fail. There are two varieties of threads which are most characteristic of ulcer. In one there is a stain corresponding to the full length of the ulcer while in the other there are two small marks a short distance apart, with a clear interval, the stains representing the rim of the ulcer and the clear space the crater. Ulcers on the lesser curvature are indicated by stains from forty-four to fifty-four centimeters from the teeth.

Fifteen of these patients were radiographed. The results were entirely negative or indefinite in but two patients but on the other hand in but seven cases would it have been possible to have localized the ulcer from the radiograph alone. As a diagnostic aid and to determine the results of ulceration the radiograph is of the greatest value, but it is in probably 50 per cent. of the cases distinctly inferior to the thread test in localization.

Four of the fifteen patients showed a typical incisura (see Fig. 2), or notch in the greater curvature, which is like a finger pointing to an ulcer on the lesser curvature directly opposite. This is our best sign of ulcer of the lesser curvature but unfortunately it is not constantly found. It has not been many months that we have known of the significance of the incisura but now regard it as the strongest confirmatory evidence of ulcer of the lesser curvature, though Case has reported instances of duodenal ulcer in which an incisura was present on the greater curvature. I have suggested the advisability of making pressure over the stomach, the duodenum, the appendix, and the gall bladder at the time of the fluoroscopic examination to see if an incisura could be reflexly produced thereby. Dr. Christie in adopting this suggestion has succeeded in producing a typical incisura in one patient by pressure on the appendix. This seems to me to be a most valuable method in interpreting our findings.

Two of the patients presented typical organic hour glass stomachs caused by ulcer of the lesser curvature. Both of these patients had perforated, one being a chronic perforation into the gastrohepatic omentum, and the other an occult perforation which was shown at operation to have been sealed up by perigastric adhesions, flush with the stomach.

The seventh patient in whom the x-ray localized the ulcer had a spasm completely encircling the stomach, a spasmodic hour glass which exactly corresponded with a definitely localized spot on the thread (see Fig. 3).

The remaining six patients had a reflex spasm of the antrum pylori and duodenal cap (see Fig. 4) which was merely confirmatory of the existence of an ulcer or other focus of irritation but which did not help in the localization.

Why nature should set up a spasm at a point distal to the ulcer is not clear. The interpretation of the spasmodic defects of filling of the pylorie part of the stomach and the first part of the duodenum is the field in which there is the greatest need for elucidation. We are less sure of our findings in this location than in any part of the digestive tract.

FIG. 5.—Left-sided drain-trap stomach, due to spastic contraction of the longitudinal muscle fibers, in a case of ulcer of the lower curvature.

There is probably less liability of an ulcer on the lesser curvature becoming so markedly indurated as one at the pylorus, probably because of its being so situated as to be less irritated. In-

durated ulcer certainly does exist in this location, but on the other hand there can be little doubt that there may also exist a chronic mucus ulcer, softer in character, and which may be impossible of palpation through the unopened stomach.

At operation on several of my patients it has just been possible to palpate the ulcer. Except for the slightest thickening it would not have been felt. In two other patients the ulcer could not be found but there is not the least doubt in my mind in view of the evidence that the lesion existed. These histories will be given.

Case I.—Mr. W. H. F., age 40, was referred to me November 25, 1913, by Dr. Constas. His principal complaints were mental in character, consisting of depression by melancholy, with a fear of going out of doors by himself or even staying in a closed room by himself. He had, however, twelve years before had severe cramps in the epigastrium and had attacks of indigestion ever since. His history was very unsatisfactory. Physical examination was entirely negative. The appendix and cecum could both be plainly palpated, but there was no tenderness anywhere. Examination of his stomach contents after a test breakfast showed some hypersecretion and free HC1 42 with total acidity 62. Two examinations of the stool on meat free diet showed occult blood. The first thread test was strongly positive, but not localized. A second showed a well marked stain from 54 cm. to 55 cm. from the teeth. A third thread was marked at exactly the same place and seemingly showed the rim of the ulcer.

In view of the positive threads and the occult blood the patient was radiographed by Dr. Christie. This examination showed defective filling of the pyloric part of the stomach and cap. Operation was advised and performed by Dr. Constas, who was unable to detect the ulcer or any other abnormality but a gastro-enterostomy was performed. He subsequently gained twenty pounds in weight, has gone to work for the first time in years and has lost his fears.

Case II.—Mr. R. M., age 32, was referred to me July 2, 1913 by Dr. Prentiss Willson. Four years before he had, while in a mining camp, been seized with severe abdominal cramps which were said to be due to appendicitis and he was operated upon. He said that he has had the same pain in typical intermittent form ever since that time. In between the attacks, which would last for some weeks, his health and digestion would be excellent. His present attack had lasted for several months and was characterized by extreme soreness in the epigastrium, "like a cancer sore in the mouth," vomiting, acid regurgitation and constant pyrosis. He had had a typical boring pain in the epigastrium starting in from fifteen minutes to a half hour after meals and relieved by alkalies or vomiting.

Physical examination disclosed a slightly tender point in the mid-epigastrium and another point of great tenderness one-half inch to the right of the navel. Gastric acidity was 44 and 56. There was a faint reaction for occult blood in the stool and a strongly positive thread test.

Gastric ulcer was diagnosed, but he was allowed to go West on business. He returned in October after having had a terrible time with his stomach all Summer. At this time repeated thread tests were positive. His tenderness was the same as before and a spastic pylorus could be rolled under the fingers. Radiographic examination by Dr. Christie showed the stomach to be hypotonic with slight ptosis, of average size with fair peristalsis and no incisura. There was a marked spastic spastic defect in filling of the antrum.

The patient was put on an ulcer treatment with marked improvement so that for a time his stomach felt good and the thread test was negative, but after a month and a half, during which time he had been under a constant nerve strain, he had a return of marked burning, with a tender palpatable pylorus. At this time he was seen by Dr. Morgan in consultation, who unreservedly confirmed the diagnosis. Operation was advised and was performed by Dr. Peck at the Roosevelt Hospital in New York. I understand that Dr. Peck agreed with the diagnosis but at operation was not able to demonstrate anything wrong with the stomach, duodenum or gall bladder, though he did find a band at the cecum which partially rotated this part of the intestinal tract.

It would seem advisable in cases such as these, where there is a question as to the correctness of the diagnosis, to make a small opening in the stomach and insert a gastroscope, as has been practiced by several surgeons. Such a procedure would not increase the mortality and would have two distinct advantages. It would enable us to be certain of the diagnosis in the particular case and so enable us to treat the patient with more intelligence and it would help in our diagnosis of future cases.

In this small series none of the patients had large hemorrhage as a complication and indeed only one had had hematemesis in the past. Two of the patients, however, had perforation.

The prognosis for the cure of ulcer of the lesser curvature by medical means is as good or possibly a little better than that for pyloric ulcer, but surgery, with the most universally employed measure, has not accomplished its best results in ulcer in this location.

It is the opinion of those with the largest experience that gastroenterostomy not only can not be expected to cure these cases but is often detrimental. Excision of the ulcer is certainly the operation of choice for ulcer of the lesser curvature which has resisted medical treatment. Most surgeons hesitate to attempt excision, however, since the ulcer is difficult of access and the surrounding tissue liable to be friable so that the fear of high mortality intimidates them. Those who have mastered the technique and are doing this operation report brilliant results. Coffey is one of the pioneers in this line and for some years has been advocating and practicing excision by a method of his own.

Eight of my series came to operation and in only one was the ulcer excised. This operation was performed by Dr. Martell and though an extraordinary amount of work was necessitated by the complications, a perforation and nearly complete hourglass contraction, the ulcer was successfully excised and there was no more shock than after a simple gastroenterostomy. This patient has not gotten an ideal result as for some reason she has a spastic contraction at the site of the old organic contraction, as shown by the radiograph, but there is no occult blood or pain, and it is questionable as to what it is due to. I do not consider that it militates against the operation of excision. With increasing experience and the development of a good technique the mortality should become as low as that of gastroenterostomy and the end results infinitely better.

Although I have never seen Coffey's operation performed it has appealed to me greatly and I shall quote from his summary of the description of the operation.

"In order to do good stomach surgery it is necessary to determine the extent and location of the ulceration. This can be done properly, as a rule, through an incision in the stomach wall and when clamps are not used.

"The incision should be ample and should usually be made transversely to avoid the vessels, after which the inside of the stomach should be seen. By the use of deeply placed traction loops the anterior wall of the stomach is lifted, the gas in the stomach comes to the top and escapes when the incision is made, thus relieving intragastric pressure. The fluid now immediately gravitates to the lower levels of the stomach cavity, from

which it may be dipped and sponged with deliberation. After the stomach is thus emptied and the cavity dried, the inspection of the mucus membrane is easy and the mystery and difficulties of stomach surgery vanish; for the surgeon, after opening the omentum above and below the stomach and packing the lesser peritoneal cavity with gauze, proceeds to trim out the diseased portion with the same precision and completeness with which he would amputate a leg for gangrene or remove a breast for cancer. . . ."

THE ROCHAMBEAU.

PRIMARY CARCINOMA OF THE VAGINA TREATED BY RADIUM AND ROENTGEN RAYS.*

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PRIMARY carcinoma of the vagina is a comparatively rare clinical condition. In accordance with W. Rogers Williams[1] less than 1 per cent. of all cancers in women are of vaginal origin. This is the more remarkable since in the adjacent uterus carcinoma occurs very frequently, and this uterine carcinoma just as frequently spreads into the vaginal wall. Furthermore the wall of the vagina is subjected to various irritations more than any other organ in the body. Apparently there is in this instance another clinical proof of a contention indicated by the writer[2] as a result of his experimental work that the different organs have a different innate susceptibility to the formation of a primary malignant growth.

Primary carcinoma of the vagina appears as either a papillary tumor or an excrescence with a broad indurated base which is most frequently attached to the upper part of the posterior wall, or else it occurs as a diffuse infiltration which may completely surround the vagina and constrict its caliber.

The subjective symptoms of the disease are identical with those of the carcinoma of the uterus; namely, hemorrhage, foul vaginal discharge, pain in the pelvis, the rectum, the bladder, or along the sciatic nerves.

The results of surgical treatment of this condition are extremely unsatisfactory. Some twenty years ago Schwartz[3] stated that the prognosis and the results of the radical operation of the carcinoma of the vagina are absolutely bad. There is practically not a single case cured. J. Bland-Sutton[4] writing as late as 1911 states as follows: "Surgery can do little in cancer of the vagina, for even in the very early stages free removal may anticipate some of the evils of the disease by establishing a vesical or rectal fistula."

What is the reason for the failure of surgery in this condition? The beginning of the spreading of carcinoma takes place through the lymphatics into the nearest regional lymph glands and a radical operation always implies the complete removal of these lymph channels. Bruhns[5] and others have shown that the vaginal wall is extremely rich in lymph vessels, and the latter serve at the same time the uterus, the bladder, the rectum, and the rest of the pelvic tissues. As a result all these organs and tissues very early become involved in the disease. As a consequence the carcinoma recurs after an operation even when the incisions are made within the healthy tissue apparently far away from the original growth. Very recently Wertheim,[6] Veit,[7] and others recommend in every case of the carcinoma of the vagina to do an abdominal operation and remove the uterus, vagina, and all the pelvic lymph glands. Up to the present no estimate can

*Case and microscopical specimens presented at the Section on Obstetrics and Gynecology of the New York Academy of Medicine on May 26, 1914.

FIG. 1.—Epithelioma of vagina, before radiation. (Low power.)

be made whether this method will actually improve the results of the surgical treatment of the disease.

A priori a primary carcinoma of the vagina must be considered a favorable condition for radium and Roentgen ray therapy. It is comparatively easy to place the radium tube in complete approximation to the diseased part. The vaginal wall is thin and it is consequently quite possible for the rays to reach the lymph vessels and even the adjacent glands. In view of the general rarity of the condition there are few cases reported up to the present which were treated with the rays. G. G. Ward, Jr.,[9] reported in 1908 a case of primary epithelioma of the vagina treated by radium without success. His technique was faulty and at least 40 times greater a quantity of radiation should have been used in the case. The London Radium Institute[7] reported 11 cases of carcinoma of the vagina and the vulva treated by radium of which 6 cases were improved. Griffith[10] reported a case of primary epithelioma of the vagina treated by radium, which is apparently cured.

The present case of the writer seems to be the only one in the literature where microphotographs of slides taken before and after treatment are presented.

The patient, Mrs. G., age 59, widow, had one child at the age of 24. On April 24, 1913, she was admitted to the German Hospital, service of Dr. Seeligmann where a diagnosis was made of primary carcinoma of the vagina. A piece was excised for microscopical examination which showed a squamous cell epithelioma (Fig. 1). The condition was considered to be inoperable and the patient was discharged. For a time the patient was treated by Dr. Kessler with hypodermic injections of selenium, and on February 27, 1914, she was referred to me by Dr. Seeligmann and Dr. Kessler for radium treatment.

The patient appeared emaciated, weighed 115 lbs., complained of continuous bloody fetid vaginal discharge, constant backache, pain on defecation, rectal tenesmus, painful and frequent micturition. She was urinating from 5 to 6 times a night. On examination the labia and vulva appeared normal with the exception of the presence of sanguineous fetid discharge. On separating the vaginal walls there was noticed, beginning about $1^1/_4$ in. from the introitus vaginæ, an ulcerated area which circled around the whole vaginal wall, but appeared to be deeper on the posterior side. The margins of the ulcer were indurated and the surface consisted of friable tumor tissue, which was very easily detached. The vaginal canal was so constricted by the ulceration that one finger could hardly pass through. As the examination was very painful no attempt was made to determine the upper margin of the ulcer. Rectal examination showed that the mucous wall of the rectum was not involved in the growth and the uterus appeared normal. A narrow strip of soft and apparently normal vaginal tissue was felt between the ulcerated area and the cervix uteri. The right uterosacral ligament appeared thickened, infiltrated, and hard, but no lymph glands could be felt anywhere in the pelvis. The inguinal glands were not enlarged.

The patient received 8 applications of radium of 12 hrs. duration each with an interval of 36 hrs. between the applications. The amount of radium salt used was 50 mgm. The tube was screened with 0.5 mm. of silver, 0.75 mm. of gold and layers of photographic paper to protect against the caustic action of the secondary rays. The whole was enclosed in a sterile rubber tube. At the same time the treatment was supported with massive doses of *x*-rays in accordance with the technique and by the aid of the apparatus devised by Kroenig and Gaus of Freiburg. While the radium was applied directly to the ulcerated area of the vagina, the *x*-rays were applied through the abdomen and through the back in order to influence not only the vaginal condition but also the uterosacral ligament and any of the glands which it was possible to reach.

In all 10 *x*-ray treatments were given. The rays were sent through 4 fields on the abdomen and through 2 fields on the back. Their combined quantity equaled 480 X as measured by Kienboeck photographic strips.

At present the patient has no vaginal discharge, no backaches, no rectal discomfort and no frequency or pain on micturition. She gained 15 lbs. and is able to attend to her household duties.

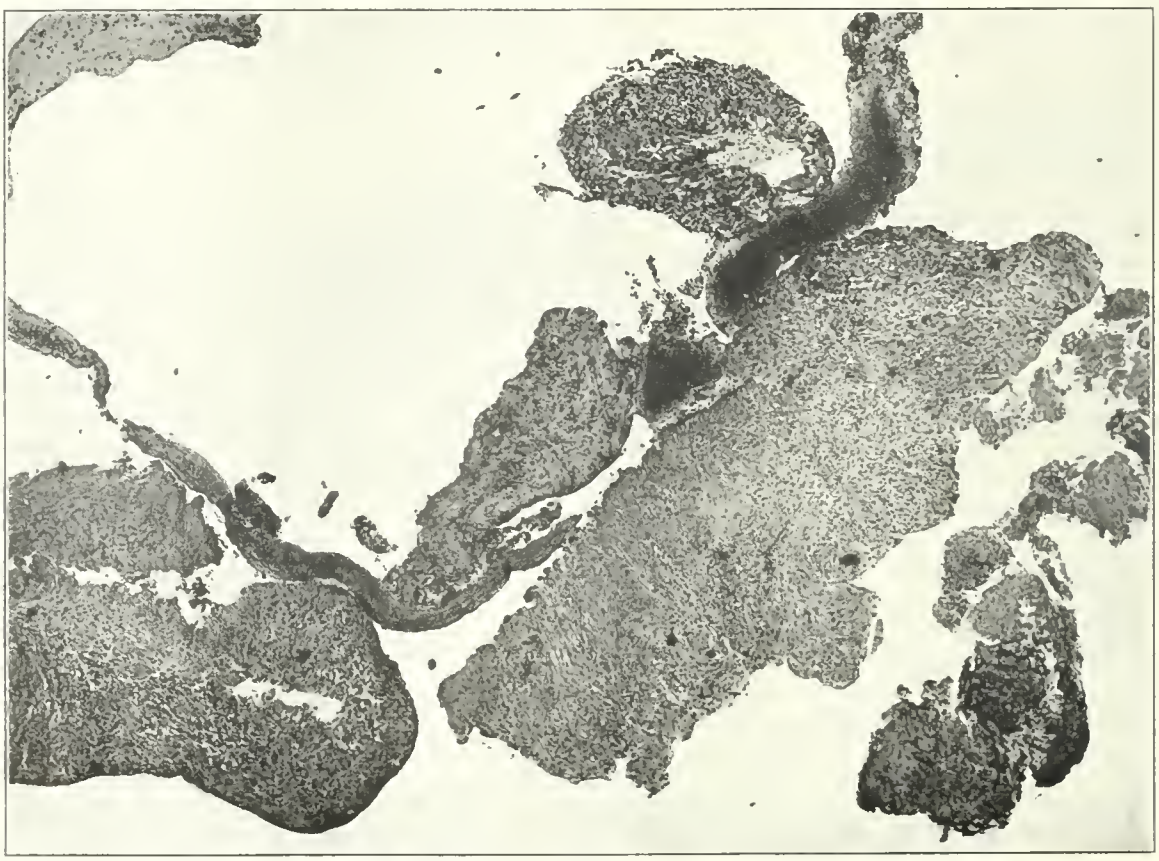

Fig. 2—Epithelioma of the vagina, after radiation. (Low power.)

Objectively the vaginal wall presents at a distance of 1¼ in. from the introitus vaginæ an annular indurated scar-like mass, the canal is even more contracted than when the treatment began. The surface of it is smooth and not friable. A piece was excised for microscopical examination throughout the whole thickness of the vaginal wall. The piece was taken from the right lateral wall on one hand in order to be nearer the right uterosacral ligament and on the other hand not to injure the bladder or the rectum. A microscopical examination of the piece showed absence of cancer tissue, the latter being replaced by a connective tissue and round-cell infiltration (Fig. II).

The condition of the patient is thus greatly improved both clinically and anatomically. The result is the more remarkable and gratifying since the condition was far advanced and inoperable before treatment began.

Primary carcinoma of the vagina usually runs a rapid course. The average duration of life in the cases collected by W. Rogers Williams is only 16.5 months. At the time of the first examination of the writer's patient it seemed that her end was very near. Now, three and a half months later, at the time of this writing, she has gained 17 pounds and feels perfectly well. (She has gained 2 pounds more since she was demonstrated to the section.) The future will show how permanent the improvement will remain, but a great deal was surely gained already.

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119 West Seventy-first Street.

A CASE OF VOLVULUS OF THE JEJUNO-ILEUM WITH ANTERIOR GASTRO-ENTEROSTOMY.

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Charles S., an Italian, aged seventeen, entered my service at the Maine General Hospital, March 8, 1914, for an emergency abdominal operation. From him and his mother, who accompanied him, a history was obtained to the effect that he had been ill some time previously with a reddening of the skin, and that two days before coming to the hospital he had suffered severe abdominal pain. Its character was described as sharp, doubling him up so that he could not walk. Early in the attack his bowels had moved and he had vomited a number of times, principally after taking castor oil.

Altogether, the history was fragmentary and not helpful. Desquamation of the hands and feet in connection with the history of erythema indicated that he was convalescing from scarlet fever. His appearance and the examination of the abdomen pointed urgently to immediate operation.

The abdomen was rigid, tender in the left upper and right lower quadrants, and not distended. The pulse was 130, of feeble character; the temperature 97°, and the general aspect that of a poor surgical risk. He was prepared for immediate operation and a McBurney-Weir incision made, through which there was removed an appendix, the appearance of which was in no sense bad enough to account for his condition. The peritoneal fluid was somewhat in excess of normal and exploration showed a mass in the upper left quadrant. The appendectomy incision was closed and an L incision made above the umbilicus. In the upper left portion of the abdominal cavity, the omentum was found matted about a mass of intestine, which proved to be a twisted loop of jejunoileum. On freeing the volvulus about a foot of gut appeared, reddened, inflamed, and markedly thickened. So thick was its wall as to make the future patulency of its lumen a matter of grave doubt. The thickened part extended up and included, somewhat, the last portion of the duodenum. Manifestly, a resection was impossible, and with the somewhat faint hope that the lumen might remain sufficiently patent to serve as a duct for the hepatic, pancreatic, and duodenal secretions, an anterior gastro-enterostomy was made. A loop of intestine, about two feet from the duodenum, was anastomosed to the ventral wall of the stomach and the abdominal incision closed.

The immediate after-treatment was strychnine 1/30 grain every three hours and caffeine 1 grain every four hours, hypodermically, with salt solution into the rectum by the Murphy drop method. A moderate amount of water was given by mouth and morphine hypodermically in ¼ grain doses as needed. The pulse rate increased and the temperature rose, recording in twenty-four hours 160 and 100°, respectively. The

patient during the second day vomited large amounts of bright green bile and the bowels moved, seemingly in response to the hypodermic administration of pituitary extract. On the third day he passed large amounts of gas and feces, at times involuntarily. His temperature rose to 101.6° in the axilla.

During the fourth, fifth, and sixth days he suffered intense pain about the upper incision, his appearance and symptoms indicated sepsis, and his mental condition was bad. Vomiting and involuntary defecation occurred frequently. On the seventh day the incision opened and discharged dark broken-down material, gangrenous in odor and appearance. From this time on, he improved rapidly, ate soft solids on the eleventh day, sat up on the fourteenth day, and left the hospital on the twentieth day.

An *x*-ray photograph taken six weeks after the operation shows the success of the anastomosis. The plate was exposed immediately after the patient had been given three ounces of bismuth subcarbonate in cereal. Apparently the duodenum and first part of the jejunoileum serve only as a duct for the passage of the digestive secretions which empty into them, and food passes from the stomach through the new opening. The patient declares himself entirely well and experiences no discomfort except an occasional twinge in the abdominal wall. He eats everything without distress and his bowels move daily without laxatives.

Regarding the outcome of the case, if the gastro-

enterostomy had not been made, I believe it may reasonably be contended that death would have resulted. I have previously encountered a gengrenous loop of the extreme upper part of the jejunoileum, due also to volvulus. Here no attempt was made to anastomose, and it is apparent that such an operation would have been useless, barring the possibility of a regurgitation of the secretions through the pylorus taking place without gastric disturbance.

Impairment of this portion of intestine to a degree short of gangrene may not be immediately fatal without gastroenterostomy, but it presents the likelihood of future constriction and obstruction with disastrous results, which the operation obviates.

3 Deering Street

AN APPARATUS FOR NEUROVASCULAR TRAINING.

By SIMON BARUCH, M.D.,

NEW YORK.

I HAVE coined the term Neurovascular Training to denote a procedure by which the nervous and vascular structures of the skin may be gradually accustomed (trained) to accept increasing stimulation of their activity by response to excitation from temperature and friction conveyed by water. By this method the so-called shock from cold water is avoided.

Perhaps the chief reason for the lack of appreciation of the remedial value of water is the indefinite application of this agent. Water must be applied as are medicinal agents, *i. e.* with precision of dosage. In my work on "Hydrotherapy" (William Wood & Co., New York) this point is elaborated.

To facilitate the application of water in many chronic diseases requiring tonic or restorative effects, I have devised a simple douche apparatus, by means of which the temperature, duration, and pressure may be arranged with precision for purposes of exact doses. The apparatus is here illustrated. It may be secured on the wall of a douche room constructed of waterproof walls and floor, size 8′ x 12′, on the left of its entrance. The patient standing at the other end receives the douche first upon the posterior part of the body and later upon the anterior part of the body, from the doucheur who stands at the opposite end grasping the nozzle. Before the patient enters the room the attendant arranges the temperature and pressure prescribed. He then places the patient in position and administers the douche. The direct stream is called the jet douche; by holding the point of the index finger of the hand which grasps the nozzle over the opening, the stream will form a fan. This is the milder form of douche—fan douche.

The middle of the floor must be covered by a slatted walk 2′ wide and 12′ long, upon the distal extremity of which the patient stands. This prevents his walking on the wet floor. After treatment he is dried, rubbed, and sent into the open air.

The douche may be administered daily or less frequently, the former being the most useful. The effect is enhanced by a preceding warming of the skin either by wrapping the body snugly in woolen blankets for a half hour or longer or by exposing the patient to hot air or electric light in a box arranged for that purpose. The first treatment is given at a temperature of 95° F.—20 lbs. pressure and one minute duration. The patient is dried, rubbed, and sent into the open air; on the following day the temperature is changed to 93° F., on the next following day to 90° F. This daily reduction of temperature is continued until the lowest temperature the patient is able to respond to without uncomfortable chilling after he goes into the air and exercises is reached and so continued. If at any time persistent chilling is produced, the treatment may be shortened one-half or less and gradually increased in duration and pressure. The chief point is that chilling may be obviated by increasing pressure and diminishing duration, never by increasing the temperature of the douche. The coldest douche under strongest

pressure is the most stimulating. A medium temperature about 70° F. to 60° F. of two minutes' duration and 20 lbs. pressure would give a more prolonged—a tonic—effect. The temperature of the water must never be lowered during the douche. Bearing these facts, which are the result of thousands of recorded treatments, in mind, no harm could come to the feeblest patient who is able to walk to the douche room. Whenever iron, strychnine, phosphates, or other tonics or so-called blood or nerve restorers are indicated, this neurovascular training will serve a far superior purpose in immediate refreshment and more rapid and enduring

tonic effect. The apparatus has been made for me by the Hydrotherapeutic Apparatus Co., New York City. Its cost is about one-fourth of that of the regular douche table.

The method most useful for neurovascular training at the patient's home is fully described in my work on "Hydrotherapy." It has succeeded when tonic drugs have failed.

51 West Seventieth Street.

CONSERVATISM IN THE TREATMENT OF DISEASE.*

By BEVERLEY ROBINSON, M.D.,
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No one knows better than I how my title sounds to many ears among practitioners. They say in heart or by word of mouth, "We do not want to hear again the twice-told tale. We want something new, up-to-date, an advance over the old, well-worn, obsolete in medicine. Give us the new serums or vaccines to prevent or cure disease and not long-ago-medicines and formulas, that do not."

Is their claim desirable and true? In a way, it is. Of course, without trial—experiment of new things—how should we ever advance? Again, without enthusiasm, work, youth, how can we hope to have our wishes come to pass? How can we anticipate otherwise to banish pulmonary tuberculosis from the earth—throttle many acute diseases, protect infallibly against others? Isn't the use of antityphoid vaccine in the army, and even in private life, evidence sufficient to show how great is what we, the scientists, the real workers of to-day, have accomplished? Does not antitetanic serum again prove it? Why now be fearful of lockjaw after wounds from rusty nails, blank cartridges, toy pistol caps? How about poliomyelitis and the discovery of its cause and antidote, peroxide, and still more remarkable, the curative value of antimeningitis serum?

The familiar story of antitoxin in diphtheria, of salvarsan in syphilis, I shall not speak of. Nor again, may I more than allude to the prevention of malaria and yellow fever, simply with screens and the shutting out of the plague-carrying mosquito. Further, don't we know how flies carry many diseases? How fleas, bedbugs, and other insects infect us? How milk and water must be pure and not contain microbes of tuberculosis, typhoid, scarlet fever, what not? All this is true and glorious, and we laud and extol it immensely.

On the other hand, are we to free ourselves from the recognition that very many diseases are not prevented, cured, or even favorably affected by all the foregoing? We must recur to drugs, at least to a few simple or combined ones. We must have the sensible, watchful care of the good, old-time nurse, who could make the bed, empty slops, air the room, preserve peace and quiet in and near the sick chamber, and herself give the proper food in palatable form and attractively served, which the faithful doctor of many decades would prescribe. Added to this, came one or two prescriptions, that were at least inoffensive and made to conform to the stomachal demand of the patient, rather than to some vain theory of the imagination.

Nor should we be controlled by the daily outpouring of the various large manufacturing drug firms of Germany or our own country, or the lying advertisements of countless small druggists of our cities and towns. We also should know that much that is written in the medical journals is, after all, very crude and based upon very slight experience. It is given forth usually more to enhance the budding reputation of the writer and, of course, to bring patients, than with any belief that the world's knowledge is to be advanced. This is as it should be, perhaps, provided always it is properly governed and tempered in the end by wise men who have been through a similar experience.

One way to gain wisdom is to read occasionally the authors of long ago: Trousseau's "Clinic," Watson's, Aitken's, Niemeyer's, Flint's "Practice of Medicine," and note how little we have really advanced or even measured up to their wisdom in the treatment of ordinary diseases.

We must not believe either, that the new dosimetric alkaloids take the place of not a few old formulæ, the secret of whose efficacy we may not know, but the fact of their utility is sure and undoubted. Too many experiences and too many good and great observers vouch for it, and we should accept it without cavil or gainsay.

Take as an example from another viewpoint, the clinical effects of alcohol in disease, especially pneumonia and diphtheria. No matter what the laboratory reports now state, great clinicians like Todd and our own Jacobi, prove that in these diseases it is food and stimulant of the very best sort when life hangs as by a thread. I well remember when Dr. Edward G. Janeway was critically ill with pneumonia several years prior to his death, he owed his life essentially to the frequent taking of the best old brandy; and we must remember in the best Cognac we have not merely alcohol, but possibly ethers, which are very valuable additional stimulants. Surely this is true, and even more so, of some of the purest old wines of France, Spain, and Germany. The digestive organs and the powers of assimilation in a weakened state through acute disease, are strengthened actively and in a very remarkable degree (and far more than with any drugs) by their timely use.

It would be very easy to extend my statements, but perhaps in brevity is more force; and I wish above all to drive home, as it were, great truths of primary importance in the treatment of disease.

42 West Thirty-seventh Street.

*Read at the 263d regular meeting of the Practitioners' Society of New York, May 1, 1914.

SOCIALIZATION OF MEDICAL TRAINING AND PRACTICE.*

By INEZ C. PHILBRICK, A.M., M.D.,
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I MAKE no apology for departing from precedent in presenting a paper treating of medicine in its sociopolitical rather than technical aspect. Discussion of the fundamental social and political conditions that determine medical training and practice is certainly as important as that of a new "kink" or specific. Discussion in medical bodies and periodicals of the social relations of our profession is too generally individualistic in tone, putting professional good paramount to social good, a reversal of ethical order, or self-laudatory. It is well occasionally to consider the debit side of the account. An awakening social conscience forces upon the profession today recognition of the character of its function as one of social service, non-performance of which it cannot justify. Grave evils are charged

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from without and admitted within the profession.

There are many unnecessary deaths due to defects in the physician's personality and training, and to irrational conditions that govern practice. Fortunate, indeed, that physician who has not realized his responsibility for a needless death, who has not sensed the burden of sorrow, irremediable loss, broken ambition, thus laid upon those who mourn. The death of a mother from puerperal sepsis, of a man or woman in the prime of usefulness, the victim of an operation unskilfully performed, a mistaken diagnosis, or faulty judgment in treatment—such disasters cry out for conditions of practice that would make like tragedies impossible. There is the vast economic loss entailed by the premature death of breadwinners; by the expense of unnecessary operations and courses of treatment; by prolonged invalidism due to inefficient treatment.

Again, under present conditions of practice, the physician is peculiarly liable to physical and moral deterioration. His work is very unequally distributed, entailing periods of undue stress and loss of sleep; and statistics prove his exceptional liability to drug habits that are subversive of health and morals. His professional relations draw him into a play—too often a clash—of personalities. The irritations and injustices of a competitive system of practice embitter his spirit and lessen his efficiency, if they do not warp his moral fiber. His work is largely uncensored by those qualified to judge of its quality. He can hardly escape the commercial taint which today permeates society. Following the lure of its false standards, he too often resorts to devious arts to increase income.

Efforts to uproot professional evils by legislative enactment, close organization, publicity, only harrow the surface. Present professional evils are not due predominantly to inefficiency; they are due to the irrational application of medical service. In true American fashion we add to our already absurdly large body of law, and go on in our lawlessness. We legislate against fee-splitting and leave operative the temptations thereto. Our profession is unique in that, though it supposedly aims at efficiency, it endeavors to bring within its organization as many as possible of those professionally unfit. Persons who imagine that honest and efficient medical service can be ensured by such a course are doomed to disillusionment. The A. M. A. can certainly do much to mitigate present evils by applying its large funds to the exposure of quacks and patent medicine frauds, the raising of professional standards, and the education of the public in matters medical. But to expect cure of those evils from within the profession is no more rational than an attempt to raise one's self by one's bootstraps.

The term socialization, as used in this paper, has no reference to any organized political movement, but implies the training, licensing, and salarying of all physicians by the State—State medicine. Though we may, by force of experience and use of reason, arrive at conclusions regarding a competitive system of medical practice identical with those reached by the socialist in considering a competitive system of industry, it were unfortunate if the bugaboo of a name were to militate against acceptance of such conclusions.

Sufficient analogies appear in the operation of other social functions, as our public schools, army and navy, postal service, and in State administration of the public health service and medical school inspection, to prevent one from being shocked by the idea of State medicine in its entirety. No discriminating person would for a moment abandon our educational system, based upon State and municipal school maintenance, with a salaried teaching body, for that chaotic condition, glimpsed by the least imaginative, wherein teachers were licensed to acquire their pupils and fees by whatever arts, graces, or deceptions at their command. And yet the closest parallel exists between public health and public education, which, together with moral rectitude, constitute the three chief assets of society. Disease should no more be tolerated than ignorance in a democratic state, founded upon the principle of the greatest good to the greatest number. Choice between literacy and illiteracy is not left to the individual: he is forced under instruction. Is it rational to leave to individual choice whether he be healthy or diseased? We have answered no in our installation of medical school inspection. One cannot imagine a nation so rash as to entrust the defense of its coast and merchant marine, and the enforcement of its will in international difficulties, to military and naval officers educated by the government, and then left to gather soldiers, sailors, and equipment, all to be paid from the pockets of those served. Picture the present Mexican situation under such circumstances! Surely the dove of peace would be hopelessly awing. What other community than one of the feebleminded would tolerate a police force feed by the citizens protected? What citizen therein would be certain of protection or free from unjust accusation? A brilliant present-day writer thus wittily and pithily characterizes the irrationality of our competitive system of practice:

"It is not the fault of our doctors that the medical service of the community as at present provided for is a murderous absurdity. That any sane nation, having observed that you could provide for the supply of bread by giving bakers a pecuniary interest in baking for you, should go on to give a surgeon a pecuniary interest in cutting off your leg, is enough to make one despair of political humanity. But that is precisely what we have done. . . . Scandalized voices murmur that these operations are necessary. They may be. It may also be necessary to hang a man or pull down a house. But we take good care not to make the hangman and the housebreaker the judges of that. If we did, no man's neck would be safe and no man's house stable."

The idea of State medicine is of necessity a modern one, bred of democratic thought and a revolutionized theory of medicine. It could not take root in a state of society that placed little value on individual life, and wherein so-called medicine was based on superstition and empiricism. Chief factors in hastening its recent growth have been the establishment of the germ causation of disease, which has vastly widened medicine's field of usefulness; enlarged trade relations, following the introduction of improved transportation facilities, which have demanded protection from interruptions due to epidemic disease; and poverty, born of an era of industrial exploitation, which has compelled governments and municipalities to recognize the necessity of State industrial insurance and medical school inspection.

Already the larger part of the field of preventive medicine is administered by the State. Our

public health services are salaried bodies. In the regulation of quarantine, abatement of nuisances, education of the people out of their sanitary vices, it is a necessity that only those physicians who devote their entire time thereto, and are independent of the good will and fees of the public, can give effective service. It is obvious that a privately feed profession can accomplish little toward abating occupational disease due to the ignorance and greed of employers; or the ravages of social disease, so long as the idea of professional secrecy be upheld; or nutritional disease by control of the purity of foods so long as it is opposed by the financial interests of manufacturers. The abrogation of these diseases is an ideal possible of near fulfilment, and leaves little to the future therapeutist in this field, although few would limit his field to the single function suggested by Sir Almroth Wright in declaring him to be merely an immunizer.

Another field of medicine in which it is apparent that no physician can work effectively save one who has no pecuniary interest in his patient and is free to tell the truth, is that of imaginary disease. This is the harvest field of every irrational form of healing. It has been said that the faith healer is the only practitioner who can tell the patient there is nothing the matter with him and charge him for it; and, I may add, continue to do so indefinitely.

The practice of the laboratory medical sciences is already relinquished in theory to State administration. Indeed, there is a general demand from the profession for State and municipal laboratories with salaried directors with time and equipment at their command that is impossible to the physician in private practice.

There remains but a narrow field of clinical medicine, surgery, and obstetrics in which it is still necessary to establish the principle of State medicine.

The ideal of medical administration must be to bring as nearly all persons as possible under medical supervision; to establish a higher quality of professional ability and a more effective application of that ability. The number of persons who feel an unjustified dread of the doctor's fee, either because ignorant or actually unable to pay it, and who, therefore, fail to avail themselves of medical supervision, is large; and the number is increasing because of economic causes. Medical school inspection aims to counteract the effect of this tendency. Large industrial establishments are already introducing salaried medical service. Such innovations pave the way for the ready acceptance of State medicine in its entirety. Instruction in school as to the fundamental facts in the causation, prevention, and cure of diseases must lead the public increasingly to appreciate and avail themselves of medical care. It may be objected that it is unjust to force medical supervision upon persons denying, on religious grounds, the existence of disease; but, in reply, it may be confidently predicted that when the patient shall have ceased to be a source of money profit to the medical examiner, an early and honest professional opinion will convert to health and sanity most persons who would now resort to irrational forms of healing.

Under State medicine a higher type of physician will be evolved. Economic forces will inevitably operate to lessen the number of medical colleges. State schools will maintain higher standards for entrance and graduation, instead of sacrificing them for tuition fees and the réclame of numbers; and they will command better equipment than is possible to a privately endowed college. A salaried profession will attract a higher type of man and woman—not the commercial, whose aim is ever to exploit the public, but that which seeks to render service to society; men and women attracted by the scientific aspect of medicine, who desire only a sure income sufficient for their reasonable demands, and freedom from the financial uncertainties and personal irritations of competitive practice.

Under State medicine effective professional regulation will be possible. In the interests of public safety our railroads, probably our best examples of industrial organization and management, already subject their employees to physical tests, require temperate habits, and insist generally upon honesty in business dealings. Is it less necessary for the State to subject to efficiency tests physicians, who assume responsibility for human lives—tests as to acuteness and accuracy of sense perception, quickness of response, resourcefulness, endurance; to require temperate habits and, in all things, honesty? Professional and personal morals are inseparable, medical legend to the contrary notwithstanding. Again, railroads recognize the fallibility of the normal human mind, especially when subjected to strain, or when, through long practice, performing its duties automatically. The safety of the train is not entrusted to the individual, but he is hedged about by various mechanical checks. Is the physician to be the sole arbiter over life? Is the patient to be vouchsafed no safeguards? The conscientious physician must join the public in making his answer to this question a most emphatic negative.

As at present conducted, consultations are generally ineffective, and too often are also open to the charge of a recent laywriter of being "a conspiracy to hide shortcomings." They are regarded by the laity, not as necessary to the conduct of every case (which they really are), but as a confession by the physician of his own weakness, or his lack of hope for the patient's recovery. The choice of consultants is determined by the unfounded personal predilections of the patient or his family, or by the selfish interests of the physician. The ideal consultant is that exceptional physician who is neither too insistent upon details nor tolerant of violations of principle; who possesses wide experience and a judicial mind; who has an eye single to the welfare of the patient; who is subject to no temptation either to condone mistakes or to omit acknowledgment of merit. Such a consultant is impossible under a competitive system. Under State medicine there could be created in every community a staff of official consultants, required to be called upon not singly but in twos or threes, to pass upon every mooted operation and every case of critical illness.

Such consultation would in fact fortify the attending physician and safeguard the patient, as the present system does not and can not. Under a system of State medicine, applying legal tests and penalties, the aim of defense of a physician charged with malpractice would not be the acquittal of the defendant, guilty or not guilty,—thus lessening the liability of all physicians—but rather the determination of individual innocence or guilt, efficiency or inefficiency. It may be predicted that conviction would mean revocation of one's license, and not—as at present—a brief term in prison, or an absurdly small fine, with opportunity thereafter to repeat

the offense. Malpractice would be reduced to a minimum.

Under State medicine professional ability could be vastly more effectively applied. Assignment would be possible to that particular field of practice for which talents and temperament might fit one; and the physician would not be compelled, as at present, in order to eke out his income, to undertake much of which he is incapable. Discrimination would not obtain, as now against the highest professional type—the scholarly, unassuming, conscientious, and frank physician. Women physicians would come naturally into exclusive occupation of those fields for which age-long experience and considerations of mortality and ethics fit them. Equalization of professional burdens would be possible by sending physicians out in rotation. There would no longer exist the two classes of those physicians who do and those who do not perform charitable social service.

State medicine promises vast economic gains through narrowing the limits of disease and accident by increased and closer cooperation between profession and public, in an untrammeled devotion to preventive medicine; through abrogation of unnecessary operations and visits, and attendance upon imaginary ills, which are now a source of profit; through concentration in buildings, equipment, and staff, thereby avoiding the useless expense incident to their duplication. What expenditure is made will be devoted more largely to essentials and less to trivial ailments.

It has been objected that remuneration will be less. State medicine will indisputably operate to level incomes in the interests of the profession as a whole. Doubtless there would be an ascending salary scale, based upon the term of service, as in the army. Judged by the precedent of other public services, the result will be the raising of the average professional income, with reduction of the absurdly disproportionate incomes of specialists and surgeons.

The obstetrician, guiding through the perils of pregnancy and labor a hundred mothers, performs services of as great value to the State as he who performs a hundred major (albeit necessary) operations, or he who corrects a hundred defects of vision. That some professional incomes should be so disproportionate to the value of the service really rendered is indefensible.

Again, it is objected that under State medicine the individual's choice of his physician would be impossible. This objection is sufficiently answered by the unwillingness of any individual to credit another's wisdom in choosing any other physician than his own. A State medical service would hardly interest itself in supplying charm and entertainment along with medical service, but would be solicitous solely for the effectiveness of such service. Undoubtedly gross defects in manners or personality would force their possessor into some department of medical service where personal contact between patient and physician did not obtain.

Again, the fear has been expressed that State medicine would destroy professional ambition and individual development by removing the possibility of large pecuniary profits that are a spur to ambition under the present system. Those who express this fear overlook the fact that physicians at present do not compete, but appropriate. In fact, the close association in the work of State-employed physicians and stricter accountability for results than at present obtains, would act as the most powerful incentive to do one's best.

It has been objected that a State medical service is impractical. Facts thus far accumulated support a contrary conclusion.

While admittedly not above criticism, our National Public Health Service has proven strikingly practical and effective in its workings. Witness the sanitary reclamation of Cuba, Panama, and Manila, and the stamping out of bubonic plague on the Pacific coast. Our municipal public health services, though sadly handicapped for lack of funds, achieve results far greater than were possible of accomplishment by a privately feed profession. Medical school inspection is the most practical conceivable method of bringing society under medical supervision. It is simple and economical in operation, and wherever fully carried out—as it is especially in our largest cities—it has given results of incalculable value. In the last few months, the quasi-partnership between the British government and the British medical profession, in the operation of the Medical Insurance Act—the most striking and revolutionary piece of recent legislation respecting medical practice—has demonstrated the need and efficacy of State medicine in its entirety. This necessity has been recognized and voiced by many of the leading British physicians.

True, the Act involves the inherent weakness of responsibility divided among duplicated boards and committees; it is not national in scope, since women and children do not fall within its provisions; it admits physicians indiscriminately to the panel; and it makes no provision for consultations. Yet, despite all these imperfections, the Act has redounded greatly to the benefit of the British people and the profession. Although at first bitterly opposed by the British medical profession on the grounds of its providing for contract practice, 87½ per cent. of the profession are now registered upon the panel —20,000 out of 22,500 in general practice. Since the act has gone into operation, for one-third of the population $1,150 apiece has been paid by the government to the physicians on the panel—which means, if the remainder of the population pay in like proportion for medical service, as they indisputably do, an increase of from $750 to $2,000 in professional income. The fees paid to assistants have been increased from $10 to $15 to $29 and $40.

While 7,000,000 workers were assured free medical attendance under the Friendly Societies, now, under government insurance, 14,000,000 enjoy that benefit. Professional opposition now comes from the few not on the panel—some 5,000 organized as the Medical Guild; and even they admit that a majority of the profession, politicians, insurance companies, and the general public support the Act. What greater proof could there be of its efficacy? I quote a leading English physician:

"I believe that they (the critics of the Act) could only come to the same conclusions as I do—that the general practitioners, who are the vast majority as well as the backbone of the profession, have gained under the final conditions of the insurance act what amounts to an emancipation."

With municipal salaries substituted for private fees, the Mayo Clinic at Rochester, with its perfect system, specialized staff, adequate equipment, constant professional association and consultation, would furnish a fit model for what the medical organization should be in every community.

1023 H Street.

SPINAL SUBLUXATIONS; THEIR NATURE AND CAUSE.

By JAY H. RADLEY, M.D.,

NEW YORK.

For not less than sixty years, and possibly much longer, there has been practised in Bohemia, in the treatment of disease, a method known as Napravit (to fix), consisting of manual thrusts upon the spinal region of the patient. In this country, within the last two decades, have arisen, and grown to considerable proportions, at least two sects of practitioners whose therapeutic resources are manipulations addressed principally to the vertebræ, their efforts being directed mainly to the correction, or removal, of spinal lesions, or subluxations—the ribs and other bones, however, receiving some attention also.

Jennerian vaccination, though championed by a member of the regular medical profession, was long denied the recognition which its convincing results finally compelled. Diphtheria antitoxin, given to the world by one of undisputed scientific attainments, was pooh-poohed, derided and condemned for years, in face of its demonstrated efficacy in saving life and preventing disease.

It is hardly surprising, then, when a new idea as to the nature and treatment of disease was promulgated by irregular, unrecognized and contraband practitioners, that they, their theories, and their practices should be scouted, derided, denounced, and declared unworthy of consideration, even, much less open-minded investigation. But when, as in the previously mentioned instances, indisputably favorable results, in large numbers, attend these practices, is it not at least permissible to make some inquiry into the merits of the question?

To mention but a single instance that might be multiplied by those more familiar with the history of therapeutic progress, we may recall that the medicinal properties of Peruvian bark were known and utilized by those outside of the medical profession for some time before their adoption by the doctors. Is it any more impossible now than then that something else of real therapeutic value may, possibly, come from outside the fold?

Aviation and wireless telegraphy are facts of almost daily experience to a limited number of persons—and even to-day wireless telephony is being reported in the newspapers. The probability that vastly more people have not witnessed these practices than have, is no evidence at all that they are myths or delusions—they are demonstrable facts to any one who will permit himself to be shown; the principles and forces upon which these practices depend have always existed—their discovery, application, and utilization only being modern.

The possibility that not a single medical man has ever palpated a spinal subluxation or witnessed its correction and the results thereof, is no proof at all that such a condition does not exist. One convincing, positive demonstration outweighs in evidential value all the speculative, yes, scientific, negation that can be accumulated.

In literature reaching the hands of the recognized medical profession, there is such a scarcity as to amount almost to absence, of matter dealing with spinal subluxations; and of that which comes to their notice, practically all of it is so misinforming and misleading as fully to account for the almost universal denial, by physicians, of the possible existence of such a condition. These facts furnish the excuse for this paper.

With possibly a single exception practically all of the existent literature dealing with spinal subluxations indicates that they who have made most of, and written most about, these lesions have an absolutely erroneous notion of the lesions—that they conceive a subluxation to be what it is not and can not be; and when such matter reaches the eye of a physician who is familiar with the structure and functions of the body, he most promptly and naturally discredits the whole theory and every deduction drawn therefrom—the facts being that a very real condition has been presented in language descriptive of an impossible condition.

Nearly all the literature of spinal subluxation describes it, or at least gives the conception of it, as a condition in which a vertebra is shifted from a fixed normal to an equally fixed abnormal position —comparable, for instance, to a protruding, indented, rotated, or inclined brick in the solid wall of which it is a part; such an impossible condition is, of course, not a subluxation at all.

The spine is an articulated column of bones; between each pair of vertebræ a limited range of motion in every direction is possible; the column as a whole, when the body is erect, is capable of flexion, to a greater or lesser extent, in every point of the compass, and also of rotation about a vertical axis.

In studying the relations of the various vertebræ with their adjacent neighbors, it is well to arrive at some fixed point from which to start, and in locating such a point it seems desirable to define what I have chosen to term a "standard pose." In defining this standard pose we may be guided by Cunningham's "Anatomy," wherein, for purposes of accurate description, the body is supposed to be standing upright, the heels together, arms hanging by the sides, palms looking forward, thumbs pointing laterally, the head erect upon the shoulders, and the face directed forward, thus bringing the external auditory meati approximately in the coronal plane which would cut the astragalo-tibial articulations.

Studying, now, an individual who has assumed this "standard pose," and in whose spine no subluxation exists, we may select any point indifferently—let us say, for instance, the seventh dorsal vertebra. If, now, the body be put through various movements—flexion, extension, lateral flexion, rotation—the sixth dorsal vertebra will, with reference to the seventh, describe certain movements and, in any other pose than our "standard," assume a position of rest with reference to its neighbor below, different from that relative position when the body is in standard pose.

But if, with the body in standard pose, the relation of the sixth and seventh vertebræ be such as it *should* be with the body differently posed—as, for instance, with the trunk flexed laterally—there exists a subluxation of the sixth. (It seems preferable to speak of the upper vertebra as the subluxated bone, in the same way that we would speak of a house being displaced upon its foundation, rather than the reverse.) And likewise, if, when the shoulders are rotated to the left, the sixth vertebra comes to such a position of rest with reference to the seventh as it *should* occupy when the body is in standard pose, a subluxation exists.

The sixth dorsal vertebra, poised upon the seventh, through the articulation, has a field or sphere of motion; it may incline forward, backward, laterally, or in any angular direction, or it may rotate. There must, then, be for it a center of motion

which would be located at the intersection of the vertical, transverse, and anteroposterior axes of motion. When subluxation exists this center of motion is abnormally situated; with the body in standard pose, this center is where it should be in some other pose; and in any pose this center is where it should be in some different pose—possibly a right lateral flexion of the trunk bringing the center where it should be when the trunk is flexed to the left.

To get a clearer idea of this displacement of the center of motion let us compare this sixth dorsal vertebra with a loaded ship. Laden with such a cargo as it is designed and adapted to carry, and that cargo being properly disposed in the ship, the vessel will float, in perfectly calm water, vertically; and it will have a center of motion about which it will pitch and roll when in rough water.

But let the cargo be lightened or increased, or shifted forward or aft or laterally, and the center of motion will be correspondingly shifted. The vessel will still pitch and roll in rough seas, while in still water it will float at rest higher, lower, tilted, or listed, as the case may be. At no time, however, in calm or in tempest, will the vessel at any designated moment occupy the same position that it would occupy, under like conditions of water and wind, were the ship's center of motion in its normal location. The vessel will still be capable of motion in every direction, but the range of that motion will be changed or restricted in certain directions.

A subluxated vertebra is not one fixed in any one abnormal position, but is still a movable segment of a flexible and movable column, whose field or sphere of motion has shifted from normal and whose range of motion may or may not be restricted in certain directions; naturally, too, its various positions of rest are also changed, so that it will come to rest, with the body in standard pose, where it should rest with the body in some other pose.

That spinal subluxations are of frequent occurrence; that they attend, if they do not precede and cause, disease in remote tissues; and that correction of these lesions is followed by a restoration to normal condition and function of such remote tissues (at least subjectively to the patient, as evidenced by the disappearance of symptoms), are all matters of repeatedly demonstrated fact, though the exact pathology of the lesion may yet be a matter of dispute—but then, quinine was largely and successfully used in the treatment of the intermittent fevers for a long time before we made the acquaintance of the *Plasmodium malariæ*.

The vertebræ are connected by the anterior common, the posterior common, intertransverse, interspinous, supraspinous, and capsular ligaments, the ligamentum subflava, and the fibrocartilaginous intervertebral disks. While the proposition may be difficult of positive proof it seems probable that some undue contraction or relaxation of some of these fibrous tissues is responsible for vertebral subluxation. But then, how account for the faulty contraction or relaxation? Mainly, they are the results of traumatisms.

Who has not had falls, strains, wrenches, blows upon the ribs, or other mishaps—possibly too trivial to attract much attention at the time, and soon forgotten—which may have been followed by either one of two results: certain ligamentous tissues may have been just sufficiently overtensed to stimulate them to excessive contraction; or, such overtension may have been so extreme as to suspend reactive capacity, depress tone and contractile power, and leave an abnormally relaxed condition of the injured tissues; either of which conditions would favor and permit abnormal relations between the connected bones—subluxation.

Still other spinal subluxations are reflex in origin. An afferent nerve fiber transmits centrally an impression, as, for example, when a draught of cold air strikes the back. In the reflex centers of the spinal cord this is reflected to an afferent fiber, whose function is motor, and there follows muscular, ligamentous, or other fibrous-tissue contraction with the production of subluxation and its attendant foraminal change. From now on, even though the primary peripheral stimulus has ceased to be operative, the subluxation acts as its own perpetuating agent, through this vicious circle: First, contraction; second, subluxation; third, foraminal alteration; fourth, afferent nerve irritation; fifth, spinal cord reflection; sixth, efferent motor impulse, and back again to the first factor, contraction. Breaking this vicious circle in any of its arcs, by any means, interrupts the sequence of cause and effect and tends to permit a return to normal conditions.

112 West Seventy-first Street.

THE ORGANISM OF SMALLPOX, CHICKENPOX, AND VACCINIA.

By HORACE GREELEY, M.D.,

BROOKLYN, N. Y.

Several years ago it occurred to me that of all the unknown microorganisms causative of human disease that responsible for variola offered the most avenues of possible access: as direct smallpox virus inoculation had formerly been practised with results similar to those following the use of calf virus (vaccinia); as vaccinia virus similar in all effects had been obtained from these animals through the use of smallpox virus; and, especially, as in the vaccine virus we knew that a microorganism must be present whose inoculation into man was frequent and followed by distinct and easily accessible local lesions, thus offering easy demonstration of the specificity of any organism that might be isolated.

With such encouraging thoughts I began, several years ago, to collect material, making fixed preparations from a number of cases of smallpox, to which, through the courtesy of the Kingston Avenue Hospital for Contagious Diseases (Brooklyn) I was allowed access, and, for comparison, similar ones from vaccinia and chickenpox lesions. I also attempted in various ways cultivation from the two latter. Results were entirely negative. So thinking that perhaps after all it was nearly hopeless to expect success with simple methods frequently tried by others of great experience, and having much other exacting work on hand, I put away my slides and threw out my attempted cultures. However, some three months ago having occasion to perform a good many vaccinations, I again made a series of slides and cultures from the vaccinia virus and from the arms of a number of the vaccinated.

The first light that dawned was through the observation that in fluid vaccine virus, by hanging-drop observation, one might frequently see large numbers of motile bodies and that the same, no

matter what vaccine virus was used, could be obtained from the vesicles of the inoculated. It seemed, however, that when attempts to stain were made these bodies vanished, or at least could not be identified, so I resolved to try every staining method in vogue, and any other that possibilities might suggest, in an effort to demonstrate them. It is remarkable how slow and stupid one is when following an unwonted track, and it took me nearly a month, working from seven to twelve nightly, to find that the well-known Giemsa, Neisser, and Unna stains would do the work well. Once recognized it was easy to turn back and discover, on nearly every one of the slides that I had on hand, the same organism. It is hard to discern what one has not previously recognized as an entity!

The organism observed is evidently a sporothrix. In the form of multiplying spores (thus in vaccine virus and in all papules, vesicles, and pustules) it is spherical, its diameter varies in the neighborhood of from 0.3 to 0.6 microns. When actively multiplying all present a nucleus which takes the usual anilin dyes with varying facility. A frequent form is a pneumococcus-like couplet which, when stained by Neisser's method, shows a colorless refractile capsule with slightly pink lining, of figure 8 shape, and, within, a blue-stained nucleus in each section—the two nuclei often connected by a bridge of pink whose intensity varies inversely with the distance between nuclei. When these nuclei are nearest together (cell just dividing) the pink is very intense. In all skin lesions the spores multiply, as stated, developing into branching masses whose units are the same as in the figure 8 shape described. These conglomerations often show, projecting from the extremity of a branch, highly refractile, non-stain-taking spores, borne on the end of a little stem. Several are sometimes seen at the end of the same branch, and often two connected in dumb-bell form. These spores when detached are actively motile, the stem becoming the single flagellum possessed. Muir's or Van Ermengem's flagellum staining method will demonstrate. These spore bodies are evidently the *"Cytoryctes variolæ"* described by Councilman and others. They divide and give rise in skin lesion and in culture to the formations aforementioned.

Under certain cultural conditions (which are being studied and will be reported later) a full mycelial growth develops with hyphæ and terminal spores. This is probably what occurs upon the mucous membranes (nasal for instance) in the beginning of these diseases, and the spores, penetrating into the blood-vessels, are wafted to all parts of the system, landing in the skin capillaries where conditions of lower temperature and more light, perhaps, favor further proliferation. In this connection we should remember how the eruption favors the face and hands.

The organism is gram positive—nucleus purple, capsule sometimes light pink—and when stained with carbol-fuchsin is slightly resistant to decolorization with dilute acid, nucleus resists 10 per cent. acetic well. Organism will not produce a macroscopic growth on any known solid media, aërobically or under hydrogen. Its artificial cultivation is being proceeded with and will be the subject of another paper. It readily passes Berkefeld laboratory filter No. 5. Cultivation has been successful enough to permit the second generation derived from a specimen of the market's vaccine virus to give one take out of two human inoculations. This latter I regard as furnishing proof, according to Koch's postulates, of the organism's specificity.

An apparently identical organism has been readily obtained from the vesicles of twenty-five cases of successful vaccination, from a like number of cases of undoubted chickenpox, and from five cases of recognized and unquestionable smallpox.

Since cowpox virus protects against smallpox; since smallpox virus inoculation produces cowpox; since this smallpox-cowpox virus is equivalent to spontaneous cowpox virus; since an organism, morphologically the same, can be obtained from both vaccine virus and human vaccine vesicles, and also from the papules and pustules of variola, we may conclude that vaccinia and variola are identical, and can easily explain the difference in their manifestations by the fact that vaccination produces a local and at most a lymphatic infection, usually stopped at the nearest chain of glands, and that it represents the inoculation of an organism directly derived from a different species of animal, and therefore probably of low relative virulence, while smallpox is undoubtedly contracted through the respiratory tract and is due to one derived directly from an animal of like species which, as shown, through spore formation, passes into the blood and is thrown to all corners.

It is known that successful vaccination, cowpox, may precede or follow chickenpox. I vaccinated a child of two years several weeks ago during the height of the eruption which passed off with the usual symptoms and was followed by those usual to a successful cowpox take. But so may cowpox vaccination prove successful in some instances after a recent mild take as I have seen on my own arm, so that this is no proof of a different etiology for the two maladies. Further, although the type of eruption is pleaded as distinguishing them, it must be remembered upon what slight difference cases in adults are determined. The extra delicacy of the skin in the child readily explains why a vesicle forms instead of a papule, and one reason at least why smallpox is so typical in negroes depends upon their extremely thick epidermis which lends itself to the production of papules. Still, although from observation the organisms seem nearly identical, before the diseases can be considered the same, much work remains to be done, some of which I hope to do.

In concluding let me mention that before even believing my own eyes in regard to the organism described above I returned again and again to my slides and cultures, each time fearing that the treasure trove might have disappeared or have turned into an ordinary coccus, for which a careless observer might mistake it, as the gold-pieces that were hoarded by the butcher in the Arabian Night's tale turned into leaves, but this has not yet happened; and the *Sporothrix variolæ* remains a realism.

110 Clinton Street.

Aminoaciduria and Hepatic Insufficiency.—Marcel Labbé and Henri Bith note that as the result of the study of twenty-seven patients affected with various diseases of the liver they have concluded that the exaggerated excretion of amino-acids is the result of anatomical lesions of the liver or functional alterations of its cells. They find, moreover, that the administration of peptone in these cases is an effective means of evoking the excretion of the amino-acids.—*Revue de Médecine.*

MEDICAL RECORD.

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New York, August 1, 1914.

ARTIFICIAL PNEUMOTHORAX IN PULMONARY TUBERCULOSIS

JAMES CARSON of Liverpool, after conducting a series of experiments on animals in 1821, suggested the possibility of favorably influencing pulmonary tuberculosis by creating an artificial pneumothorax. This was, we believe, the first recorded mention of such a therapeutic measure, but no practical use was made of the suggestion for more than half a century. In 1882 Forlanini of Pavia, Italy, noticed that intercurrent pneumothorax had resulted in cures in several cases of pulmonary tuberculosis but did not deliberately induce the condition until about ten years later, and in 1894 made his first formal report on the procedure. He was followed in 1898 by Murphy, who elaborated a technique for the production of pneumothorax by the use of nitrogen, and reported encouraging results in five cases. From this time many trials of this method have been made, and especially within the past two or three years the method has been widely adopted. French practitioners, however, have been slow in admitting the value of this procedure and the earlier articles published in that country magnified the dangers and minimized the benefits that might accrue from its use.

In view of this fact, a recent article by Murard and Colbert in the *Journal de Médecine de Bordeaux*, June 14, 1914, is interesting. The authors find that since the technique has improved the method of Forlanini does not give rise to the disconcerting accidents which attended its early use in France, and they regard it as really the most powerful weapon we possess in the fight against the destructive caseous forms of unilateral pulmonary tuberculosis. The ultimate results in the most favorable cases are clinical cures; but they are often compromised by premature cessation of treatment due sometimes to the production of adhesions following pleurisy, sometimes to bad management of the case, this latter being occasioned most frequently by the negligence of the patient, deluded as to his complete cure. According to the authors' statistics, Forlanini's method gives satisfactory and lasting results in 45 per cent. of the cases where there is total pneumothorax, and 35 per cent. where the pneumothorax is partial. It should be noted, however, that the authors combine with the rare cases of absolute cure those in which the continuous maintenance of pneumothorax allows the patient to resume his normal mode of life. The complications may usually be avoided by the employment of elementary precautions, such as pure air, proper hygiene, and dietetic treatment. Unfortunately, that rests more in the hands of the patients than of the doctors. In closing the authors say that, with the perfecting of technique following more complete knowledge of the indications and contraindications, this is one of the therapeutic attempts which will justify itself more and more. It may be regarded as certain, they say, that the pneumothorax *per se* has never done any harm. In all the cases treated by Dumarest at Hauteville, which furnished the material for the report by Murard and Colbert, the patients would have run risks as grave and worse in the course of the spontaneous evolution of the disease. That is perhaps typical of the reports from France at the present time.

In spite of all the work that has been done there remain many questions that are far from satisfactory solution. Some authors agree with Murphy that the earlier the treatment can be instituted the better; while others would reserve the operation for the late stages, with distinct abscess formation, hemoptysis, etc. Practically all agree that nitrogen is the proper agent. Most Americans and most of the workers in this field abroad, even in Germany, prefer the puncture technique of Forlanini and Murphy to that of Brauer, who advocates incision part way through the wall and then the insertion of a blunt cannula. Then again, some would employ the method where there is frank involvement of one side only, while others see no harm in using it in the presence of bilateral conditions; for it is an observed fact that in many cases where both lungs have been impaired and the penumothorax has been induced on the side most affected, improvement has been noted on both. The results obtained by the majority of workers have been encouraging but it is evident that the exact value, the indications, and the limitations of this therapeutic resource still remain obscure, and that the observation of a very large number of cases will be necessary before final judgment can be passed.

THE LAWS OF DEVELOPMENT.

IN the development of the individual there are two markedly different periods, the one extending from the segmentation of the ovum to birth and the other extending from birth to adult age. In the first period the rapidity of development increases regularly, while in the second period the rapidity of development decreases regularly. This difference, which was formulated as a law by Buffon and afterward by Serres and de Blainville, is based on the circumstance that from birth onward the maturing of the various organs to the limits imposed by coordination restricts the amplitude of the histogenetic processes.

M. J. Laumonier in the *Gazette des Hôpitaux*, June 11, 1914, in discussing the significance of the above law, emphasizes the fact that the needs of

coordination determine why the development of the child is irregular as regards its duration and unequal as regards the different parts of the body. It was Paul Godin who showed that the current standards for judging of development by means of tables of height and weight are deceptive, inasmuch as they do not take into account the development of the separate parts of the body.

The law of Serres mentioned above is illustrated by the following: An infant doubles its weight in six months, triples its weight in fifteen months, and quadruples its weight in thirty-six months. In other words the rapidity of increase in weight diminishes with time. The changes in the diameters of the skull, of the body, etc., follow the same law.

But like all laws there are exceptions to this one. Godin showed that at the age of fifteen years in the boy the height in decimeters is equal to the figure for the age in years. Before the age of fifteen the figure for the height exceeds that for the age; while after fifteen the figure for the height is less than the figure for the age. This rule applies, however, only to the period between four and eighteen years.

The law of alternation was also delineated by Godin, as follows: The segments of the body (head, trunk, limbs, etc.) alternate in their growth, the periods of alternation being six months. Thus there is an alternation in the growth of the arm and leg, of the thorax and of the abdomen, of the upper arm and the forearm. This alternation would seem to coincide with the organic balancing formulated by Geoffroy-Saint-Hilaire, and to be determined by the needs of correlation. The energy of growth is apparently inhibited by the accumulation of waste products; the growth of one part of the body slows up while these waste products are eliminated; the growth of another corresponding segment of the body keeps on until its own waste products reach a certain volume. There is thus a rhythm of growth which has a metabolic basis.

There is another important law, derived as a corollary from the preceding, and known as "the law of maxima and minima or the law of phases." Growth does not proceed as an even stream but consists of a succession of spurts which, however, follow a regular order. This law is illustrated by the grand maximum of growth during the first few weeks of life, then a rapidly decreasing progression up to three years, then a slowly decreasing progression up to nine or eleven years according to the sex. From the eleventh to the twelfth year in boys and from the ninth to the tenth year in girls (in France) there is a short period of arrest or stagnation which is the first minimum of growth. This is followed by a second maximum of growth, extending from the thirteenth to the seventeenth year in boys and from the eleventh to the fifteenth year in girls. When puberty has been definitely established the second minimum of growth is reached. These alternations of growth are undoubtedly dependent upon the play of the internal secretions, those of the ovary and testicle being operative during the period of the second maximum.

"The law of dissociation" is applicable to the three dimensions. Godin has shown that the height increases more during the warm months while the reverse is the case with the weight. An exception is found during puberty when the growth in height decreases and the growth in weight increases. Occupation, posture, and exercise may modify to a certain degree the order of development. The influence of sex on growth begins at the period immediately preceding puberty. The girl reaches this climax much earlier than the boy. The latter who attains his second maximum a little later than the girl, nevertheless outstrips the weaker sex. Following the twenty-fifth year it is rare for the male to increase in stature, whereas the female up to the age of thirty or even beyond may under the influence of pregnancy add one or even two centimeters to her height.

In the rhythmic ebb and flow of the tides of growth there are numerous variations caused by heredity, privation, disease, change of scene from city to country, etc. Heredity exercises the most potent influence. Indeed, Chaillou and Mac Auliffe attributed considerable importance to a "predetermination of the morphological type." Thus the respiratory type is differentiated early and is characterized in the infant by a thorax more greatly developed than normally and by certain irregularities in its configuration. The muscular type of growth develops later, from the fifteenth to the eighteenth year.

The course of growth, therefore, follows definite laws which are, however, markedly influenced by certain external factors. Unfortunately the stresses of modern life, chiefly the stimulating and enervating environment of the cities, interfere in many instances with natural development. The alert physician to whom is entrusted the supervision of the child should be able to discern when the growth of the latter deviates from its natural channel and should be able to suggest the proper corrective hygienic measures.

QUACKS AS FORENSIC MEDICAL EXPERTS.

It was the late Dr. O'Sullivan, we believe, who stated that the possibility of being pitted against an empiric is the greatest dread and deterrent to the qualified medical expert. In Germany it is known that three millions of the people depend for their regular medical service on 5,500 men who are destitute of a general medical education and training. These include practitioners who usurp the titles of nature healer, physical-dietetic practitioner, Kneippist, etc. This number does not include qualified practitioners who have chosen to practice along any desired line, but the latter are few in numbers when compared with the untaught pretenders in the same field.

In the *Münchener medizinische Wochenschrift* for June 23 we find an article by Neustätter on this subject in which the author deals mainly with the blatant, ignorant charlatan, and cites much information in regard to the qualifications and testimony given by these people. But since they are often the sole medical ministers to families their testimony has to be utilized, and with some claim to

expert evidence. The public has sought to standardize the knowledge of all medical practitioners through society propaganda of the usual "medical freedom" type. This is natural because in damage suits and the like the unqualified practitioners' testimony would be revised by the State expert, (who, in turn, could hardly speak with authority on such subjects as acupuncture). As a matter of fact practitioners along a certain line of work have been summoned by the State, irrespective of their general qualifications.

The difference in these respects between Germany and the United States is wide. We find no mention in the article in question of the new "pathies," Christian Science, and the like. The Germans show chiefly adherence to old methods which have dropped out of use, and take but mildly to that which is relatively new.

Epidemic Alopecia Areata.

The current teachings of dermatologists hold that alopecia areata is not a contagious disease. The frequent occurrence of more than one case in the same family has been attributed to a hereditary tendency rather than to an infectious element. There have been described epidemics of alopecia areata occurring in institutions and barracks. Sabouraud, however, reports that he has never observed any such epidemics. At any rate the reality of this occurrence cannot be called into question in view of the authenticity of the observations that have been made. The most recent of these is that reported by Haldin Davis in the *British Journal of Dermatology*, June, 1914. From March to June, 1913, there were 174 cases of alopecia areata among 300 girls of an orphanage. Strict measures were adopted: the worst cases were isolated, the heads were washed daily with a lotion of methyl alcohol and soap, and ointments of beta-naphthol and sulphur were applied. The scalps were massaged, in the severer cases a blistering fluid was applied, and in eight instances the scalp was completely shaved. These measures checked the epidemic and by October, 1913, all of the cases had been cured. Although the patches resembled those of ringworm more than those of ordinary alopecia areata, no evidence of any fungus could be found. Microscopic examination of the broken stumps of hairs showed that they were swollen at the free end, not cut sharply across, and within the hair, near the site of fracture, there was an opaque substance, probably of pathological significance, but whose nature is unknown. Davis believes that an infection was the cause of the epidemic, basing this supposition upon the swift spread of the disease and the prompt response to antiparasitic measures.

Simon's Symptom-Complex.

Those of us who object to an eponymic nomenclature of diseases, syndromes, symptom-complexes, types, etc., may as well become resigned to the necessities of the case. Descriptive naturalists have always found such terminology indispensable, and each new species or variety of quadruped, bird, etc., is as likely to be known by its discoverer's name, as by any Latin and Greek descriptive title. This holds good for fungi, bacteria, etc., and also throughout the plant world. At a recent meeting of the Royal Imperial Society of Physicians of Vienna (*Berliner klinische Wochenschrift*, June 29) Erdheim presented a case of "Simon's symptom-complex," which consists in the main of a primary cancer of the female breast, metastases which involve the hypophysis, and consequent polyuria. In the case presented the woman had been subjected several years before to operation for cancer of the breast. Secondary nodules soon appeared in the neck and skin of the thorax. Thirst and polyuria then appeared and persisted for four months, up to the time of writing; these symptoms indicated progressive destruction of the hypophysis. The injection of an hypophysis extract gave temporary relief. Metastasis to the hypophysis may result from other localizations of cancer; but since most of them follow cancer of the breast, the term Simon's symptom-complex (from the original reporter) is deemed suitable, the small size of the metastasis producing no pressure symptoms.

News of the Week.

To Study Feeble-Minded.—A commission to investigate the problem of the feeble-minded in New York State has recently been appointed by Governor Glynn. The commission, the members of which will serve without pay, consists of Mr. Robert W. Hebberd, secretary of the State Board of Charities, chairman; Dr. Max G. Schlapp, director of the New York Clearing House for Mental Defectives, and professor of neuropathology at the Post-Graduate Medical School and Hospital; Dr. Charles Loomis Dana, professor of nervous diseases at the Cornell University Medical School; Prof. Stephen P. Duggan, of the College of the City of New York, and Mrs. Mary C. Dunphy, superintendent of the Children's Hospital, and of the Custodial Asylum and School for Feeble Minded at Randall's Island. A report will be submitted by the Commission before February 15, 1915, with legislative recommendations. It is pointed out that although there are at present about 30,000 feeble-minded persons in New York, accommodation is provided for only 4,000.

Hospital Increases Holdings.—The New York Skin and Cancer Hospital has recently purchased the four-story dwelling at 336 Second Avenue, adjoining the hospital property. The building will be used chiefly for the extension of the dispensary work of the hospital, the upper floor being reserved for dining rooms and accommodations for the employees of the institution.

Child Hygiene.—The Bureau of Child Hygiene of the Department of Health of New York City, which has the supervision of the health of the city's school children, plans to extend the scope of its activities during 1915 and to make its work more efficient. To accomplish this a budget allowance of $554,670, or $123,780 more than this year's budget, will be asked for. The increase will provide nine additional medical inspectors, three surgeons, nine dentists, and eighty-four nurses.

Medical Protest Against a Presidential Pardon.—At a special meeting of the Washington (D. C.) Medical Society on July 23 resolutions were introduced severely criticising President Wilson for commuting the sentence of a physician, son-in-law of a democratic senator, who was convicted recently of misuse of the mails by sending information as to where an abortion could be performed.

The physician, who practised in Washington, was sentenced to two years in prison and fined $500 in the Supreme Court of the District of Columbia. President Wilson, after the Court of Appeals and the United States Supreme Court had sustained the conviction, commuted his sentence to the payment of the fine.

Diagnosis of Cancer.—The Department of Health has issued the following directions for those physicians who desire to have specimens of tissue examined by the State Institute for the Study of Malignant Disease: The specimen should be put at once into ten per cent. formalin in a wide mouthed bottle. A piece the size of a chestnut is sufficient. This should be cut from the suspicious-looking area, viz., where there seems to be a solid mass of tissue, whitish or grayish in color. Avoid the broken-down areas. A section from the edge of the tumor is the best. In flat tumors, as those from the skin, stomach, intestine, etc., the specimen should be cut at right angles to the surface, that the relation of the normal tissue may be preserved. Where metastases are present a portion of these should be included, marked properly or put in a separate bottle. When two pieces from different parts of a growth are placed in one bottle, cut them in different shapes and properly describe them, stating from where each was taken. The specimens should be securely packed to prevent breakage, and information as to the patient's name, age, and sex, and whether married or single, should be supplied, together with the physician's name and address, clinical diagnosis, and a description of the tumor as to duration, size, shape, rapidity of growth, etc.

Hourly Nursing.—The Central Registry maintained by the New York County Registered Nurses' Association announces the establishment of an "Hourly Nursing Service" for those who require the skilled attention of a trained nurse to administer certain necessary parts of the treatment, but who do not need to go to a hospital or to have the constant care of a trained attendant. Inasmuch as the charge is only seventy-five cents per hour, it is certain that this service will meet with a hearty welcome from both physicians and patients.

No "Cancer Houses."—The annual report of the Imperial Cancer Research Fund of London recently issued gives the results of investigations into the popular theory that there exist "cancer houses" or "cancer areas" in which the disease is relatively more frequent. The investigations showed that the theory is without foundation in fact. "Cancer cages" for animals are also declared to be myths. The report states also that experiments and studies made during the year have not revealed any cure other than the early surgical removal of a cancer.

112 Years Old.—Mrs. Emma Waldron of Marion County, Ark., celebrated her 112th birthday recently, 120 of her descendants, including children, grandchildren, great-grandchildren, and great-great-grandchildren, being present. She is the mother of sixteen children, of whom eleven are living, and has in all 723 descendants.

Havana Free From Plague.—Havana was officially declared on July 21 to be free from bubonic plague. No new cases have been reported for several weeks and no infected rats have been found for a long time.

Ambulance Chasers Hit.—The Workmen's Compensation Commission recently adopted a resolution which will do much to abolish the nuisance long known as the "ambulance chaser." The resolution reads: That the commission decline to consider any agreement for compensation for legal services in connection with any claim arising under the law in advance of the performance of the services for which the claim is made; and that in all cases claims for legal services will be considered solely with reference to the actual service rendered upon a statement submitted to the commission upon the conclusion of the service.

Health of Canal Zone.—The report of the Chief Medical Officer of the Isthmian Canal Commission, Dr. Charles F. Mason, shows that during the month of March, 1914, the total number of deaths from all causes among employees was 34, of which 24 were due to disease and 10 to violence, and that during the month of April the total was 27 deaths, disease being responsible for 22 and violence for 5. The annual average death rate per 1,000 for these months was 8.75 and 6.78 respectively; in 1913 the rates were 6.82 for March and 10.29 for April. For the entire population of the cities of Panama and Colon and the Canal Zone the death rate for March was 25.48 and for April 22.33. One case of smallpox was removed from the Pacific Mail steamship Newport on April 16, and recovered. With this exception, no cases of yellow fever, smallpox, or plague, originated on or were brought to the Isthmus during the months of March and April, 1914.

Rutland County (Vt.) Medical Society.—The annual meeting of this society was held at Lake Bomoseen on July 14, when the following officers were elected: *President*, Dr. Edmund M. Pond, Rutland; *Vice-President*, Dr. Charles E. Griffin, Fair Haven; *Secretary-Treasurer*, Dr. Frederick H. Gebhardt, Rutland.

American Roentgen Ray Society.—A meeting of this society will be held in Cleveland at the Hotel Hollenden, on September 9 to 12, 1914. The program promises to be of unusual interest and value. Papers will be read by Dessauer of Frankfort, on the subject of artificial production of gamma rays; by Coolidge, the inventor of the Coolidge tube; by Shearer, and by Duane. The subject of deep therapy and the production of the hard rays will be fully presented and discussed. The rest of the program will be taken up by a large number of papers on general subjects. The medical profession is cordially invited to attend these meetings.

Gifts to Charities.—The Brooklyn Hospital, Brooklyn, N. Y., has received a bequest of $3,792 from the estate of the late Mrs. Jane Benson of that city.

By the will of the late Mrs. Eliza G. Lippincott of Cheltenham, Pa., the sum of $5,000 is bequeathed to the Children's Seashore Home at Atlantic City, N. J., in memory of the testator's husband, Joshua W. Lippincott.

The Methodist Hospital and the Presbyterian Hospital of Philadelphia receive bequests of $5,000 each under the will of the late Samuel Benner of Philadelphia.

The following bequests are contained in the will of the late Jane S. Esternach of Philadelphia: the Woman's Southern Homeopathic Hospital, $19,000; St. Luke's Homeopathic Hospital, $14,000; the Women's Homeopathic Association of Pennsylvania, for its medical, surgical, and maternity hospitals, $5,000; the Philadelphia Home for Incurables, $5,000; the Children's Homeopathic Hospital,

$2,800; the Children's Seashore Home, Atlantic City, $2,800; the Pennsylvania Hospital and Colony Farm, Oakbourne, Pa., $2,800; the Hahnemann Medical College and Hospital, $2,800; the Wills Eye Hospital, $2,800; the Germantown Dispensary and Hospital, $2,800; the Free Hospital for Consumptives, $2,800; the Rush Hospital for Consumption and Allied Diseases, $2,800; the Philadelphia Lying-in Charity and Nurses' Training School, $2,800.

Obituary Notes.—Dr. GRACE PRIOR YANKAUER of this city was killed on July 28 by a fall from a window of her residence. She was born in Middletown, N. Y., in 1874 and was a graduate of the Woman's Medical College of the New York Infirmary in 1898. Dr. Yankauer was an assistant surgeon to Mt. Sinai Dispensary in the Nose, Throat, and Ear Department, and was a member of the Medical Societies of the County and State of New York, of the American Medical Association, of the Women's Medical Society of New York State, of the Women's Medical Association of New York City, and of the Mount Vernon Medical Society. She was the wife of Dr. Sidney Yankauer of this city.

Dr. HENRY A. RICHY of New York, a graduate of the College of Physicians and Surgeons, New York, in 1889, died suddenly while in his office on July 18.

Dr. WILLIAM J. O'BYRNE of New York, a graduate of the Bellevue Hospital Medical College, New York, in 1870, and a member of the Bronx Medical Society, died at his home, from heart disease, on July 19, aged 69 years.

Dr. MICHAEL FRANCIS O'ROURKE of New York, a graduate of the College of Physicians and Surgeons, New York, in 1902, and assistant attending physician to St. Vincent's Hospital, died at his home from pneumonia, after a brief illness, on July 22, aged 36 years.

Dr. HELEN DE WITT JUSTIN, formerly of Belleville, N. J., a graduate of the Woman's Medical College of the New York Infirmary for Women and Children, New York, in 1879, died at Rochester, Minn., on July 19.

Dr. FREDERICK BRADLEY DOWNS, of Bridgeport, Conn., a graduate of the College of Physicians and Surgeons, New York, in 1878, and a member of the American Medical Association and the Connecticut State and Fairfield County Medical Societies, and former president of the Bridgeport Medical Society, died at his home, from diabetes, on July 17, aged 58 years.

Dr. JAMES JERROLD KNOTT of Atlanta, Ga., a graduate of the Atlanta Medical College in 1859, formerly professor of anatomy and clinical surgery in the Middle Georgia Medical College, Griffin, and a member of the Medical Association of Georgia, died at his home on July 12, after a short illness, aged 75 years.

Dr. LEMUEL CONANT GROSVENOR of Taunton, Mass., a graduate of the Cleveland University of Medicine and Surgery, Cleveland, O., in 1864, formerly a practitioner of Chicago, from 1871 to 1872, lecturer on anatomy at the Hahnemann Medical College, Chicago, from 1873 to 1899 professor of sanitary science and obstetrics in the Chicago Homeopathic Medical College, and from 1899 professor of obstetrics in the Hahnemann Medical College, and a member of the American Institute of Homeopathy and the Chicago Academy of Homeopathic Physicians and Surgeons, died at his home on July 16, aged 82 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

THE CONGRESS SEASON—TUBERCULOSIS—ROYAL SANITARY INSTITUTE—ROYAL INSTITUTE OF PUBLIC HEALTH—INFANT MORTALITY—NEW PHARMACOPOEIA—PANEL FUNDS DEFICIENT.

LONDON, July 17, 1914.

THE conference of the association for preventing tuberculosis was held last week at Leeds. Sir William Younger opened a discussion on the "House in Relation to Tuberculosis." He described some of the evil dens which he had recently examined and which gave him a sense of wonder and despair that they had so long been tolerated. We are, he declared, planting costly sanatoria all over the country while leaving in every district those evil dens where the bacillus is ever producing new crops of victims. The Marquis of Salisbury declared overcrowding as bad for health as for morals, and whatever stood in the way of economic building he would ruthlessly destroy. Sir R. Philip, physician to the Edinburgh Infirmary and Royal Victoria Hospital for Consumptives, said the hope of the future in this matter was the projection of the searchlight into the home. Col. Kyffin-Taylor said however bad the slums were in Scotland, they had them some years ago infinitely worse in Liverpool, and he pressed on the delegates that tinkering was useless and the only thing to do was to sweep them from the earth and make the municipality properly house the occupants who were turned out.

The second discussion came on in the afternoon, opened by Mr. Knaggs, professor of surgery in Leeds University. He attributed much tuberculosis in children to milk and mentioned cases in which he thought surgery should be resorted to. Dr. Gauvain, of the Treloar Cripples' Home, controverted this, saying the time had come when the knife should be dispensed with as absolutely useless in tuberculosis unless to make good defects arising from previous unskilled treatment. In future cure should be aimed at while preserving the part attacked.

The "Causation and Prevention" was the subject of the communication of Mr. Harold J. Styles, who maintained that in Scotland 75 per cent. of surgical tuberculosis was due to infection by milk. Dr. Nathan Raw went further and said 100 per cent. was due to neglecting this cause during the children's milk-drinking life. One of the best works of the health authorities had been the establishment of sterilized milk depots to which thousands of babies every year owed their lives. He was for more legislation, pending which he advised that all milk should be boiled.

At the Royal Sanitary Institute's Congress—the twenty-ninth of the series—Dr. J. Niven, M. O. H. for Manchester, opened the discussion on the Insurance Act, which he thought added to the available resources against tuberculosis, but at present notification was often too late. Moreover, the buildings required are not yet ready to bring all cases into sanatoria. Dr. Young of Chester expressed disappointment that the act had not led to earlier detection of diseases, objected to the somersault legislation of the Chancellor and urged that the million sterling promised should be distributed by those who knew what was most needed. Dr. D. Forbes said there was not money enough to properly

carry out the domicilary treatment and the extra nourishment often went to the patient's family. In Brighton they were about to devote £600 a year to feeding and housing consumptives. Dr. Holroyde, of Chatham, said the public health acts seemed to do everything except compel the occupier to do his duty. Far too much nonsense was talked about the woes of the slum dweller who was, in most instances, utterly undeserving of sentimental utterances of reformers whose one fetish was liberty of the subject. No man ought to be at liberty to live or act in a manner prejudicial to the health, cost, or comfort of others.

Dr. Snell, M. O. H. of Coventry, had a paper on the administrative control of diphtheria. In his city no attempt at isolation was made and the cases were left at home unless tracheotomy was required, just as those of measles or whooping-cough. He produced statistics of eighty large towns, grouped into six classes, according to the degree of isolation. In eight towns with no isolation the rate, per 1,000 of the population, of morbidity, was .76; of mortality, .197. In ten towns where 27.2 per cent. of cases were removed to hospital the rate of attack was 1.10; of mortality, .155. With 40 to 60 per cent. removals, attack rate was 1.17, mortality .125. He disclaimed any position of advocacy, but it was for those who advised wholesale isolation to explain these figures.

Dr. Killick Millard, M. O. H. for Leicester, raised again a question which is generally thought to have been settled long ago, viz., whether unvaccinated persons were a danger to the community. He admitted that if they were attacked by smallpox they suffered more severely than the vaccinated, but said it was the milder cases which spread the disease, for they were unrecognized in the early stage, and this was very likely to be the case when persons who had been vaccinated many years previously were sickening for an attack. Still more would this be probable in the rare case of a person sickening for a second attack who had previously had smallpox. On these considerations Dr. Millard concluded that such mild attacks were more likely to lead to the spread of severe or fatal variola.

The Congress passed a resolution asking for a royal commission on the organization of the National Public Health system, to consider the need of its unification, and the nomination of a health department, with a minister of State to preside.

The Congress of the Royal Institute of Public Health is now in full session at Edinburgh, with a program which comprises sections concerned with State medicine, comparative pathology, child welfare, hygiene (military, naval, colonial, and industrial). Sir H. Littlejohn took the chair at the opening when the president, the Marquis of Linlithgow, delivered the inaugural address. The Lord Provost, and magistrates, and many distinguished delegates attended. It was announced that the council had awarded the medal for conspicuous service in medical administration to Dr. Milne of Manchester, who has devoted time and energy to tuberculosis. The congress will be continued next week.

The Conference on Infant Mortality was the fourth of the series held under the auspices of the National Association for the Prevention of Excessive Mortality. The president of the L. G. B. had promised to preside, but was detained in the House of Commons about the Milk Bill, which he was determined if possible to get through. The Parliamentary Secretary of the Board, Mr. Herbert Lewis, took his place and proved an excellent substitute. He said the results of the campaign undertaken were remarkable, and pointed to the statistics. Had the death rate during the five years 1906-10 equaled that of the ten years 1871-80, nearly 150,000 more children under one year of age would have died than actually did, and more than 400,000 under five years. This multitude, equal to a large city, had been saved in England and Wales alone, and Mr. Lewis claimed a large part of the credit for the four conferences. Dr. Chalmers, M. O. H., Glasgow, then read a paper on "Ante-Natal Hygiene," discussing its relation to still and premature births and to the mortality of the first month of infantile life. The teaching of mothercraft in public schools and special schools for mothers was therefore urged by Drs. J. Campbell and E. Brikhand.

The new British Pharmacopœia will be published in October. The completed draft was submitted on Tuesday to the executive committee of the General Medical Council and it was resolved that advanced copies should be placed in the offices of the Council in London, Edinburgh, and Dublin, on August 10, where they could be inspected.

Further trouble is threatening about the panel system. So unsatisfactory has this hasty bit of legislation proved that already a party proposes to repeal the compulsory provisions and substitute a voluntary scheme. A meeting of panel practitioners has protested against such a change. Another difficulty is a deficiency of the drug fund in thirty insurance districts—in Birmingham amounting to £5,000. Of course the chemists expect the promised amounts to be supplied and the Pharmaceutical Society is appealed to. It has taken steps to represent the case to the government.

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

LOW DEATH RATE IN MANILA—THE HUMAN PLAGUE CURVE—MANILA'S WATER SUPPLY—PERSONALS

MANILA, P. I., June 13, 1914.

ANOTHER marked reduction has taken place in the death rate of the city of Manila for the month of May, 1914, the low figure of 18.97 per thousand having been reached. This mortality rate is 3 per thousand lower than the rate for the same month last year and is by far the lowest death rate that has ever been reported in the city of Manila. The rate for May ten years ago was 41.03 per thousand and as there was no epidemic disease present in 1904 during that month the foregoing figures perhaps furnish a fair index of the sanitary improvement which has been brought about in the Philippine Islands.

The past week a notable reduction has taken place in the number of cases of plague and cholera in nearby foreign countries and no further cases of these diseases have been found upon incoming vessels. There has been, however, a very marked increase in the number of plague rats found in the city. There has not only been an increase in the number of plague rats found but an increase in the number of new centers. The foregoing is of considerable interest in view of the fact that a study of the human plague curve for the past ten years shows that in that part of the Orient located on the eastern coast of Asia and nearby islands and

between latitude 5 and 30 the number of plague cases is highest during May and gradually recedes until December is reached. It then gradually goes up again to the high point of May. A number of observers have expressed the belief that this is due to the fact that the conditions for flea breeding are more favorable during the time that the number of plague cases reaches its maximum. For instance, in Java it has been found that the average number of fleas on each rat is higher at the period of the year during which the highest number of plague cases occurs.

An examination of the bacteriological report of the Manila water supply for the month of May shows that there was a decidedly less number of bacteria in the covered reservoir than in the open reservoir. The average daily number of bacteria in the covered reservoir was 196, while in the uncovered reservoir it was 317. There also continues to be a much larger number of bacteria in the water drawn from the city taps than is found in the water of the reservoir proper, the daily average of the former being 1,565, while that of the latter was 317. A thorough flushing of the entire pipe system is now being made with the hope that a substantial reduction in the number of bacteria in the piped water may be brought about.

Dr. Thomas I. Jackson, who has been a medical inspector of the Bureau of Health during the past two years and directly in charge of the anti-plague campaign in the city of Manila, has resigned his position and will return to the United States in the near future.

Dr. A. P. Goff, who has been on an extended leave of absence in the United States, has returned and resumed his position as chief of the San Lazaro Hospital Division of the Bureau of Health.

Dr. David G. Willets, who was formerly a member of the staff of the Bureau of Science, has resigned and is now connected with the Hygienic Laboratory of the United States Public Health Service at Washington.

Dr. Ruskin Lhamon, who has been the assistant professor of anatomy at the College of Medicine and Surgery, University of the Philippines, has resigned and entered the medical service of the United States Navy.

Dr. Harry D. Gibbs, chief chemist and assistant director of the Bureau of Science, has resigned and will sail on June 15 on the United States Transport for San Francisco. He has accepted an appointment as chief of the Eastern Division of the Food and Drugs Laboratories of the United States Department of Agriculture.

Progress of Medical Science.

Boston Medical and Surgical Journal.

July 16, 1914.

1. Addresses, Fiftieth Anniversary of the Boston City Hospital, June 20, 1914. Hon. A. Shuman, Mayor J. M. Curley, D. W. Cheever, J. G. Blake, G. W. Gay, and F. B. Lund.
2. Salpingitis; the Results of Treatment by the Abdominal Approach. C. L. Scudder.
3. Case of Supposed Progeria (Premature Senility) in a Girl of Eight Years. C. W. Rand.
4. Mushroom Poisoning. E. S. Bagnall.
5. An Interesting Case of Diagnosis. B. T. Burley

2. **Salpingitis Treated by the Abdominal Approach.**—C. L. Scudder believes that the expectant treatment of pelvic inflammation originating in the Fallopian tube is very important. By this the author means rest in bed, laxatives, and some form of periodical hot application to the abdominal parietes with frequent, copious hot douches, the ingestion of large quantities of water and a simple diet, and last but not least important, exposure in the open air and sunshine. Following a careful expectant treatment the surgeon will find at operation a much more localized and definite area of infection, practically a residual abscess, than if no expectant treatment has been followed. The advantages of the abdominal route are: The exact location of the disease can be undoubtedly determined. The procedure decided upon in any given instance can be more safely carried out under the eye. Exposure of the involved parts can be more safely made. The adhesions to the small bowels and the rectum can be more carefully dealt with. The exact condition of the pelvic organs can be accurately determined. Even in very ill patients by a very careful technique the abdomen can be safely protected by moist gauze packs from the operative area, so that no new infection will take place. The author has never seen any serious infection of the abdominal wall following this operation. Shock to the individual, under ordinary conditions, is comparatively slight in the abdominal approach to localized infections. The tube left *in situ* does not in a majority of cases become infected subsequently to an operation for the removal of the other tube. An ovary should be left if one tube is left. If both tubes are removed the ovaries should be removed if they are diseased. It is a good thing to leave at least a bit of ovarian tissue, particularly in young individuals. If the removal of the diseased tube necessitates, as it sometimes does, separation of and dissection of adhesions deep in the pelvis, it may be necessary to insert a rubber tissue wick behind the uterus for forty-eight hours or longer. This rubber tissue wick had best have no gauze in it unless there is considerable oozing in the pelvis; if there is considerable oozing then the gause at the end of the wick serves to favor hemostasis.

3. **Progeria.**—C. W. Rand, in reporting a case of this condition in a girl of eight years, states that progeria as defined by Gilford does not occur in normal children. It only affects those who are the subjects of a form of delayed or arrested growth, or, namely, infantilism. True progeria always occurs in youth. The body arrested in its growth becomes prematurely the subject of senile changes. Infantilism and senilism are both present in the same body at the same time. Progerians pass from delayed childhood directly into a premature old age. Little, if anything is known definitely of the pathology underlying progeria. There have been so few cases reported that the condition is seldom recognized as a physiological or pathological entity.

4. **Mushroom Poisoning.**—E. S. Bagnall states that the fungus responsible for most of the fatal poisoning in this country is *Amanita phalloides*. Poisoning by *Amanita muscaria* is also common, but not so apt to be fatal. *Amanita muscaria* demonstrates its presence by the muscarine symptom complex. Atropine forms a perfect physiological antidote for the muscarine. Unfortunately, however, there are other toxins present. Weight for weight, the preparations from the fresh plant are twice as toxic as pure muscarine. *Amanita phalloides* is a pure white fungus growing in damp woods. It has white spores, nearly white top, with perhaps traces of greenish-yellow around the margin. The stem is bulbous at the base, and it has the ring below the pileus. It is most often seen near oak trees. The symptoms come on usually with sudden intense pain in the abdomen after from six to fifteen hours. There are vomiting, intense thirst, and diarrhea, and the victim gradually wastes away, usually dying in

coma in three or four days. Postmortem examination shows ulcers in the intestinal tract, hemorrhage into the serous membranes, and fatty degeneration of the parenchymatous organs, especially the liver and kidney. The mortality is sixty to one hundred per cent. A third of the top of a small plant has killed a child twelve years of age. As regards treatment atropine for the muscarian type is the specific. For the phalloides, nothing but symptomatic treatment is available. Ford endeavored to produce a specific serum from guinea-pigs, but was not able to obtain sufficient potentiality to make its use practical. In the cases cited by the author atropine was contraindicated and its use should not be recommended as a specific for mushroom poisoning in general. Castor oil is the best cathartic as the salines are said to facilitate absorption. The author's cases strongly suggest the presence in the mushrooms of atropine or a similar substance. There is said to be pilz atropin in *Amanita muscaria* in small amounts, but the symptoms in muscaria poisoning develop in one-half to one hour or, at most, three hours. The symptom complex in these cases is more like that of phalloides than of any other group described.

New York Medical Journal.

July 18, 1914.

1. The Biochemical Function of the Endometrium in the Etiology of Metrorrhagia and Menorrhagia. J. Riddle Goffe.
2. Mensuration and Projection of the Posterior Urethra and Vesical Floor by Means of Posterior Urethral Calipers and Radiography. V. C. Pedersen and B. C. Darling.
3. On the Prevention of Cancer. A. C. Wood.
4. An Instrument for Direct Application of Radium to Neoplasms of the Bladder. Winfield Ayres.
5. Valvular Disease in Infancy and Childhood. R. Abrahams.
6. Acute Double Optic Nerve Atrophy. H. F. Hansell.
7. Unusual Complications in Renal Tuberculosis. H. Neuhaf.
8. Alkaloids. A. C. Reed.
9. Purpura Hemorrhagica. G. Parker.

1. Etiology of Metrorrhagia and Menorrhagia.—J. Riddle Goffe states that the uterine hemorrhages occurring at the two extremes of menstrual life, namely, the adolescent period and the preclimacteric period, have been a great puzzle to clinician and pathologist. The one significant feature that exhibits uniform regularity in these cases is the absence of coagulation of the blood. This lack of coagulability is also characteristic of menstrual blood. The idea therefore suggests itself that the cause of this excessive bleeding may be due to this one feature of incoagulability. A. Sturmdorf, accepting the conclusions of Cristea and Denk that the systemic blood remains unchanged during the menstrual period and that menstrual blood has lost its coagulability, concluded that this change must take place in the endometrium. A simple experiment settled definitely the question that the seat of change from coagulability to incoagulability resides in the endometrium. Sturmdorf and succeeding investigators were driven to the conclusion that there must be some inhibiting element generated or evolved in the endometrium. Conradi, in 1902, published the results of experiments in which coagulation inhibiting substances of unknown nature, which he named antithrombins, were generated in the aseptic autolysis of organs. Histologically the bleeding endometrium represents those very conditions recognized as conducive to the generation of both antifibrin and antithrombin. In these cases the routine curettage not only fails to control hemorrhage, but, by lacerating the subendometrial blood vessels, augments the bleeding in proportion to the thoroughness with which the curettage is done. What is the activating motor center that awakens, regulates, and controls this autolytic disintegration of the subemdometrium capillaries? Certain phases in the developmental cycle of the corpus luteum regularly initiate concomitant morphological changes in the endometrium. As a coadjutor in this function, it is quite possible that the thyroid gland has a part to play. These facts taken in connection with the observation that preclimacteric hemorrhage often persists after complete oopherectomy and that cretinism is attended by amenorrhea, point significantly to some form of vicarious biochemical relation between this ductless gland and the ovaries in the initiation of endometrial activity. What then are the practical lessons to be gleaned from this? First one has learned that the curette, except for diagnostic purposes, has no place here. Ergot has no call for its exhibition in these cases, and for the same reason pituitary extract is contraindicated, for muscular uterine contractions are of no avail. The physiological indications are to reduce blood pressure and stimulate the ovaries and thyroid gland, and through them the endometrium, to fuller performance of their functions. From the standpoint of treatment the cases must be divided into two classes, the pubescent and the climacteric. In the latter case the one suspicious etiological factor that must ever be kept in mind and definitely determined for or against, is cancer, In cases of girls or young women the author is satisfied that curettage, ergot, and pituitary extract have no efficacy. Corpus luteum and thyroid extract are indicated.

3. Prevention of Cancer.—A. C. Wood states that cancer appears to have been recognized and to have received its full share of attention ever since medical observations have been recorded. Notwithstanding this accumulated experience, and efforts at early diagnosis and the most thoroughly operations possible, the mortality rate from cancer is steadily increasing. The recent additions to cancer therapy, such as the *x*-rays, radium, and mesothorium, have so far been found to possess but a very limited degree of usefulness. In the present state of knowledge any marked reduction in the death rate from cancer can be brought about only by arresting precancerous stages of cancer.

4. Direct Application of Radium to Neoplasms of the Bladder.—Winfield Ayres has devised an instrument which may be used through the Ayres operating cystoscope, or preferably through the Buerger operating cystoscope. The radium container is held against the tumor under direct observation. This seems better than to deposit a carrier in the bladder and trust to luck that it will remain in proper position for twenty-four to forty-eight hours. It is considered that 300 mgm. hours are necessary to produce any beneficial effect, and the procedure in the case under treatment is to make application for one hour three times a week. One hour's use of radium in the bladder is more irritating than one hour's cystoscopy without radium. To render the patient as comfortable as possible, two ounces of a one per cent. solution of alypin are injected into the bladder one-half hour before the cystoscope is introduced, and during treatment the bladder is kept comfortably full of a one to four hundred solution of the same drug.

5. Valvular Disease in Infancy and Childhood.—R. Abrahams summarizes the treatment of this condition as follows: In acute or subacute endocarditis, one should push the salicylates to their utmost physiological limit. In acute or subacute endocarditis the child should be kept in bed for three or four months. When the lesion becomes chronic, the recurrence of arthritis or tonsillitis may be prevented by proper dress, hygiene, outdoor life, and suitable antiseptic gargles. When compensation is failing, the patient should be put to bed and given digitalis in mitral insufficiency and caffeine sodium benzoate or the tincture

of strophanthus in stenosis. If digitalis is indicated, only large doses, ten to twenty minims to a child eight or ten years old, will benefit the patient. As the symptoms improve, the dose can be reduced, but it must be continued. A larger dose than this should be given in the terminal stages. Digitalis should be given in mitral stenosis, if marked dilatation or auricular fibrillation is present. In case digitalis is not well borne as evidenced by heart block, or thready and irregular pulse, or retching or vomiting, or fainting spells, then resort should be had to the tincture of strophanthus in half the dose of the tincture of digitalis. Every patient taking digitalis should be given calomel, at least one grain twice a week. Chronic valvular disease demands the continuous administration of iron, which in general is more important than digitalis.

Journal of the American Medical Association.

July 18, 1914.

1. Iliofemoral Aneurysm Exemplifying the Value of the Preliminary Partial Occlusion of an Artery in the Treatment of Aneurysm. W. S. Halsted.
2. The Absorption of Epinephrin from the Nasal Submucosa. J. D. Pilcher.
3. Hereditary Glaucoma (Simplex). F. P. Calhoun.
4. Sclerocorneal Trephining for Glaucoma. W. R. Parker.
5. The Value of Miotics in Chronic Glaucoma. W. C. Posey.
6. Late Infection following a Trephining for Glaucoma. E. V. L. Brown.
7. Granuloma Annulae. M. B. Hartzell.
8. The Pineal Gland in Relation to Somatic, Sexual and Mental Development. C. P. McCord.
9. Experiments on the Curative Value of the Intraspinal Administration of Tetanus Antitoxin. W. H. Park and M. Nicoll, Jr.
10. Vesicovaginal Fistula and Rectovaginal Fistula. H. O. Marcy.
11. The Hecht-Weinberg Reaction as a Control over the Wassermann Reaction. R. B. H. Gradwohl.
12. Unusual Case of Fatal Poisoning from the Administration of Male-Fern as a Vermifuge. M. C. Hall
13. Shotgun Wound of Abdomen, with Rupture of Pregnant Uterus.

2. The Absorption of Suprarenal Extract from the Nasal Submucosa.—J. D. Pilcher has performed a series of experiments which show that the submucosa of the nasal passages forms an excellent absorbing surface, at least for suprarenal abstract, and probably therefore for other drugs. The effects often approach and sometimes parallel those produced by rapid intravenous injections. Evidently this phenomenon is a result of the very great vascularity of the region, the injected material at times passing directly into the venous circulation. The administration of suprarenal extract in this manner clinically can possibly be of serious moment. In persons in whom a sudden rise in blood-pressure is especially contraindicated, in those with cardiovascular disease, arteriosclerosis, etc., the application of suprarenal extract to the nasal submucosa could well be of serious moment. While the danger of the administration of suprarenal extract to persons with arteriosclerosis should be borne in mind it is also true that arteriosclerosis occurs later in life, when nasal operations are less frequent. In susceptible persons enough suprarenal extract could be absorbed to effect a serious rise in blood-pressure. In conditions of circulatory collapse necessitating rapid stimulation it would seem that the injection of suprarenal extract into the submucosa of the nasal septum or turbinals would be of value. The technique is simple and the quantity of the drug used is readily controlled. This method is not as satisfactory as the intravenous method when the latter is feasible.

3. Hereditary Glaucoma (Simplex).—F. P. Calhoun, in summarizing the reported case of hereditary glaucoma (simplex) concludes that "anticipation" is the most prominent feature. Hereditary glaucoma develops in adults or at an age far remote from the usual period, and whenever a case of glaucoma simplex is recognized in one under the age of thirty, interest should be aroused as to the hereditary tendency. The smallness of the cornea and globe does play an important part; it is not the sole cause, however, for two families of myopes have been reported. Unfortunately few corneas have been measured. General diseases other than gout and rheumatism mentioned by the older writers have small part in the causation of this disease. The liability to transmission by the two sexes is roughly equal. The male sex shows a greater liability to inheritance.

4. Sclerocorneal Trephining for Glaucoma.—W. R. Parker states that the average results obtained from the sclerocorneal trephining operation for relieving glaucoma are better in the noninflammatory type than in the other forms of the disease. The results obtained when the operation was associated with a complete coloboma are better as regards both the frequency of the occurrence of iritis and the effects on the tension than when performed with a partial iridectomy or when the iris is left intact. The remote results may not be as good as those shown immediately after the operation.

5. The Value of Miotics in Chronic Glaucoma.—W. C. Posey notes that the miotics which are best adapted to control intraocular tension are physostigmine (eserine) salicylate and pilocarpine nitrate. This salt of physostigmine is more persistent in its effect and less changeable in solution than the other salts of the drug and is less irritating to the conjunctiva. The author prescribes a solution of pilocarpine to be used about every four hours and one of physostigmine of twice the strength at bedtime, thereby avoiding in a measure the blurring of vision which is occasioned by the action of physostigmine on the ciliary muscle during the day, while the eye receives the greatest effect of the drug during the eight hours or more which elapse between the installations of the drops during the night. In incipient cases of the disease an excellent initial dose is that of one-fifth grain of pilocarpine to the ounce. The strength should be gradually increased so that at the end of a year one grain to the ounce is employed, at the end of the second year two grains, and at the end of the third year three grains to the ounce solution. This strength will suffice to maintain the pupils at the desired point of almost pin-point contraction. Physostigmine should be employed in half the strength of pilocarpine and should be increased in solutions of equal proportions. Conjunctival irritation can usually be avoided by employing only fresh and sterile solutions of the miotics and by frequent cleansing of the conjunctiva by boracic acid solution. Should such irritation arise local applications of argyrol and flushing of the conjunctiva with mild lotions, conjoined with the use of ice compresses and a weakened dose of the miotic, will usually occasion its prompt disappearance.

8. Pineal Gland.—C. P. McCord concludes from his experiments that some of the changes generally attributed to deficiency of pineal secretion may be produced by supplying an added amount of pineal substance. In an effort to reduce to rationality the identical findings derived from two opposing sources the so-called destructive neoplasms of the pineal gland on the one hand and the feeding of the gland on the other there arise two possibilities: First, this syndrome may appear from disrupting the general endocrinous balance from either increasing or decreasing the amount of pineal secretion available for the body's use; second, the cells of the neoplasms involving the pineal gland may retain some of the metabolic and other functional characteristics of the normal pineal cells from which they were derived, and the peculiar bodily, sexual and mental changes in patients with such tumors are all manifestations of increased rather than of decreased pineal activity. One

of the most frequently occurring lesions of the pineal gland is the adenoma, and there is abundant evidence that at times the cells of an adenoma may functionate after the manner of the cells from which they arise. The administration of minute quantities of pineal tissue from young animals to young animals stimulates the growth of the body, but not beyond the normal limits. There are also indications of mental and sexual precocity.

9. **Intraspinal Administration of Tetanus Antitoxin.**—W. H. Park and M. Nicoll, Jr., state that while tetanus antitoxin has proved most efficacious in the prevention of tetanus its employment as a curative agent has been much less successful. This is chiefly due to its tardy administration, insufficient dosage, and the use of the subcatenous method. A series of experiments proved the superiority of the intraspinal method of administration. The authors have obtained records of four consecutive clinical cases of tetanus in which an intraspinal injection of antitoxin was given and in which recovery ensued.

10. **Vesicovaginal Fistula and Rectovaginal Fistula.**—By H. O. Marcy. (See MEDICAL RECORD, June 27, 1914, page 1191.

11. **The Hecht-Weinberg Reaction as a Control over the Wassermann Reaction.**—R. B. H. Gradwohl states that Leredde and Rubenstein, reporting a parallel series of tests, using both the straight Wassermann technique and a method which utilized the natural amboceptor in unheated human sera (namely, the Hecht-Weinberg test), showed that the latter test developed a positive reaction in 10 per cent. more cases of syphilis than does the Wassermann reaction. Hecht and Weinberg developed a technique that utilized the emboceptor and complement present in practically all sera and refrained from heating the sera by using active or unheated sera. The group of cases in which the amount of natural amboceptor in human sera seems to play a definite rôle in making a Wassermann appear negative and a Hecht-Weinberg positive, comprise the following: Cases of ocular syphilis; cases of visceral syphilis, particularly of the liver and heart; cases of syphilis that have received intensive but inadequate treatment; provocative cases in which one is seeking to revive a Wassermann reaction in suspected cases, and cases of monosypmtomatic tertiaries. In general, in cases of what might be termed "limited" syphilis this modification will be found of great value. The use of the Hecht-Weinberg test as a control over the Wassermann reaction brings to light many cases of occult syphilis about which the clinical diagnosis is often uncertain. The author's rule is to perform both tests, and as a result of this practice he points to a series of 1,000 cases in which the Hecht-Weinberg reaction was positive in 15 per cent. more cases than the Wassermann reaction.

The Lancet.

July 11, 1914.

1. The Causes of Insanity. F. W. Mott.
2. The Treatment of Ankylostoma Anemia. H. B. Day and A. R. Ferguson.
3. A Case of Cheilotomy. W. S. Handley.
4. A Common Mode of Deferred Death After Tracheotomy for Laryngeal Diphtheria. J. Biernacki.
5. Artificial Pneumothorax; Fundamental Defects in the Accepted Technique of Inducing Pneumothorax and How to Remedy Them. W. P. Morgan.

1. **Causes of Insanity.**—F. W. Mott notes that the discovery of spirochetes in 12 out of 70 brains of general paralytics, has dispelled any doubt as to syphilis being the essential cause of this disease. Of the total admissions to the asylums of the County of London every year about 10 per cent. are general paralytics. The principal causes of mental deficiency may be summed up in the fact that as regards the functions of the organ of mind, "like tends to beget like." Mentally defective children, particularly if more than one occurs in a family are usually the offspring of parents who are imbecile or of low grade mentality. The causes of the psychoses or true insanity in which so far no adequate explanation by morphological changes in the brain exists, fall into two groups: (1) the toxic, and (2) the degenerative (neuropathic), but the two conditions are more often than not combined. The toxic causes are (a) exogenous, and (b) endogenous. The characteristic true alcoholic psychosis regarded by Kraepelin as chronic delirium tremens is not a common class of case in the asylums, although alcoholism plays an important part in the degeneracy of a stock. The neuropathic inheritance and disorders of the functions of the sexual glands play a dominant part in the causation of the true insanities. There is a marked correlation between the age at onset of insanity and the critical periods of sexual life. It is an interesting fact that in certain types of insanity, especially the primary dementia of adolescence, there occur in quite young females a great diminution of ova, signs of absence of maturation of the ova, and marked fibrosis of the gland. The author considers this to be further evidence of anticipation, by which the children of insane parents are affected at a much earlier age than the parents and in a more intense form. Modern social conditions tend to repress or suppress the natural physiological gratification of the sexual passion especially in women. Its suppression is one of the causes of insanity, especially in subjects with the neuropathic taint, for it tends to continued mental depression and the development of an anxiety-neurosis which in its turn leads to a disorder of the vital functions and a disturbance of the biochemical relations of the whole body, causing an autointoxication. Thus a vicious circle may be established by the interaction of a disordered mind and a disordered body. Dementia præcox is evidence in most cases of an ancestral neuropathic taint. Up to the time of puberty the majority of patients affected by dementia præcox have been intelligent individuals and full of promise. There is not a congenital feeblemindedness but some germinal defect, possibly of durability of the sexual glands, which has a profound influence on the function of the brain, causing at first mental disorder and finally dementia.

2. **Treatment of Ankylostoma Anemia.**—H. B. Day and A. R. Ferguson conclude that patients with slight anemia may benefit from hematinics without the expulsion of worms. But no case of decided anemia can be really improved unless the worms are expelled. Recent cases of moderate anemia from ankylostomiasis are cured by expulsion of the worms, Recovery in most chronic cases is very slow unless hematinics are given. Under treatment with vermicides and iron the rise in hemoglobin is a reliable index to the expulsion of the worms provided the marrow be in a condition to respond. The administration of simple forms of iron by mouth is more satisfactory than the use of organic compounds or hypodermic medication. Manganese cannot take the place of iron. After the expulsion of worms in a moderately severe case the recovery from anemia is quicker when arsenic is given as well as iron. In severe cases of ankylostomiasis the administration of arsenic is often essential to recovery. In such cases arsenic given by the mouth may be ineffectual but hypodermic medication generally succeeds. Arsenic by itself is useless. Iron is always essential to recovery from severe ankylostomiasis. Persistent eosinophilia after the complete expulsion of worms may be attributed to the presence of living larvæ in the tissues. Intense and persistent anemia in ankylostomiasis gen-

erally denotes exhaustion and atrophy of the bone marrow.

4. Deferred Death after Tracheotomy for Laryngeal Diphtheria.—J. Biernacki states that after temporarily successful tracheotomy there may be a return of obstruction due to loose membrane in the trachea, an issue not necessarily dangerous. Again a further growth of this membrane in the main air-passages below the tracheal incision may be responsible for secondary obstruction of a serious kind, but antitoxin treatment has materially altered the course of laryngeal diphtheria in this respect. Under present conditions it nearly always happens in cases of deferred death that severe lobular pneumonia develops. Death is usually attributed to the pneumonia but this view requires qualification. In most cases of the kind, if allowed to run their ordinary course, death is more directly the outcome of suffocation by a plug of desiccated mucus and inflammatory discharge located in the neighborhood of the tracheal bifurcation, as is proved by the immediate relief of obstruction and marked general improvement which frequently ensue when the plug is removed with forceps after such cases have become serious or are even moribund.

Berliner klinische Wochenschrift.

July 6, 1914.

Hysteroneurasthenia or Chronic Appendicitis?—Rheindorf concludes a serial article on this subject, in which numerous collateral topics are discussed. One refers to the so-called "normal appendix" removed after apparently mistaken diagnosis. The proportion of these is becoming less, as a result of improved microscopic diagnosis. The entrance of round worms in the appendix is able to set up morbid alterations. Some of the slight changes in the appendix, long deemed artefacts by the microscopist have been explained in this manner. Numerous microscopic sections show the oxyuris in relation to the lymph nodes and spaces, in which they are seen to compress the surrounding parts. Their presence in the appendix does not necessarily mean that the patient has ever suffered from seat worms. In regard to women who complain of chronic pain and tenderness over the appendix region these symptoms are certainly nervous in part. It is also true that the condition which gives rise to the nervousness may be the presence of the oxyuris in the appendix. In childhood these worms may do their damage by causing a mild form of afebrile appendicitis. The organ, throughout the resulting kinking, adhesions, fecal calculi, etc., may lead eventually to an infectious appendicitis. This sequence has never yet been demonstrated. The author concludes that vague pains in the appendix region with the latter in seemingly normal condition of the organ means in the vast number of cases that the oxyuris is at fault. In 20 to 30 per cent. of all appendicitis in adults, the organ contained the parasite while in children the percentage is 50. But in acute inflammatory cases it is as low as 12. The importance of the problem has become aggravated by the fact that we know as little about the relationship between parasites and appendicitis as we did twenty-five years ago. This lack of progress ought to lead to a special new research of the problem.

Histological Variations of Fowl Sarcoma Generated by Filtrable Virus.—Peyton Rous claims that still another variety of fowl sarcoma has been isolated. There is nothing about it to prejudice the belief that sarcoma is a true neoplasm. The foci can only be demonstrated after the malignancy of the tumor and the virulence of the agent have been heightened by repeated transplantation. In the new form the sarcoma can be made to develop only in supersensitive hens and under special circumstances. Even then the phenomena are but subordinate in degree of general neoplastic procedure. There is no special morphology, all phases being represented. The other types of fowl tumor which have been cultivated in this laboratories—osteochondrosarcoma and sarcoma with fissural blood vessels—show little resemblance to the new discovery.

Münchener medizinische Wochenschrift.

June 30, 1914.

Caramel Regimen in Diabetes.—Grafe's results from this plan of treatment are as follows: The number of cases treated was 25. Caramel, given in very large doses, hardly increased the amount of sugar in the urine, and this as a rule antagonized the acidosis. If from 100 to 150 gr. per diem are given (up to 15 per cent. of sugar content) excellent results have been obtained in acidosis. That caramel has a high combustion value is shown by the fact that severe diabetics may obtain from 600-800 utilizable calories in this fashion classed under carbohydrates. In regard to the indications for caramel, the state of the digestive organs must be borne in mind. Grape sugar caramel is better borne than the cane sugar form. Should there be any severe enteritis the disease goes from bad to worse but caramel does not aggravate it.

Influence of Sodium Bicarbonate on the Pancreatic Secretion.—Wilbrand emphasizes the fact that this salt appears in the rôle of a panacea for disorders of the digestive apparatus. The laity use it freely for any kind of indigestion, for headache which follows a debauch, etc. This common recognition justifies a research into the mode of action of soda in such conditions. Clinically soda plays a prominent rôle in the treatment of diabetes, and since the latter depends so largely on disease of the pancreas, the author, incited thereto by Cohnheim sought to determine the action of soda on the pancreatic secretion of the dog. A fistula was made which discharged bile and pancreatic juice. Sodium was given by the mouth, with meat; 100 grams of the former, coarsely minced, and 10 gm. sodium bicarbonate. A gastric fistula was also established, and during a period of several hours observations were made at short intervals. Thus during the entire period of observation—in one case for example 4 hours—the dog discharged 666½ c.c. of combined digestive fluids of which 492½ c.c. was gastric juice and bile plus pancreatic juice 72 c.c. It was evident that sodium had reduced the amount of pancreatic juice, and this reduction was the more marked if the soda was given in solution. How may this result be utilized in practice? It is known that bread causes a marked increase in the pancreatic discharge, while the flour of which the bread is made has no such property, also oatmeal, which is nevertheless of efficacy in treating diabetes. These finds suggest a law that substances which are of use in diabetes, do not incite the pancreas to secrete. In this affection absence of pancreatic internal secretion is believed to occur. That the external and internal secretions act independently was until recently the prevalent belief. Cohnheim, however, seems to have demonstrated the contrary. Sodium, oatmeal and other substances which "spare" the pancreas as to its work of external secretion. This sparing may react on the generation of more internal secretion—in other words the said "sparers" are also "hormone-exciters. The essential treatment of diabetes is therefore to spare the pancreas by alkalies, and to revise the diet (meat and milk both excite the gland).

Deutsche medizinische Wochenschrift.

June 25, 1914.

Unusual Calcification of the Arteries.—Magnus-Levy asks if arteries not the seat of arteriosclerosis can undergo a primary calcification. After narrating his case, he asks if lime can be deposited in normal tissues in general, and replies that such an event is possible if there is a saturation of the body fluids with calcium salts. As to why lime is deposited in certain organs as metastases (stomach, lungs, kidneys), this can be traced to the native acidity of the same. In certain tissues the alkalescence as a protective, and other causes must be invoked. In the capillaries lime may be precipitated by slowing of the circulation. In the ordinary sense of the word, lime metastases occur in connection with destructive disease or injuries of the bones. In the absence of the latter we can think of some constitutional anomaly affecting the entire calcium metabolism. We next reach the subject of selective deposition of lime in diseased tissues having a primary disturbance of nutrition. The author's patient showed no general tendency to arterial disease, but she had rheumatic nodules of the hands, representing a mild deposit of lime. He concludes, therefore, that the calcification, present chiefly in the arteries of the extremities, inferior mesenterie, etc., was the result of some mechanical irritation readily explained in folds like the knee and elbow.

Renal Diabetes.—Galambos gives a thorough account of this condition, with conclusions as follows: If with a chronic glycosuria with small or constant amount of sugar we have one or two affections to deal with—viz., ordinary diabetes mellitus with a degree of imperviousness of the kidneys, or a true renal diabetes. If the amount of sugar increases slightly, this points to diabetes, but if it decreases to normal or zero we have to deal with renal diabetes. If the amount of sugar cannot in any way be influenced by diet this speaks for the renal type, while the contrary speaks for simple diabetes. Acidosis occurs in the renal form just as in the latter, and hence diabetic coma can set in unless the acidosis can be controlled by diet, something not expected in renal diabetes, which is in no wise dependent on sugar metabolism. Still the carbohydrates are insufficiently oxidized, as shown by the phloridzin test. The author does not feel warranted in the belief that in any form of diabetes, the renal in particular, there can be a complete absence of the combustion element. We have seen that supposed renal cases end in acidosis, and the diagnosis must be more or less in doubt.

Ehrlich's Side Chain Theory.—Dworetzky of Moscow writes on the hypothetical and in part fictitious elements upon which it is based. It represents only a spun yarn of symbolic auxiliary conceptions. The latter, which comprise it, are individual illustrative pictures. In toto it is an invention, not a discovery; not a hypothesis, but a fiction. Receptors, complements and groups do not exist. Immunity can be understood, yet all of the preceding be ignored. The author, however, gives Ehrlich all the more credit for his results because he has not had the benefit of a real hypothesis, but has called into being something imaginary and made it indispensable as a sort of calculus. Had he had a true theory to work with—one based on many facts—he could not have done work superior to what he has already accomplished.

Deutsche medizinische Wochenschrift.

July 2, 1914.

Hygiene Exposition at Stuttgart, 1914.—Bofinger states that the need of such an exhibition (it was opened May 14) was not apparent to many, because not much time had expired since the Dresden Exposition, it nevertheless became apparent that progress had been made during the interval. The historical section was of much interest, chiefly because in the ages in which medicine was poorly developed sanitation was correspondingly well advanced. Sometimes the most primitive peoples had some sound ideas on sanitation, just as civilized peoples were at times backward in these matters. The popular section treated of the hygiene of home life, with especial reference to nutrition—with especial reference to food units and prices—the hygiene of the mouth, and sexual hygiene—limited largely to plates, models, etc., of patients with venereal disease. In a special section the epidemiology of the great world plague was recommended, tuberculosis constituting a division by itself, while another was composed of the cause and prevention of animal diseases per se and as affecting meat, milk, etc. Water supply, infantile mortality, school hygiene, exercises, abuse of alcohol were considered in succession these bearing largely on hygiene of childhood and youth. Race hygiene, called the youngest child of hygiene, naturally involves breeding, eugenics, mendelism. Its aim is to produce a race which "mendels" on its good side only. In the next group are studied especially the toxic action of useful remedies (salvarsan, etc.). Insurance and arrangements for pilgrimages for the ill form two special branches. Civic hygiene of the military type is seen in arrangements made for handling people after train wrecks. Occupation hygiene affords a wide field of variety, which seeks to illustrate the most opposite conditions—for example anthrox from the sheep and lead poisoning. The hygiene of building construction, and of good milk are compendious subjects. The section on statistics and literary journals and books complete the exposition.

Increase in Amount of Sugar in Blood of Old Diabetics.—Hirschfeld states that the kidneys of the elderly weigh less than those of adults; their secreting component is partly disappeared. The arteriosclerosis natural in these subjects is another component, and the vessels cannot respond readily to vasomotor stimuli. Evidence has recently accumulated which shows that the original conception of an arteriosclerotic nephritis is ill founded. This is practically a malignant process in which the heart is first involved. Despite the numerous attempts by leading students to show that the granular red kidney represents the main lesion, the author asserts that the absence of polyuria (which amounts often to oliguria) with collateral absence of retinal lesions, and of edema (with exclusion of gravity effects) sufficiently exclude the original conception of contracting kidneys, and associates the condition with that of senile nephritis. In diabetes of the aged, therefore, the components which constitute senile involution of the kidney may form a substratum for a special type of the latter. The poorly secreting kidney with its want of lability must be able to dispose of the blood sugar as well as the nitrogen waste. Hence, our notions of renal diabetes may require revision.

Mongolian Blue Spots.—E. A. Cockayne reports the case of an infant aged 11 months of Jewish parentage in whom the blue spots were noticed soon after birth. When first seen, when the child was nine weeks old, the spots were of a clear, slaty-blue color, unaltered by pressure. There were three very large ones on the lower part of the back, one extending into the left gluteal fold, and one on the left flank, two on the right shoulder, and one just below the left deltoid.—*Proceedings of the Royal Society of Medicine.*

Insurance Medicine.

SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

SUBSTANDARD INSURANCE.

SUBSTANDARD insurance includes the consideration of two classes of risks, the difference being simply one of degree. (1) Underaverage risks; those engaged in hazardous occupation, with only fair family history, or with some slight impairment such as poor general appearance. (2) Impaired risks; those with bad family history, with an impaired personal history, or those who have given indication in the past or are actually possessed of some organic disease. A man who is physically impaired is in greater need of insurance than a sound one, and up to a certain point this want can be supplied by some form of substandard policy. Beyond this, the practice is limited by the prohibitive cost. Generally speaking, the sources of increased hazard may be studied under the following four heads: (a) Unfavorable family history; (b) poor general appearance, surroundings, habits, and occupation; (c) previous disease with possible recurrence or with tendency to lead to other disorders; (d) existing disease or lack of vitality. These hazards may be covered by the following methods: (a) Simply increasing the premium, practised by some companies in cases of women applicants, complete deafness, or with certain occupations. (b) Advancing the age; this method is the one commonly followed at present in this country. (c) Placing a lien upon the policy which allows only a stated part of the face value of the policy to be paid if death occurs within a stated period during the earlier policy years, the amount to be paid gradually approaching face value as the policy becomes older. This is by far the most efficient method in cases where the hazard is early. In view of recent laws in certain States, however, which declare that no policy can be issued which provides at any time for the payment of less than the maximum amount in the event of death, the method cannot be followed. (d) The issuance of endowment policies to cover certain slight impairments, especially when the risk is an advancing one. This plan, however, does an injustice to the applicants who desire endowment insurance, as it throws a burden upon the class in the form of risks not good enough for the life plan policies.

No definite description of the rules or principles of any method for substandard insurance can be offered, as there are no settled or universal ideas on the subject. Companies which have written enough substandard insurance to formulate efficient methods, show no desire to impart the results of their hard-learned and expensive lessons to others. Each company has been compelled to depend upon its own individual experience and to start with empirical tables and figures until it reached the point when the substandard business becomes profitable. Furthermore, a company, even when working on a large scale, finds it necessary to continually revise its estimates, lowering the rate on one hand when it is found that too heavy a charge is being imposed on a certain class, or, on the other hand, raising the rate on a certain class when it is discovered that this part of the business is transacted at a loss. A substandard business should be profitable, and, at the same time, fair to policyholders.

In some instances the agency staffs have expressed a decided preference to have their respective companies refrain from transacting life insurance on substandard plans on the theory that the approving officers will be tempted into throwing many border-line risks into the substandard class when, if no such alternative is at hand, a regular contract will be issued. This objection would seem to be warranted if we were to judge by some of the cases in which substandard policies have been offered.

It is impossible, then, to present definite tables and figures upon which a company could begin to undertake the insuring of substandard lives without waiting for their own experience to show the way. The methods and degrees of rating not only vary in the different companies, but it is also found that the ratings in the same company prove inadequate for certain sections of the country, though appropriate for other parts of its territory. General statistics cannot be depended upon for a starting point. Even the tables of the Medico-Actuarial Investigation Committee are often misleading in giving the comparative mortalities. The failure of this far-reaching investigation to give positive and definite results in all its findings is due to the small number of deaths found in some classes, and to the effects of over-selection or under-selection in others.

In order to build up a satisfactory system for insuring impaired risks, the medical and the actuarial departments must act in conjunction for ascertaining the percentage of mortality in the different classes, according to the general and to their individual experience. Having learned the rates of mortality, the actuaries will compile tables from the results which convert the percentages of death rates into the number of years to be added to the age of the applicant, the premium charged being that due for the advanced age. The ratings of these tables should vary with the form of policy. There is a fairly wide difference in rates for life and endowment forms of policies in the younger ages, but as the age advances the difference in the premiums becomes less and less.

In making up a system it will help the actuary but little in determining the premium to be charged if he only has as data the number alive at the beginning of a term of years and the number of the original group living at the end of the period. He must have the deaths year by year. One of the chief factors to be considered is whether the hazard is an early one, such as that belonging to consumptive family histories, or is continuously the same as in occupations, or is an increasing one such as in the case of overweights, rheumatism, gout, or syphilis. The early hazards are difficult to rate properly, for if a sufficient advance of years is added to allow for the early risk, a hardship is created for the later policy years. The Armstrong law is responsible for this difficulty, as prior to its enactment the early hazards were amply provided for by means of a lien upon the contract during the early policy years. In other words, this method allowed substandard insurance to be transacted in the full meaning of the term. If a sufficient number of years is not added to such lives, an injustice is done towards the other policyholders. While consistency cannot be expected to be faithfully observed in all the classes, one thing is imperative—the substandard business must be completely separated on the books from the standard in order to preclude any unfair treatment of the latter and to allow a readjustment of the extra charges to the former.

Book Reviews.

PSYCHANALYSIS. Its Theories and Practical Application. By A. A. BRILL, Ph.B., M.D., Chief of the Clinic of Psychiatry and Clinical Assistant in Neurology, Columbia University Medical School; Chief of the Neurological Department of the Bronx Hospital and Dispensary; formerly Assistant Physician to Central Islip State Hospital and to the Clinic of Psychiatry, Zurich. Second Edition, thoroughly revised. Price $3.00 net. Philadelphia and London: W. B. Saunders Company, 1914.

THIS is a reproduction and exposition of Freud's ideas and a practical application of his theories in the treatment of the neuroses and certain psychoses. It is easy to see that the writer is an enthusiastic follower of and believer in Freud, and he claims that recent psychanalytic literature either confirms Freud's theories or has provoked merely academic discussion and criticism long since, to his mind, satisfactorily answered. We, therefore, browse in a purely Freudian field. The field must be more or less popular. The first edition appeared barely a year and a half ago and was quickly exhausted. The present edition shows some revision, but chiefly enlargement by the addition of new matter. Added matter comprises chiefly discussion on artificial dreams; examples of analyzed dreams; a chapter on the unconscious factors in neuroses; a discussion of "collecting manias," and of pathological homosexuality, and a chapter on fairy tales as a determinant of dreams and neurotic symptoms. Several abstract case histories are interpolated, and a glossary of psychoanalytic and psychosexual terms has been added for the uninitiated.

The reviewer, while acknowledging the many merits of the present publication, asks if the author has not possibly kept too rigidly to the dominant sexual theories of Freud, and in so doing may not have partially neglected to give us an exposition of the evolution of those theories to a broader human experience.

PLAIN RULES FOR THE USE OF TUBERCULIN. By R. ALLAN BENNETT, M.B., London; 48 pages; price $1.00. New York: William Wood & Company, 1914.

IN this little volume of less than fifty pages one finds an excellent exposition of the specific therapy of tuberculosis. The author divides the tuberculins into soluble (T.O.A. and T.O.) and insoluble (T.R. and B.E.) ones, the former containing apparently the metabolic products of the bacilli—the exotoxins, the latter the bacillary bodies themselves—endotoxins. Besides the human source, all these culture products can, of course, also be obtained from bovine sources, and it is interesting to see the author make the statement that it is easier to pursue the treatment of most cases with bovine tuberculin, and this in surgical as well as in pulmonary tuberculosis. The author very strongly opposes the idea that a powerful reaction is not a bad thing and he insists that it should always be avoided by beginning with the smallest possible doses and with necessary intervals. As a whole, the author's views are sound and conservative and the book deserves a careful perusal by all interested in specific therapy.

TRAITEMENT EFFICACE ET PRATIQUE DE LA TUBERCULOSE PULMONAIRE, Par le Dr. J. F. LARRIEU. Price, 2 Francs. Paris: Librairie Vigot Frères, 1914.

THE author of this little book represents the modern school of French phthisiotherapeutists, which is very nearly like that of other countries, with the exception that our French colleagues are much more in favor of medicinal treatment than we care to be in this country. Many prescriptions are given, including the iodides, the bromides, strychnine, quinine, benzoates, turpentines, tannins, and others. Good results are claimed from such medication and some of the prescriptions may be well worth a trial.

RECENT STUDIES OF TUBERCULOSIS; Medical Symposium Series, No. 3. Price, $1.50. St. Louis, Mo.: Interstate Medical Journal, 1914.

THE Interstate Medical Journal has published in a volume the various contributions which appeared in that journal, under its Medical Symposium No. 3. The book is entitled "Recent Studies of Tuberculosis." The volume contains 300 pages of excellent reading matter for any one interested in the tuberculosis problem in its medical, surgical, purely scientific, or social aspect. There are no less than 41 contributors and among them some of the best known authors on the various phases of tuberculosis. Thus, for example, Myer Solis-Cohen writes on Apparent Toxicity of Infinitesimal Doses of Tuberculin; H. Gideon Wells on Chemotherapy of Tuberculosis; Guy Hinsdale on Heliotherapy; John B. Murphy on Pneumothorax; Edward E. Myers on Turtle Tuberculin; Fishberg on Psychic Traits of the Tuberculous; Bucher and Chamberlin on Alcoholic Injection in Laryngeal Tuberculosis: A. C. Jacobson on Tuberculosis and Genius; Mr. John von Pelt, a well-known architect, writes on Open Air Schools and Their Construction. The other contributions are equally interesting but space forbids mentioning them all.

CONFÉRENCES DE RADIUMBIOLOGIE. Faites à l'Université de Gand en 1913 par MM. JACQUES DANNE, PAUL GIRARD, HENRI COUTARD, GASTON DANNE, sous les auspices de MM. JACQUES DANNE, Directeur du Laboratoire de Radioactivité de Gif, et J. de Nobele, Professor à l'Université de Gand. Ouvrage publié par la Société Belge de Radiologie. Price, 6 Francs. Bruxelles: L. Severeyns, Editeur, 1914.

THIS monograph of 148 pages contains an excellent review of the physics and chemistry of radium and other radioactive substances, and the methods of applying them, not only in solid form but also as emanations and solutions. There are in addition illustrations of a number of cases of epithelioma and angioma of the face successfully treated with the various rays emitted by radium. The cases are all of the type which, as is well known, is particularly susceptible to the action of radium. An excellent, classified bibliography of 62 pages is appended to the work. While convenient in form for those who read French, the volume contains but little that is not already known, and omits some important matter which has recently appeared in French and English journals.

OPHTHALMIC SURGERY. A Treatise on Surgical Operations Pertaining to the Eye and Its Appendages, with Chapters on Para-Operative Technic and Management of Instruments by CHARLES H. BEARD, M.D., Fellow of the American College of Surgeons; Surgeon to the Illinois Charitable Eye and Ear Infirmary; Oculist to the Passavant Memorial Hospital, Chicago; Ex-President of the Chicago Ophthalmological Society, Etc. Second Edition. Revised and Enlarged with 9 Plates, Showing 100 Instruments and 374 Other Illustrations. Price, $5. Philadelphia: P. Blakiston's Son & Co., 1914.

THE second edition of Beard's work is excellent. It is a volume of 745 pages, abundantly and well illustrated, and well printed. The first chapter entitled "Para-operative Technic," has to do with dressing, sterilization, anesthesia, bloodletting, etc. A chapter on instruments is followed by chapters on the various parts of the eye and its appendages. The work is the product of a conservative, well-trained mind in a man who has during a long and ample experience had time to carefully weigh and to put a correct value on the different procedures described, and to properly present them. There is much of the personal element in the work, but not more than is warranted by the careful preparation and long experience of the author. Of the works in English on the operative technique of the eye this is certainly one of the best.

TASCHENBUCH DER AUGENHEILKUNDE FUR ÄRZTE UND STUDIERENDE. Von Dr. CURT ADAM Direktor des Kaiserin Friedrich-Hauses für das Ärztliche Fortbildungswesen und Priv.-Doz. für Augenheilkunde an der Universität Berlin. Dritte, vermehrte und verbesserte Auflage. Mit 71 Textabbildungen, 4 fabrigen und 1 schwarzen Tafel. Price, $2. Berlin and Vienna: Urban & Schwarzenberg, 1914.

THE third appearance of this work within six years attests to its popularity with those who are interested in ophthalmology. The volume is one of 395 pages, of convenient size for carrying in the pocket. A feature of the work is the space given to the consideration of syphilis and tuberculosis in eye diseases. The diagnosis and the therapy of these conditions is fully considered. Preventive, curative, and immunitive problems are presented in this work to a fuller degree than in other works on eye diseases of much greater volume. Differential diagnosis is made a feature. A quite extensive formulary found at the end of the book will be welcomed by the beginner. Rules and regulations regarding the requirements of the German army and navy service are included. The work is heartily recommended for students particularly.

THE CLINICS OF JOHN B. MURPHY, M.D. Vol. III, No. 2 (April) Octavo of 213 pages with 55 illustrations. Published Bi-Monthly. Price per year, Paper, $8; Cloth, $12. Philadelphia and London: W. B. Saunders Co., 1914.

IT is almost a Herculean task for anyone, no matter how distinguished as a teacher and operator, to furnish interesting material in the form of clinical lectures addressed to practically the same audience, through publication, for any considerable length of time; and while there is probably no one better qualified than Murphy to put through such an undertaking without soon reaching the stage of repetition and elaboration of inconsequential detail, it has seemed to the reviewer that the last few numbers of the clinics have shown that the task was fast becoming too great even for him. This was foreshadowed to a certain extent in the December number by the printing in considerable detail of a Students' Clinic (for which apology was made in the same issue by the editor), by printing the list of cases operated upon before the Clinical Congress (a matter of somewhat questionable propriety), and by the increasing amount of space that was being allotted to the remarks of visiting confrères. With the present issue, however, Murphy enlarges his field by incorporating the consideration of some of the problems of surgical and general diagnosis. This makes the present number much more interesting and valuable than some of its predecessors; and since the field of surgical diagnosis is large, we may be sure that the clinics will again take on the snap and verve that was so characteristic of the earlier issues. The importation of outside talent is still in evidence, nevertheless, in this issue.

MONOGRAPHS ON BIOCHEMISTRY. NUCLEIC ACIDS. Their Chemical Properties and Physiological Conduct. By WALTER JONES, Ph.D., Professor of Physiological Chemistry in the Johns Hopkins Medical School. Price, $1.10. THE SIMPLER NATURAL BASES. By GEORGE BARGER, M.A., D.Sc. Formerly Fellow of King's College, Cambridge, Professor of Chemistry in the Royal Holloway College, University of London. London, New York, Bombay, and Calcutta: Longmans, Green and Co., 1914. Price, $1.80.

THESE two additions to the series of monographs on biochemistry edited by Drs. Plimmer and Hopkins carry out very fully the idea of the projectors of the plan. This is to provide detached treatises on various departments of biochemistry, each complete in itself and affording a review of all the knowledge available on that particular subject so that as necessity requires a new edition of each monograph may be prepared and the series be kept abreast of the progress made, without the expense of reissuing the whole set as is the case in the large textbooks. The success of the preceding numbers proves the value of the undertaking and the present volumes will be found most useful members of the work. The great amount of investigation that is being carried on in connection with the disorders of metabolism, particularly on gout, gives especial interest to Dr. Jones' summary of what is known concerning the nucleic acids. The introduction comprises an historical survey of the discovery of these bodies and a general description of their properties. Thymus nucleic acid and yeast nucleic acid are then discussed in detail together with their derivatives. The second part of the book on the physiological conduct of nucleic acids is particularly enlightening owing to the endless amount of confusing and often contradictory material that is to be found in the literature. This is all critically winnowed by Dr. Jones and it is shown that many of the discordant results reported have been due to imperfect analytical methods, and also to the use of organs from animals of different species. The accumulated evidence indicates that whereas in the lower animals the end product of purin metabolism is allantoin, in man it is uric acid, and that the human organism does not contain uricase The origin of the urinary uric acid is still open to debate, "but if one is inclined to believe that uric acid is not formed in the body from nucleic acid, he should at least note that the body is equipped with a mechanism that can effect all of the transformations necessary to its formation.

Of no less interest is Dr. Barger's volume on the so-called natural bases, which he defines as substances which are precipitated by phosphotungstic acid. Among these are bodies of such physiological importance as epinephrin, secretin, the active principle of the pituitary gland, and spermin. The list also includes vitamin, the substance which is abstracted from rice when the pericarp is removed in polishing the grain, and the absence of which leads to beri-beri in those who subsist on rice so treated. The terms ptomaine and leucomaine, which are now abandoned, include numerous substances which have been isolated and are separately described. The volume closes with an extensive appendix in which methods for the isolation of the bases are given and their special properties are discussed. Both volumes include comprehensive bibliographies, and may well be termed indispensable for all biochemical workers.

BEDSIDE HEMATOLOGY. An Introduction to the Clinical Study of the So-Called Blood Diseases and of Allied Disorders. By GORDON R. WARD, M.D. (Lond.), Fellow of the Royal Society of Medicine, Medical Society of London, etc. Illustrated. Philadelphia and London; W. B. Saunders Company, 1914. Price, $3.50.

As the title indicates this volume is more especially concerned with the clinical aspects of hematology, the methods of blood examination and the technic of their application receiving very little space. Indeed the chapter devoted to the latter subject is so very brief that it might well have been omitted altogether, for it contains nothing of importance to the practiced worker, while it is altogether inadequate for the needs of the beginner. Judged from the standpoint of the author's purpose, however, the book is an important contribution to the literature of the blood diseases and presents much that is original and interesting. The classification of these disorders has always been unsatisfactory and will remain so until more is known in regard to the etiology of many of them, but the author's grouping is a logical one and affords a practical working scheme. From the clinical standpoint it is perfectly possible to arrange the blood diseases under the headings adopted, viz., generalized and localized affections of the blood forming tissues, affections of red cell formation and destruction, affections of circulating red cells, affections of white cell formation and destruction, and finally, affections of the plasma, and the plan has the merit of simplicity. Many subjects that usually receive scant attention are treated at some length, for example infective methemoglobinemia or microbic cyanosis, and sulphhemoglobinemia. The etiology of the latter condition is still obscure but the author is of the opinion that it is of intestinal origin, probably through the action of some bacterial organism, and suggests for the treatment relief of intestinal stasis, which in some cases may require appendicostomy, ileosigmoidostomy, or even excision of the colon. Pernicious anemia also he regards as a specific infection with an intestinal organism which is possibly a variant of the colon bacillus, though he admits the importance of oral sepsis as producing lesions permitting the additional absorption of bacterial toxins. He considers the disease curable, though the treatment described comprises nothing essentially new. His opinion of transfusion is not very high and he concludes that the only application of this method which rests on a satisfactory theoretical basis is the intravenous administration of very small quantities of red cell suspensions, *e. g.* one c.c. of a 25 per cent. suspension given every three or four days. He is also rather doubtful of the value of benzol in the treatment of leukemia and ascribes greater efficacy to arsenic and the *x*-rays. An occasional slip of the pen may be noted, such for example as the statement that in lymphemia "the virility of male and female patients is not affected." An omission of some importance is the failure to mention the oxidase reaction as an aid in differentiating the acute lymphemias and myelemias. The author still describes the transitional leucocyte as a younger form of the polymorphonuclear neutrophile, though this view has been abandoned by most hematologists. However, as the book presents definite personal opinions founded on clinical observation it deserves the careful consideration of all internists.

CONSIDÉRATIONS BIOLOGIQUES SUR LE CANCER. Par FÉLIX LE DANTEC, Chargé du cours de biologie a la Sorbonne. Price, 1 franc. Paris: A. Poinat, Éditeur, 1914.

IN this interesting little pamphlet there is discussed the biological aspects of cancer from the viewpoint, not of a trained pathologist, but of one whose lifework has been along the lines of general biology. The parasitic and cellular theories of cancer are discussed in a broad fashion. There is but little in the paper which will be of interest to the physician; it is intended rather for the specialist in the field of cancer research.

Society Reports.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held May 25, 1914.

THE PRESIDENT, DR. T. PASSMORE BERENS, IN THE CHAIR.

THE evening was devoted to the study of the *Bacillus coli*, which was considered under the following headings:

Cultural Characteristics.—DR. WILLIAM C. THRO said that it was indeed surprising to learn the number of pathological lesions that might be caused by this common bacillus. When injected into small animals death from septicemia usually followed in a short time. Among other lesions might be mentioned peritonitis, pleurisy, meningitis, inflammations of the genitourinary tract, and the bacilli might even be found in the sputum in lobar pneumonia. The colon bacillus had always been of interest to the bacteriologist because of its relation to the typhoid group, but as its occurrence as a disease producer became better known it assumed importance to the surgeon and to the physician. The use of vaccines had also caused its recognition to rise in importance as well as its value as an indicator of the fecal contamination of water. This bacillus was a member of the great group of Gram negative rods, including typhoid, paratyphoid, Friedlander's pneumobacillus, etc. From recent experiments it had been shown that it was very difficult to demonstrate flagellæ in the colon bacillus, more so than in the typhoid organism. When they were present they were fewer in number and shorter than the flagellæ of the typhoid bacillus. The production of indol in Dunham's peptone after forty-eight hours' growth was one of the most valuable characteristics by which it might be separated from the *B. typhosus*. It was also distinguishable from the typhoid organism by a more abundant brownish growth on potato media. One of its most differential characteristics was its great power as a fermenter of lactose in litmus and lactose agar. The carbohydrates had been extensively used in the separation of the typhoid group. By the use of the carbohydrates the colon group itself had been separated into many subgroups. Indeed, it might be that one group was derived from the other. Among the newer differential media might be mentioned that of Conradi and Drigalski, in which the colon colonies appeared red and the typhoid and partyphoid blue. Another of these media was neutral red, in which the colon bacilli produced gas and removed color, or reduced it, while the typhoid and paratyphoid did not behave in this way. In Eudo's media the colon colony was bright red and the typhoid colorless. In McConkey's bile salt lactose the colon bacillus was crimson, while the typhoid was not. Some of the latest work had been along the line of substances that inhibited the growth of the colon bacilli, but allowed the typhoid and paratyphoid to grow, like malachite green and brilliant green. The urine was the most common of the materials sent to the laboratory for examination for the *B. coli*. Such a specimen should be sent in a sterile bottle, and preferably should be obtained by catheter. Usually all the media mentioned were not employed, but they were content with the Gram stain, the presence or absence of motility, the indol test, litmus milk test, and the Conradi and lactose litmus agar tests. From personal experience the essayist felt convinced of the value of vaccine therapy in colon infections of the genitourinary tract.

Bacillus Coli Infections in Infancy and Early Life.—DR. W. MORGAN HARTSHORN read this paper. (Will be published later.)

Colon Bacillus Infections of the Kidney.—DR. HENRY DAWSON FURNISS presented this paper, in which he stated that the colon bacillus was found in such a large majority of renal infections that the finding of other organisms in the culture was regarded as a fault in technique unless the colonies were numerous. The following five questions were propounded and answered: Why were the urinary organs so susceptible to the colon bacillus? Tissues of the body had a certain tolerance or immunity to different infections gained by harboring the infectious organism for shorter or longer times. Again the resistance of certain tissue to certain organisms was inherited. A tissue without this inherited or acquired resistance was very susceptible. Since the origin of man he had probably harbored the colon bacilli in the intestinal tract, but at no time had the urinary organs been the natural habitat of the colon bacillus, and its introduction on such a virgin soil was generally attended with an inflammatory reaction. Furthermore, there were some two hundred strains of colon bacilli and it did not follow that immunity to one strain conferred immunity to all the others. What were the predisposing factors? Conditions causing obstruction with retention and lack of drainage predisposed to infection. Factors lowering the vitality of the body in general and of the urinary tract in particular, such as depressing illnesses, congestions of the kidney from toxemia and exposure to the cold, rendering the kidneys more susceptible to infection. The greater frequency of the infection of the right kidney was probably due to its greater mobility. What were the exciting causes? Among the exciting causes might be mentioned infectious foci, such as furuncles, carbuncles, tonsillitis, abscesses, infected wounds, scarlet fever, whooping-cough, and intestinal diseases, as diarrhea, constipation, Hirschsprung's disease, typhoid, paratyphoid, and appendicitis. Most of these conditions were due to other bacteria, but they paved the way for the colon bacillus. How did it gain entrance? The evidence at present was not sufficient to determine with certainty the method of infection. The preponderance of opinion was in favor of hematogenous infection in the greater number of cases; lymphatic extension in some, and ascending infection in few, if any. In the author's opinion most of the renal infections were due to the breaking up of infected thrombi that found lodgment in the kidney where they developed. The kidney was capable of eliminating many bacteria without being damaged, but factors which caused undue congestion and faulty drainage favored infection. At the meeting last year of the American Medical Association the essayist had reported nine cases of postoperative renal infection, most of which were of colon bacillus origin. A point in favor of these being of hematogenous origin was that pus was seldom found in the urine in the first two or three days of the infection. This seemed to indicate that the renal parenchyma was first infected and the pelvis secondarily. What was the natural course of these infections? There were two classes of cases: 1. Those in whom the onset was gradual and in whon it was almost impossible to determine when the infection took place. 2. Those cases in which the infection was acute. It was essential to determine the infectious organism; patients with colon bacillus infection usually recovered without operation, while the fulminating type due to streptococcus and staphylococcus often demanded a prompt nephrectomy. These cases were usually over their acute symptoms in from five to twelve days. The recovery was complete or they persisted as a pyelitis. Pyelitis cases had exacerbations which were brought on by conditions causing congestions or interference with pelvic drainage. Another type of infection showed ulceration of the tips of the papillæ with no dilatation of the pelvis. This form was actively destructive and not very amenable to palliative treatment. There was still another type in which the kidney was converted into several large pus sacs. Usually patients with this form showed evidences of sepsis and as the diagnosis was usually not made for some time they usually became much run down and emaciated. In treating the acute hematogenous form of the infection the patient was put to bed, given large quantities of water, urotropin, fifteen grains every six hours, and, if the urine was not acid, twenty grains of acid sodium phosphate three times daily, but not while giving the urotropin. The lumbar region was dry-cupped once or twice daily, and an electric pad was applied continuously. A temperature over 102° F. was controlled by alcohol sponging. After the subsidence of the acute symptoms autogenous vaccines were of benefit not only in accelerating recovery, but also in increasing the patient's resistance so that recurrence would be prevented. In the pyelitis cases they attempted to give proper support to the kidney by bandaging and corseting, administered salol or urotropin, gave large quantities of water, injected autogenous vaccines, and built up the general condition. If this did not suffice, the pelvis of the kidney was irrigated with one-half to one per cent. nitrate of silver every five to seven days. At the same time search was made for the primary infecting source, and it was eradicated. The combined functional capacity of the two kidneys was determined and then the relative. For the combined function he used phenolsulphonephthalein; to determine the relative capacity, he used

10 c.c. of a three-tenths of one per cent. solution of indigo carmine intravenously, and then observed the elimination from the two ureters through the cystoscope. If it was determined that one kidney was good and the other functionally greatly damaged, then the damaged kidney had best be removed. For the ulcerative and pus kidney nephrectomy was best, and if this was impossible then drainage should be resorted to. In many cases of arthritis the focus of infection was to be found in colon infection of the kidneys, and treatment of the renal infection would materially affect the joint condition. Their best results with vaccines had been obtained in the cases in which there was an involvement of the renal parenchyma. In the cystitis cases they had been of some value and were a useful adjuvant. Stock vaccines were of little or no benefit, and autogenous vaccines must be used. If the patient was taking urotropin, this might have to be discontinued for twenty-four to forty-eight hours, or the colon bacilli would not grow, even though they might be seen in the urine microscopically.

The Bacillus Coli Infections During Pregnancy and the Puerperium.—Dr. FRANKLIN A. DORMAN read this paper. He stated that the intimate association of the intestinal tract with the generative tract and the interference with the normal mechanics of intestinal action by the growing uterus easily accounted for colon bacilli infections during gestation and the puerperium. Of the various disorders that might be due to this organism he first considered pyelitis. The entrance of the infection in this condition had been variously given as ascending direct, by the lymphatics, or by the blood channels. The pressure of the gravid uterus aided in localizing the lesion as was shown by its occurrence in the great majority of cases in the pelvis of the right kidney, the side to which the womb was usually deflected during the latter months of pregnancy. In the large percentage of pyelitis cases the colon bacillus was the offending organism. The infection usually occurred during the early months of pregnancy. The first recognized symptoms might occur during the puerperium and in such instances one was usually forced to conclude that the condition had had an antepartum existence. The general practitioner and the obstetrician must become more alert to detect this condition. Pyelitis in pregnancy rarely went into infection of the kidney parenchyma. The termination of pregnancy usually favored its cure, but this did not seem to be a necessary therapeutic resort. Active treatment consisted first of postural treatment, the patient being kept in the recumbent position and most of the time on the side away from the infection, with the elevation of the head of the bed. Pain and fever were relieved by an ice-bag to the lumbar region involved. Occasionally a sedative might be necessary. Forced fluids were important in assisting drainage. A diet of buttermilk or pasteurized milk was recommended, and liberal doses of urotropin had seemed of value in diminishing the severity of the bacilli. If the infection persisted autogenous vaccines would be of value. In obstinate cases irrigation was usually curative. An appendicitis coincident with the pregnant state was usually a colon bacilli infection. Of course during pregnancy the suppurative or perforating forms of appendicitis were more dangerous than to the normal patient, the danger increasing the nearer the attack approached labor. An acute appendicitis with onset in the puerperium was apt to be severe. Diagnosis was sometimes masked with other symptoms and the rigidity and location of the tenderness was not so definitely marked. The woman with a chronic appendicitis who was desirous of bearing children had an additional reason for the removal of her appendix. Statistics proved that should she conceive, the chances were greater than ever that the appendix would give her trouble. Temporizing was most dangerous. If pregnancy was advanced the incision should be high, and every effort should be made to avoid the onset of labor. This might be accomplished by the liberal use of opium. In case acute appendicitis was coincident with labor, the safest resort in the presence of pus would be a cesarean section, with Porro operation and pelvic drainage. The statement had been made by De Lee that pregnancy seemed to be a feature of the development of gallstones. In this condition active and severe symptoms might call for operative interference at any time, and A. B. Davis claimed that pregnancy formed no contraindication to the operation. At or near term the uterus might cause difficulty by its position. During labor a distended infected gall-bladder might be confused with or mistaken for puerperal sepsis. Uterine infections of most varied types would not infrequently give evidence of colon bacilli origin or participation. The infection might occur from extrusion of fecal matter during the last stage of labor, associated with vaginal manipulation, or tamponade of the uterus, especially where there had been a tear involving the sphincter. It had seemed to the writer that in some cases the infection was due to infected urine. The colon bacilli might be in association with other pus organisms, and then the virulence seemed to be enhanced. The colon bacillus infection was apt to develop metastases and parametric abscesses were common. Its tendency seemed to be to localize. Prevention was most important in dealing with puerperal infection and this meant care in regard to asepsis and special care if intrauterine manipulation had to be conducted. Examples of divers effects of colon bacillus infection were mentioned as curiosities, such as coincident tubal infections, breast abscesses, colon infections of ovarian cysts, or of degenerative fibroids. There were also authentic cases of navel infection and pyemia of the newborn from the same cause.

Gynecological Conditions Due to the Bacillus Coli.—Dr. WILLIAM E. STUDDIFORD discussed this phase of the subject. As to the frequency of colon bacillus infection, it might be noted that Foskett had reported 34 cases in three years prior to 1914. Ten of these were cases of pyelitis and cystitis without operations, and thirteen puerperal cases, in eleven of which the colon bacillus was found in the urine. In one case they were found in the blood and in another in a cyst of the ovary following hydatid mole infection with the colon bacilli. After three abdominal sections the colon bacilli were found in the urine. Colon bacilli was found in one interposition operation for prolapse in this series and in six cases of pelvic or ovarian abscess. Some of the diagnostic points were abdominal pain, localized to the infected section; a high leucocyte count; a polymorphonuclear count above 80 per cent. and cloudy acid urine which might be confused with the typhoid appearance. Examination of the urine of 139 cases admitted to the hospital since January 1 showed 92 sterile, 28 infected with colon bacilli, 14 with streptococcus, three with staphylococcus, and two with the tubercle bacilli. A plan of treatment that would be an aid in lowering the morbidity from this cause was the giving of high colonic irrigations and urotropin and soda benzoate in large doses for several days before and after abdominal and plastic operations. A buttermilk diet should also be given and iodine should be used in pelvic operations. The essayist concluded that: (1) Infections by the colon bacillus were a distinct condition in gynecological and obstetrical cases. (2) Pyelitis infection might be confused with typhoid fever, appendicitis, salpingitis, or puerperal sepsis. (3) Cultures of urine should be made in all doubtful cases, and in hospital practice every case admitted should have a bacteriological examination of the urine made.

Dr. EDWARD L. KELLOGG discussed this subject from the standpoint of the internist. He said that if he had given this subject more consideration he would have declined to discuss a subject in which the clinician could hope to present little of value, when there were such able pathologists working upon it. It was to the work of Herter that he was particularly indebted for his limited knowledge of this subject. As a gastroenterologist he had found it desirable to consider the *Bacillus coli*, not as a distinct entity, but in connection with the allied or antagonistic bacteria found in the intestinal tract. Without doubt it furnished one of the strongest defenses against the action of the other less desirable inhabitants of the intestinal tract, but apparently it was necessary to keep it in its natural environment if the individual was to be protected against its injurious effects. Turck had shown that this organism might bear an important relation to the production of duodenal ulcer, and in a series of cases which the speaker had conducted during the past two years he had frequently found this organism in the duodenal fluid in cases of duodenal ulcer and gall-bladder infection, although usually absent under other conditions. In combating the activities of the colon bacilli the primary trouble had been intestinal stasis, and this had proven true in several cases of *Bacillus coli* infection of the kidneys that resisted treatment until the stasis was relieved or controlled. All were familiar with the inhibitive action of the *Bacillus coli* in the colon on the activities of such bacteria as the *B. acrogenes capsulatus* and other putrefactive anaerobes. Clinically in the study of cases showing abnormal activity of the

intestinal flora a proper realization of abnormal mechanical conditions in the intestines was essential and the treatment was in large part the relief or control of such mechanical defects.

THE PRACTITIONERS' SOCIETY OF NEW YORK

Two Hundred and Sixty-third Regular Meeting, Held May 1, 1914.

DR. V. P. GIBNEY, IN THE CHAIR.

Cretinism.—Dr. W. GILMAN THOMPSON presented a patient, a cretin, thirty-six years of age. The patient had been born before the days of thyroid extract treatment. Mentally he was not without some development, being able to read his name and write one or two words; attempts had been made to send him to school, but without benefit; the gargoyle physiognomy was noticeable. He did not know anything about his parentage. He had been operated upon several years ago at a hospital and had had sheep's thyroid transplanted into his kidneys. This had resulted in a remarkable group of stones, bilateral, as shown by *x*-ray plates. He had pyuria, but was apparently in fair health. The limbs showed a fair development in proportion to the head. The teeth in the lower jaw were almost horizontal. The boy had had thyroid extract given him when at times he became dull and stupid. Occasional doses of thyroid improved his mental condition somewhat.

Dr. GIBSON said he had seen a case at Coca's clinic in which a piece of thyroid had been put into the spleen and it had worked pretty well. The patient had been about twelve years of age at the time, and at sixteen years she was pretty nearly normal, but she had a large goiter of the spleen. This had assumed the characteristics of a thyroid tumor and she had come in for a splenectomy.

Dr. ABBE asked whether the transplant in Dr. Thompson's case had been made into the pelvis or the parenchyma of the kidney.

Dr. THOMPSON said the transplant was made into the pelvis of the kidneys. There was no other explanation for the quantity of stones.

Case of Hypopituitarism.—Dr. THOMPSON also presented this case. The patient was a young man, twenty-two years old, described by his parents as being "foolish but not dull" as a boy. There was no family history except that in one picture taken with two sisters, one sister exhibited somewhat the same physiognomy. The patient showed a somewhat feminine type of development. Somnolence was extremely noticeable, he would drop off to sleep while standing in the ward. He complained of no symptoms except increasing dimness of vision. The *x*-ray picture was negative as to tumor. He had a marked polyuria. There was considerable toleration for sugar, 200 grams having been taken without glycosuria. He had been getting heavier all the time but lately he had been put on pituitary extract and with the same diet had been losing weight. Whether this was a coincidence or not could not be determined. He had a general furunculosis. The Wassermann reaction was strongly positive. There was an eruption on the chest which might be syphilitic. Sexually he was undeveloped with very little evidence of pubic or axillary hair. The type of obesity was feminine, being marked over shoulders and mammary region. The case corresponded to a case Dr. Cushing had recently noted of hypopituitarism. The patient had a mild stomatitis not due to mercury.

Dr. THACHER said the sella turica looked to him rather small and asked how long the patient had been abnormal.

Dr. CONNER asked what the ophthalmoscopic examination showed and if the patient had any headaches or any epistaxis. He said it was his impression that a good many tumors arising from the pituitary gland were not associated with any enlargement of the sella and might lie almost wholly outside of it.

Dr. THOMPSON said that the patient had been nearly normal four years ago. He was employed as a tailor until one year ago. His somnolence prevented steady employment. He said there was considerable restriction of the field of vision.

Complete Removal of Tongue.—Dr. ROBERT ABBE presented this case, a man who had had the tongue completely removed. At the end of four weeks the man could speak fairly well though somewhat indistinctly. In a short time he would speak much better. With removal of the whole tongue patients could often speak as well as with half the tongue. The patient took all soft food very well and was gaining weight.

Case of Nephrectomy for Tuberculosis.—Dr. ABBE also presented this case, a woman who, seventeen years ago, came to him with tuberculosis of the kidney. She had a bad pyuria and cystitis for two years. The kidney was first drained and later removed. The cystitis was very slow to yield. The bladder was ulcerated and would only hold two ounces. It took several years to gradually become normal. For the last seven or eight years she had had a normal bladder with full retention. The patient appeared in perfect health. There was now no cystitis or tuberculosis; the urine was normal.

Dr. ROPER asked how long the tubercle bacilli remained in the urine after operation.

Dr. ABBE said he had hunted for this in the records of the case but had not been able to find it.

Dr. GIBSON said it was wonderful how long lesions would last when there was a general involvement. He had a patient who had had tubercle bacilli in the urine for fifteen years. The patient had had tuberculosis of the hip in 1889. Dr. Wier operated in the belief that it was a sarcoma. Soon after he developed tuberculosis. The treatment was conservative. He later had an involvement of the testicle; this was operated on and later he had a lesion in the prostate and bladder, lastly the second testicle. The man lived out of town and in good hygienic surroundings and held a good financial position. He had, however, severe incurable genitourinary lesions. Dr. Gibson said he knew a number of people who were going round after nephrectomy and had made apparent recoveries. Lesions in the bladder were apt to get well. You could make a diagnosis by looking at the ureter mouth. The tuberculous material was carried down the ureter. He did not believe treatment of tuberculosis of the bladder was any good. If you treated it it got worse; if it cleared up it would be of itself. He had seen big masses, almost filling the bladder, entirely disappear. Constitutional treatment gave wonderful results with some of these patients. The question of removal of symmetrical organs was a very important one. There was a tendency of the other organ to take up the work. When two kidneys were tuberculous and you took away one you laid a lot of work on the other kidney. Tuberculosis developed very rapidly in the second. If you took out the bad kidney it threw a sudden strain on the healthy one, unless the healthy kidney had already undergone a compensatory hypertrophy. If you took out a testicle in a young man the other testicle would develop tuberculosis, but later in life it was not so likely. It was worth a great deal of consideration. Dr. Gibson said he argued very strongly for the constitutional treatment of tuberculosis. He hoped that in the future there would be no such thing as a surgical tuberculosis.

Dr. BRANNAN said he was recently asked by Dr. J. F. McCarthy what provision there was in the city for taking care of chronic cases of post-operative or non-operative tuberculosis of the genitourinary tract; if none, could not something be done, as, for instance, by using some of the wards of the new Sea View Hospital for such a purpose? There was no provision for the hygienic treatment of surgical tuberculosis as there was for pulmonary tuberculosis. Children were provided for to a certain extent in these cases, but there was no place to send adult patients.

Dr. MEARA said he had recently seen a case who four years ago had had decided symptoms of bladder involvement. This went on two years and was seen by a competent genitourinary specialist who said that both ureteral orifices were involved. The bladder condition was, however, let alone and under hygienic conditions she made great improvement, though still with frequent urination. The question then arose of her marrying. A second examination was made; the kidneys were tested and the right kidney gave good function; the left kidney very little; 25 per cent. of both kidneys were involved. She was advised that she might marry but not bear children. She was advised to have the left kidney removed. She had an operation which showed that two-thirds of the left kidney was a caseous mass, but the parenchyma was not involved. The right kidney showed pyuria. The question was whether the procedure was the right one as against leaving two kidneys considering the improvement which had taken place in the time. The improvement seemed to justify leaving the condition alone.

Dr. ABBE said sometimes there was no question as to the advisability of operation. In his case the patient had a temperature of 103 . Drainage improved that. The patient had to urinate every twenty minutes. In the case of both kidneys being involved it was better to leave the patient to hygienic conditions.

Case of Sigmoid Diverticulitis.—Dr. ABBE presented this case. (See page 190.)

Dr. MEARA said he had had a case of a man whose picture duplicated that shown by Dr. Abbe. Forty-eight hours after a bismuth meal the diverticula had retained the bismuth; 24 hours later there were marked sacculations; after another 24 hours the shadows had disappeared. This showed the necessity for a long series of plates. The case was one of arthritis.

Dr. CONNER said that the evidence furnished by the radiographs seemed to him only to indicate the existence of diverticula and did not prove that the tumor was necessarily due to an inflammation of such a diverticulum, although it seemed very probable that this was the case. It was conceivable at least that the mass might be a carcinoma in spite of the evidence that diverticula existed.

Dr. ABBE said Dr. Connor's point was well taken. He could not tell until section was made that there might not also be carcinomatous change, but the essential fact demonstrated was that there was multiple diverticulitis.

Serum Treatment of Pneumonia.—Dr. J. C. ROPER presented this paper. (See page 187.)

Dr. GIBSON said the question of chills interested him. If you injected anything you could get a chill, such as that following transfusion. Had Dr. Roper tried any control experiments such as injecting normal sera from a normal horse, or immunized sera from human beings? It would be interesting to make such control experiments.

Dr. ROBINSON said that he had not attempted to use serum treatment in private practice. He thought that pneumonia in hospitals and in private practice was a very different thing. In hospital treatment of pneumonia you did not see the patient until the third or fourth day and the conditions for success were bad. Sometimes the patient pulled through, you could not tell why; sometimes they died no matter what you did. He was not impressed with serum treatment. If the cases could be taken care of early enough you got good results with other treatment.

Dr. MEARA said that he had heard the opinion of Dr. Cole that conclusions could only be drawn from a very large number of cases; that it was difficult to get this data together and that an appeal should be made to the boards of hospitals to carry out this method of investigation. The statistics so far were of little value, but if one could indeed drop the mortality 5 or 10 per cent. it was worth while. Dr. Park had spoken at a previous meeting of the amount of immune substance in normal human beings in diphtheria. He said persons who had not had diphtheria had more antibodies than those who had had diphtheria. In normal persons, therefore, there might be sufficient antibodies for the pneumococcus and perhaps transfusion of serum might be protective. This might be investigated.

Dr. CONNER asked if only single injections were given; was there any advantage in repeating the dose if single dosage did not accomplish anything?

Dr. THACHER asked if Dr. Cole had not said that the later results were not as good as the earlier ones.

Dr. THOMPSON asked what type the patients were in the last two charts; were they alcoholic? The serum undoubtedly had an effect of some sort. The investigation should certainly be pursued. The series was too short to draw conclusions. It was important to check results with the bacteriological examination of the sputum. There were variations in organism that undoubtedly caused variations in the results. At Bellevue Dr. Hastings had been treating either with sera or with vaccines; the results were not satisfactory with sera. Dr. Niles had been giving vaccines to the pneumonia cases in the service. The patients did better on vaccine treatment.

Dr. ROPER said in answer to Dr. Gibson that there was no explanation of why some patients had chills and others had not. In an attempt to exclude individual peculiarity the serum had been repeated in some of the cases after defervescence with no result as to chill. There was a slight chance that the chills might indicate some direct action on the pneumococcus by the serum, but they might be only incidental. He agreed with Dr. Meara that Dr. Cole should be given opportunity to study a large number of cases as his facilities could not be approached by a general hospital. In reply to Dr. Thacher he said he understood that many of the cases encountered by Dr. Cole this season were due to the pneumococcus classified as type 2. These cases seemed to be less amenable to serum treatment. In reply to Dr. Conner, it was thought by Dr. Eiser, in conjunction with whom this work was done, that a potent serum should give an immediate and definite result and that it should be unnecessary to repeat the dose. The action hoped for, however, could not be compared to that of diphtheria antitoxin as the pneumococcus did not produce a soluble toxin. In reply to Dr. Thompson the patients treated were of all kinds and ages. When the work was again taken up more help would be available for sputum and blood work. A number of pneumonia patients had been treated with vaccines in Dr. W. C. R. Williams' service at the New York Hospital with no apparent influence.

Conservatism in the Treatment of Disease.—Dr. BEVERLEY ROBINSON read this paper. (See page 199.)

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, Held April 9, 1914.

Dr. WILLIAM P. NORTHRUP IN THE CHAIR.

THE evening was devoted to a symposium on whooping cough.

Blue Sclera with Fragility of the Bones.—Dr. CHARLES HERRMAN presented a child, twenty months old, with blue sclera associated with fragility of the bones. The parents of the patient were healthy and had had three other healthy children who began to walk and talk at the proper age. The patient was nursed for ten months, had digestive troubles occasionally, and was always delicate. The first teeth appeared at seven months. The patient was able to sit up at nine months, but had never been able to stand alone or to talk. In December, 1913, the child fell from a chair and fractured the right tibia. About six weeks later while in bed, the cast still applied, the child fractured the right femur. On examination, the child showed a skull with a short antero-posterior diameter and prominent brow. The sclera were distinctly blue, not of a bluish tinge such as was frequently seen in tuberculous patients, but what was known as a pale china blue. There was no marked sign of rickets. The fontanelle was closed, the child had twelve teeth, no rosary or enlargement of the epiphysis. The occurrence of blue sclera in certain patients had been noted by several English ophthalmologists, Adair, Dighton, Stephenson and others. The sclera were distinctly blue and the color was uniform throughout. Bluish patches on the sclera he had noted in a number of colored children. The English observers had reported families in which several generations showed this peculiarity. It was usually transmitted through its female members. Not all the members of the family had blue sclera and not all who had blue sclera had fragile bones; but all those who had fragile bones had blue sclera. A somewhat similar sclera was occasionally seen in congenital heart disease and might be due to a similar cause, namely, a lack of fibrous tissue, allowing the choroid to show through the thin sclera. The fragility and lack of elasticity in the bones was probably due to a similar change in structure. So far as he knew no pathological examination of the sclera and bones in these cases had been made. In his own patient the radiographic examinations were made while the leg was still in the cast so that the minute structure of the bones was not shown. Now that the cast had been removed he had another radiographic examination and would present the plates at some future meeting. An interesting question was, what relation do these cases bear to those of "osteogenesis imperfecta" or "fragilitus osseum." They appeared to bear some relation to the late cases of the latter disease. However, the condition was rare and only recently described. Without careful radiological and pathological examinations this point could not be definitely decided.

The Etiology of Pertussis.—Dr. ANNA WESSELS WILLIAMS announced that they were still only able to report that they were nearing the time when they could fully demonstrate the specific etiological factor in whooping cough. Very few cases were examined from the beginning of the disease to the end; very few cases

died in the early stages of the disease so that autopsy findings were complicated by mixed infections which seemed to be the direct cause of death in the majority of the cases. Probably no case of pertussis was uncomplicated from the beginning to the end. In order to determine the presence of specific organisms in infections in this locality one should be able to study the cases from the beginning to the end under favorable conditions for isolation and observation; cases occurring in well-to-do and intelligent families were better suited for this purpose than those occurring in poor over-crowded homes, or in institutions or hospitals. The practising physician should give them help in obtaining these favorable cases. The ideal place for the study was a special hospital where the children could be treated and studied with sufficient controls. Their studies had emphasized the truth of these observations. From their study they concluded as follows. 1. Though the Bordet-Gengou bacillus had not been found in the majority of the cases of pertussis, it had been found most frequently under the best and most significant conditions and there were sufficient reasons for not finding it under other conditions. 2. The irregular reports given to the complement fixation tests in human beings might be accounted for by the different methods used without making comparative studies and sufficient controls, and by the occurrence of distinct varieties of the species *B. Pertussis*. 3. The irregular results from vaccine treatment might be accounted for by the lack of definite group work among physicians with the establishment of a general plan and sufficient controls in each series of cases studied at the same time taking into consideration the various points still under discussion. 4. The hypothesis of Mallory that the essential lesion of pertussis was chiefly a mechanical one and could only be considered as a suggestion for further study in establishing the specificity of the Bordet-Gengou bacillus.

Dr. JOHN S. BILLINGS, representing the Commissioner of Health, Dr. Goldwater, said he had been requested to describe what the Health Department was doing in regard to whooping cough and what they purposed doing. Prior to the reorganization of the Bureau of Infectious Diseases they had not been active in combating whooping cough except to require that cases be reported and that they be excluded from the schools. Cases of whooping cough were not visited. The new plan of organization of the Department which went into effect on January 1, 1914, required the sanitary supervision of whooping cough. This will be carried out by nurses as far as possible. The first month, January, had been spent in breaking in the nurses and during February and March their time was required in handling measles and scarlet fever, so that they had had so far no time for visiting whooping cough cases. As soon as possible the nurses would visit the homes of whooping cough patients. The mothers or heads of families were sent a card describing the dangers of whooping cough and giving the precautions that should be taken to protect others from the disease. When the paroxysmal cough was no longer present the child could be re-admitted to school. A comparison of the death certificates with the cases reported showed that notification was not closely observed; they had not been drastic in enforcing this measure. The nurses would keep the children under observation and if the regulations of the Department were not observed the child would be removed to the hospital. The speaker said he hoped they would soon have a whooping cough camp for these cases. Since January 1, 1914, the Department had maintained one whooping cough clinic in Brooklyn, where during other hours a Wassermann clinic was also held. This clinic was not in a tenement district and so was not patronized to any extent. In 1913 a request from the Association of Out-Patient Clinics for information in regard to the establishment of special clinics for whooping cough cases led to an investigation which showed that of 116 institutions there were 38 to which whooping cough cases applied for treatment; 78 had no such applications. Of the 38, to which whooping cough patients applied, 34 treated the cases that applied. There were two dispensaries that used vaccine and 28 that employed drugs. Five institutions had physicians visit whooping cough patients in their homes. In reply to the question "Do you report whooping cough?" 67 institutions said that they did not, while 49 said that they did report them. In reply to the question "Do you have special postals for this purpose?" 68 institutions said they had no such postals, while 48 had them. In reply to the question as to whether they wished to establish special classes for whooping cough there were no positive answers but 15 said they would consider the question. After the requirements for classes were explained to them, 101 said they could not comply with them. An inquiry into the method of examining applicants showed that 102 of the institutions did not make any preliminary examination of applicants. The requirements of the Department for special whooping cough clinics would probably be that the quarters used for this purpose should open directly on the street; that they should not be used for any other purpose; that they should be thoroughly scrubbed and cleaned after the clinic, and the windows left open during the entire time when not in use. Such clinics should be located in the tenement districts of the poorer class as it was useless to establish a clinic unless it was within walking distance of the people who would attend it. No person having whooping cough should use a public conveyance and the same care should be exercised in handling the sputum as was employed in cases of tuberculosis.

The Clinical and Sociological Aspects of Whooping Cough.—Dr. JOHN LOVETT MORSE of Boston gave this talk in which he referred to a study that he had made about a year ago in regard to the incidence and mortality of whooping cough, the results of which were embodied in a paper read before the American Pediatric Society in May, 1913. The mortality statistics, as compiled by the United States Census Bureau in 1906 from a registration area comprising a little less than one-half of the population of the United States, showed that there were 6,324 deaths from whooping cough among children under five years of age. The reports of the United States Public Health Service show that in 1910 the death rate per 100,000 population for whooping cough was 11.4 per cent.; for scarlet fever, 11.6 per cent.; for measles, 12.3 per cent. In 1911 Dr. Morse said he had communicated with the Boards of Health of thirty states and with a considerable number of cities scattered all over the United States with reference to the relative incidence and the efforts at control of whooping cough. He had received replies from sixty-one and a comparative study of these replies showed that on the whole the death rate from whooping cough was greater in the large cities than in the small, greater in the small cities than in the rural districts. There were a large number of deaths from the complications of whooping cough which should be added to the mortality of the disease itself. The mortality of whooping cough was greater than that of scarlet fever but not greater than that from diphtheria. All the statistics showed that whooping cough was a serious and a fatal disease. In reply to inquiries as to what was being done to prevent the spread of the disease and to diminish the death rate, it was shown that there was really very little effort being made in this direction. Of the 43 states interrogated only 29 replied. In seven of these isolation was required by law and in two others "Modified isolation" was required. In only one-half of the states replying was whooping cough a notifiable disease. In regard to the mortality of the disease at different ages, a German statistician had shown that the mortality for children under one year of age was 26 8 per cent.; in children between one and two years, 23 per cent., and that it decreased in direct proportion as the age of the child increased. In this country 96 per cent. of the deaths from whooping cough occurred in children under five years of age. This made it evident where the efforts in preventive work must be directed. This inquiry showed further that there were practically no hospital accommodations for whooping cough in this country. There was a small ward in Bellevue for cases having complications; Philadelphia had somewhat better accommodations; New Orleans had a ward containing six beds; Cincinnati had one isolation building, and Johns Hopkins had a few beds. Whooping cough patients frequently came to the clinics and waited a long time among other patients and in some clinics they were allowed to come back at will. There were but two or three special clinics for whooping cough in this country. The speaker said he was under the impression that Mallory had proved conclusively that the Bordet-Gengou bacillus was the cause of whooping cough until he had listened to Dr. Williams's paper, and he still thought that for practical purposes it might be considered as much. This bacillus had been found in the sputum as late as the eighth week of the spasmodic stage and transmitted the disease through the secre-

tions of the respiratory tract. While it was possible to infect some animals with the disease this method of transmission did not play an important part in the control of the whooping cough. It was the transmission by direct contagion that was the important factor. Owing to the indefinite length of the early symptoms and the mild course of the disease in many cases, almost everyone soner or later had this affection. As a rule, however, it was only serious in young children. The isolation and recognition of the cultures were still too complicated a procedure for every day use. An agglutination reaction was present in many cases, but was not constant and usually not very high. In exceptional circumstances the complement fixation test might be of great service in the recognition of abortive and attypical cases. There was both an absolute and a relative increase in the number of lymphocytes in the catarrhal stage of the disease. This blood picture was characteristic and might be of considerable diagnostic importance. Since, aside from the Public Health Service and the pediatrists, few appreciated that whooping cough was a serious and a fatal disease the first step in combating the disease was to teach physicians and the public this fact. Whooping cough should be made everywhere a reportable disease. The house should be placarded and the inmates instructed by the health authorities as to the seriousness of this disease in infancy. The vomitus and sputum should be treated in the same way as in tuberculosis. The patient should be separated from other children in the family when the latter were under five years of age. Children might be allowed to go out of doors provided they were kept from other children. They should, however, be obliged to wear an arm band of some prescribed color on which should be placed in large letters in some prescribed color "Whooping Cough." As the vitality of the Bordet-Gengou bacillus was slight outside the body and had no tolerance of light and air formal disinfection was not necessary. Other children in the family should not be allowed to attend school unless they had already had the disease or unless two weeks had elapsed since the last exposure, and they were free from catarrhal symptoms. The community should be required to establish hospitals for children not properly isolated at home and for those who could not be properly treated in their homes. When these recommendations were carried out, whooping cough would cease to be the scourge that it now was.

The Treatment of Whooping Cough.—Dr. EDWIN E. GRAHAM of Philadelphia presented this communication; he stated that the treatment of pertussis had always absorbed a large degree of medical attention and that the mere enumeration of all the drugs and inhalations which had from time to time been brought forward, would consume more time than had been allotted to him. It was important that all children who had not had the disease should be kept separate from the individual who had it, and in order for quarantine to be effective all unexposed children should be sent away from the house during the entire period of contagion; this applied particularly to infants, to children who were not robust and to those who had a tendency to tuberculosis. All children with pertussis should be given an abundance of fresh air and should be kept in bed if their temperature was above 100° F. If the patient was sufficiently ill to be kept in bed the windows should be kept open day and night; if not in bed the child should be out of doors as much as possible. However, excitement and violent exercise tended to increase the attacks. An acute laryngitis or rhinitis, however, was not benefited by cold air. A change of air, especially to the seashore, was often of benefit and a change from a raw damp climate to one warmer and milder was often followed by improvement. Where the child had been confined to his room for a long time, a change to another room and a thorough cleaning of the room vacated was of benefit. All children with pertussis should be fed with small quantities and often; if vomiting occurred soon after a meal another feeding should be given to replace the one lost. Gastrointestinal complications in whooping cough constituted a dangerous complication and should receive early and careful dietetic and medicinal care. Local applications to the nasopharynx made in the early stages of the disease might be of decided value. An application of a 2 per cent. nitrate of silver solution to the nasopharynx, by producing death of the superficial membrane, and possibly destroying some of the specific bacilli, tended to prevent the spread of the infection to the deeper respiratory passages. Phenol, 1 per cent. had also been used successfully. It should be used early and repeated every other day. Creosote and carbolic acid used in an ordinary inhaler covering the nose and mouth or by vapor in the room of the patient acted as a sedative to the inflamed membrane and as a local antiseptic in some degree. As children were especially susceptible to carbolic acid poisoning, the urine should be watched closely. When the spasm of the glottis was especially severe intubation might be done and often gave relief. The medicinal treatment of pertussis might be divided for convenience into two parts: First, drugs which *per se* had a tendency to lessen the number and severity of the paroxysms. Second, drugs or other methods that were directed to the treatment of the complications of pertussis. Among the drugs which the author had found useful was belladonna, beginning with one drop of the tincture three times a day and increasing the daily quantity by one or two drops until mild physiological effects of the drug appeared, when the increasing of the dose must be cautiously continued. Antipyrin was a useful drug, but personally, he never used it in the large doses frequently advised. A single dose at bedtime or a dose morning and evening was as much as it was wise to employ. Bromide of sodium, five grains, three or four times a day, to a child three years of age was often of benefit; and codeine, trional, heroine, and chloral were often of benefit in allaying cough and inducing sleep. They might be given in a single dose at bed time or in two or three doses during the day. A combination of quinine, two parts, and veronal, one part, had been used successfully by Professor Winternitz of Vienna; but he believed it acted only as long as it was given and was not a cure. Sollman and Hatcher reported favorable results from a combination of quinine, one or two grains, and sodium bromide, one or two grains, repeated three or four times a day, for a child two years f age. Quinine had been given in large doses and might reduce the number and severity of the paroxysms, but it was not an antispasmodic, and if it produced any effect in these large doses it must be because of some effect on the causal bacillus. Lenzman had reported some interesting results from the giving of quinine intravenously and hypodermically. Quinine lactate, 10 grams, and saline solution, 100 grams, of which two and one-half centimeters given warm, was injected intravenously might be similarly used. If given hypodermically into the muscles the effect was favorable, but not so prompt and satisfactory if given intravenously. Hydroquinine had been employed both intravenously and intramuscularly, but its action was more favorable when injected into the vein. A daily dose was given for five or six days; then a dose every second day and it was claimed that a remarkable improvement was noted after the first week of treatment. No disagreeable local or constitutional symptoms followed these injections and so much was claimed for this treatment that it was worthy of extended trials. Hydroquinine had been used as a prophylactic with satisfactory results. Fletcher had reported favorable results with the use of adrenalin. He treated 15 cases, using two or three drops of 1-1,000 adrenalin solution every two or three hours, and claimed that in two or three weeks the patients were entirely well. He believed the rapid cure of these cases prevented the spread of pertussis and that the adrenalin exerted a specific action on the causal agent of pertussis. The psychic element often entered into the disease, especially in neurotic children. If the mother and those in contact with the nervous child were also neurotic, all the conditions were favorable for the development of marked psychic phenomena. It was quite possible in such cases to use suggestion advantageously as an aid in the treatment. The writer cited two cases which emphasized the necessity of a correct diagnosis of complications in pertussis. In regard to the vaccine treatment, a large number of articles had appeared on this subject and a close study of these together with his own cases had convinced him that the vaccine treatment was a distinct addition to their methods of treatment and it was also of more or less use as a prophylactic. In a case of moderate severity in an infant or older child, when the number of paroxysms was few and mild in character, the vaccine treatment was not necessary; but it was often of distinct benefit in severe cases in children of all ages, and its influence as a prophylactic where infants had been exposed, or where frail or

tuberculous children were infected should be carefully worked out. Dr. Graham reviewed the reports of the observers in regard to the vaccine treatment and concluded that almost all of them were favorable to the treatment, and it seemed to him advisable to use the combined vaccines in the treatment of severe cases. The final evidence as to its efficacy could only be decided by additional evidence.

The Need of Hospitals for Whooping Cough in New York City.—Dr. GODFREY R. PISEK presented this communication. He declared that if the investigation which had just been made of our Municipal Institutions had been extended to the accommodations which they had provided for cases of pertussis the survey would not have consumed much time. In this respect our municipality was no better and not much worse than other great centers of the world. Pertussis, through its commonest complication, bronchopneumonia, carried away a large number of the children of New York every year. There were in the year 1913 a total of 420 deaths from whooping cough in the Greater City. Of these 49.5 per cent. occurred during the first year of life, 33.4 per cent. between the first and second years, 8.8 per cent. between the second and third years, and 5.2 per cent. between the third and fourth years. Only 1.2 per cent. of the mortality occurred after the age of five years. It was a well-known and deplorable fact that many children succumbed to tuberculosis following their paroxysmal attack. The incidence and mortality of whooping cough in Greater New York during the past few years was as follows: In 1910 there were 2018 cases with 294 deaths; in 1911 3,210 cases, with 384 deaths; in 1912, 2,132 cases with 287 deaths; in 1913, 3529 cases with 420 deaths. During 1913 there were 1333 deaths from diphtheria, 628 from measles, 507 from scarlet fever, and 420 from whooping cough. In children under the age of five years there were more attacked by whooping cough than by scarlet fever and the mortality was almost as high. There were ample hospital provisions for typhoid fever and yet there were only twelve children under the age of five years who had typhoid fever in the year 1913. There were in New York City 1884 available beds for infants and children in the public and semi-private hospitals, and 2350 beds in the various hospitals for contagious diseases; yet of these there were only 10 set apart at Bellevue for cases of whooping cough with complications, and 30 at the Metropolitan Hospital. If whooping cough had been born with some kind of a rash it would not now need any advocates to point out the dangers with which it was attended. As things were the laity regarded this disease as not particularly dangerous and the physician often fostered the same idea, so that it received comparatively little medical attention until the patient had serious and often fatal complications. Believing that many cases were not reported and that many more did not reach the physician, they had made an investigation of the deaths attributed to whooping cough and found that of every 63 deaths from this cause only one had previously been reported to the Department. The figures of the Department of Child Hygiene relating to contagious diseases reported by the inspectors in the schools or found at home were significant in this connection. In 1912, 372 cases of whooping cough were found at school and 466 by absentee visits, making a total of 838. In 1913, 290 were found in school and 445 by absentee visits, making a total of 735 cases. The reason that whooping cough was not more effectually controlled by the Health Department was because of certain difficulties which differentiated it from other contagious diseases. The comparatively long first stage in which the diagnosis was often uncertain for days, and the long duration and questionable period of "Safety for others" made the disease difficult to handle from the Department standpoint. In attempting to formulate any plan for better control the valid objections to general hospital care must be recognized, but there was still much to be said in favor of hospital care for cases with complications and segregation of others affected with the disease. There were in our large population cases of whooping cough in families who were unable to provide medical care because of poverty. These were compelled to go to the dispensaries, where, after waiting and mingling with other children, they were singled out as Pariahs and sent home, often untreated because of lack of suitable provisions and with no instructions as to the care and prevention of the spread of the disease. Where the mother was the breadwinner and the Day Nursery refused to care for the child, a serious economical question was involved. Again, an infant with bronchopneumonia, who needed judicious stimulation, skilled nursing, and an abundance of fresh air was deprived of these and allowed to die in a tenement for lack of municipal facilities. If an intensive study of the disease were made in a selected section of the city it seemed certain that many more cases of whooping cough would come to light than had been reported. Such a study would furnish an accurate basis upon which hospital beds could be apportioned. At the present time there were no suitable available buildings. These should be built on the open pavilion plan near the water fronts, and especially designed for this purpose; at least one for each borough. Disused ferry boats or barges moored to the city docks could be utilized for this purpose; on these a small hospital ward could be arranged for those needing medical attention. Dispensaries for ambulance cases could be held there and to these places patients from other clinics could be referred. Children with their mothers could be taken in stages provided by the city to these boats and allowed to spend the day out-of-doors, returning to their homes at night. With such a plan a large number could be educated to follow proper methods of prevention and well children could be spared contact and deaths from complicating conditions prevented. In regard to the prevalence of the disease in this section Dr. Pisek said that his own histories of his last 500 patients under 10 years of age showed that 45.8 per cent. had had whooping cough. There could be little question but that provision for whooping cough cases would promote the public welfare and at the same time would give physicians an opportunity to study the disease as to its early diagnosis, and to perfect treatment along more scientific lines. To this end the writer suggested that a committee be appointed who should present to the Health Commissioner a recommendation urging the establishment of wards for urgent cases of pertussis, and segregation centers for uncomplicated cases.

Dr. JOHN WINTERS BRANNAN said that they would have to acknowledge that their provisions for the care of whooping cough patients were inadequate. Bellevue had ten beds for complicated cases and the Metropolitan Hospital made provision for a few cases. The meeting this evening was one of the most important from the standpoint of public health that they had had for years. He had not realized that conditions were as bad as they had been shown to be. It was to be regretted that they had failed in the attempt to moor the boat *Helen C. Guilliard* off Willard Parker Hospital, but he hoped they would have a boat next year. There were few places around Manhattan suitable for a whooping cough boat as it was necessary to have such a boat near a hospital.

Dr. ROWLAND G. FREEMAN said that they were greatly indebted to Dr. Morse and Dr. Graham for their valuable contributions. Concerning what Dr. Morse had said in regard to the spread of whooping cough he would like to emphasize the point that it was difficult to limit the spread of this disease during the first two weeks as it was often impossible to make a definite diagnosis. Two points, however, were of great value: these were a persistent increasing cough without other catarrhal symptoms and a high lymphocytosis. If a child over three years of age with a suspicious cough showed a lymphocytosis approaching 50 per cent. the diagnosis was fairly certain. While infant mortality and general mortality had markedly diminished in recent years contagious diseases showed little diminution. This was because the diseases were largely spread by the schools and no effective action had been taken to prevent their spread. This could only be prevented by keeping children who had been thoroughly exposed to contagious disease away from school during the latter part of the period of incubation, and such rules were now in force in the best private schools in New York.

Dr. CHARLES GILMORE KERLEY said that the mortality statistics for whooping cough did not give a proper impression of the extent of the ravages of that disease as it played an important part in diminishing the resistance of the child and thus lessened its chances of surviving the diarrheal diseases of summer. The same was true with reference to tuberculosis; with the diminished resistance following whooping cough the child more readily fell a victim to this affection. As to isolation, if the child was taken out of school it went into the street and there mingled with other children and attempts to isolate the child in the family were futile since by the time that a diagnosis of whoop-

ing cough could be made every other child in the family had been exposed. Mild cases were very difficult to diagnose. Dr. Kerley said he agreed with what had been said in regard to changing the room of the whooping cough patient, it was a great advantage for the child to have a different room to sleep in from the one occupied during the day. The statement was made that with the nitrate of silver treatment all patients improved after three or four weeks; any case would be better by that time. He had found quinine alternated with bromide of sodium and antipyrine very acceptable. In an interview with Dr. Freeman last summer he had found that Dr. Freeman was not so enthusiastic in regard to the vaccine treatment as Dr. Graham's statistics would lead one to suppose. Dr. Freeman had said, however, that the vaccines did no harm. His usual dose was two hundred million twice a week. He had used the pneumococcus vaccine with these and thought this an advantage in preventing pneumonia.

Dr. Matthias Nicoll, Jr., said that he had read all the reports in regard to the value of the vaccine treatment but had never seen one in which an analysis of the case records as given, convinced him of the great value of the remedy, although many of the writers drew favorable conclusions hardly warranted by the statistics. From what Dr. Williams had said of the probable variable nature of the infecting organism, it was logical to expect variable results with the employment of stock vaccine. Very great differences in the clinical course of the disease, as well as the character of the prevailing epidemics, made the reports of a few cases of little value as a means of judging the specific action of the remedy, especially if controls were not used in practically every case. In the last analysis, the strictest test of the value of a specific remedy must be its power to prevent a disease and a vaccine that could not do this could hardly be expected to overcome a disease when once established. A small number of cases had been reported in which such a protective action seemed to have been established. However, the number of such instances was by no means sufficiently large to warrant positive conclusions, for it must be remembered that all children did not take the disease even when very fully exposed to it. For instance, Dr. Nicoll had gone into a children's ward in which the forty or more occupants had lived for three or four months during which about thirty of the children had contracted the disease while the others, most of whom were from one to two years of age, escaped in spite of the closest and most constant contact. The contemplated immunity experiment in this instance was naturally abandoned. During the past eight months at the Research Laboratory about eighty cases of whooping cough had been treated with vaccines and the course of the disease followed as carefully as circumstances would permit. The cases had been treated in institutions, in clinics, in their homes, either by members of the laboratory staff or by private physicians and hospital staffs. Three strains of vaccines had been used, the first made from imported Bordet-Gengou strains combined with three strains of hemoglobinophilic organisms isolated from cases of whooping cough, the second made from the same imported organisms combined with two strains of somewhat atypical Bordet-Gengou organisms from local cases giving a similar complement fixation reaction as the former, and third, four strains of typical Bordet-Gengou organisms isolated from local cases. The results of treatment had varied markedly. A number of cases showed very distinct and rapid improvement; others seemed to be little affected. The mild character of the symptoms observed since the early autumn had done much to prevent a definite opinion as to the real value of specific treatment, many cases not treated running a very favorable course. In brief it might be said that there was an indication of value in many of the cases treated with vaccine, but in order to form a really definite opinion it would be necessary to treat many more cases and to have the children under observation such as would render the clinical reports of much more value than they had hitherto possessed. The present lack of effort to control and care for the disease was a disgrace to the community and it was to be hoped that the Department of Health would continue to direct its attention to this problem. The setting aside of ten additional beds was little more than an entering wedge. He thought he voiced the opinion of every physician who had the welfare of the community at heart when he stated that the authorities should take action immediately to solve the problem of a disease which killed nearly five hundred children in the City of New York during the past year and especially that provisions should be made for the care of young children having whooping cough complicated by pneumonia and unable to be placed under the care of a private physician.

Dr. Haven Emerson said he had come to listen and not to speak, but he could assure them that the activities of the Health Department would be increased along this line.

Dr. S. J. Meltzer asked Dr. Williams whether the statement he had heard made that Mallory was dealing with the *B. bronchosepticus*, that was, the distemper bacillus, instead of the bacillus of Bordet-Gengou was true.

Dr. Anna M. Williams replied that as she had stated in her paper, Mallory had said that his animal experiments were not sufficiently controlled; that possibly the animals might have had the *B. bronchosepticus*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Board of Medical Examiners of the State of North Carolina.

June 10-14, 1913.

(*Concluded from page* 132.)

PRACTICE OF MEDICINE.

1. What is aphasia? (*a*) What is the difference between sensory and motor aphasia? (*b*) Where is the central lesion in motor aphasia located?

2. What is multiple neuritis? (*a*) Give etiology, diagnosis, and prognosis.

3. What is diabetes? (*a*) What are the modern theories concerning its etiology? (*b*) Discuss the carbohydrates in the treatment.

4. Describe briefly the character and situation of pain in gastralgia, ulcer of the stomach, lead colic, general peritonitis, appendicitis, gallstone colic, and kidney colic.

5. What are the chief causes of secondary anemia? (*a*) How would you differentiate secondary anemia from primary pernicious anemia?

6. Define aneurysms. How may they be classified? (*a*) How would you differentiate between aneurysm of the ascending and transverse aorta?

7. What are the chief causes for obstruction of the common bile duct producing jaundice? (*a*) Give the clinical manifestations produced by obliteration at Vater's ampulla.

8. Define pellagra. (*a*) Give the clinical history. (*b*) Give the most recent treatment, and the mode of administration.

GYNECOLOGY AND OBSTETRICS.

1. Source, composition, and specific gravity of liquor amnii.

2. Discuss briefly the physiology of the transmission of insanity, feeble-mindedness, or other mental or moral traits or characteristics, or physical defects, or characteristics from parent to offspring. Give Mendel's formula for heredity.

3. What constitutes the pelvic floor?

4. What are some of the indications for producing sterility in a woman and describe the proper operation.

5. Differentiate uterine polypus and chronic inversion of the uterus, and give proper treatment in each case?

6. (*a*) What is the normal course of delivery in occipito-posterior position? (*b*) In case the normal course is not followed, what is the method of delivery? (*c*) And in the latter case what is the percentage of mortality to mother and child?

7. (*a*) What are some of the diseases of the breast liable to occur during the puerperium? (*b*) What is the treatment for each? (*c*) What prophylactic measures should be instituted?

8. (*a*) State some of the indications, and (*b*) describe what you consider the best operation for emptying the uterus at the second month of uterogestation, (*c*) at the sixth month.

Answer only six questions.

SURGERY.

1. Name every disease or condition (occurring to you), involving the genitourinary tract, which might produce hematuria

2. Describe the operative technique of a resection of the elbow joint, naming the important structures to avoid.

3. Name: (*a*) The varieties of dislocation of the shoulder joint. (*b*) Diagnostic symptoms of a subcoracoid. (*c*) Technique of reduction of a subcoracoid.

4. Give the surgical guides for the location of the lingual artery, for the purpose of ligation.

5. How would you treat a compound fracture of the tibia at its middle third?

6. Give symptoms and treatment of an osteomyelitis of the tibia.

7. Define (*a*) chancroid, or soft chancre. (*b*) How would you treat a chancroid or soft chancre of the penis? (*c*) What is its incubation period?

8. Describe the operative technique, of a tracheotomy

ANSWERS.

PRACTICE OF MEDICINE.

1. *Aphasia* is partial or complete loss of the power of expressing or of understanding spoken or written language; it is due to a cortical lesion and not to peripheral lesions. Loss of power to produce the various movements necessary to speech is called *Motor aphasia;* loss of memory for words, or inability to perceive and interpret words is called *Sensory aphasia.* In motor aphasia the central lesion is located in Broca's convolution (on the left side in right-handed people).

2. *Multiple neuritis* is an inflammation of a number of nerves either simultaneously or in rapid succession. It may be due to poisons (alcohol, lead, arsenic), or diseases (syphilis, sepsis, gout, diabetes, malaria, diphtheria), or general malnutrition. It may begin insidiously, and is generally characterized by numbness or tingling in hands and feet, cramps, disturbances of sensation and motion, wasting and paralysis; the distinctive feature is the symmetrical location of the symptoms. Treatment consists in removal of the cause (if possible), general tonics, morphine for the pain, bromides or chloral for the insomnia, strychnine for the paralysis; massage and electricity are useful.

3. *Diabetes* (*mellitus*) is a constitutional disease characterized by polyuria, excess of sugar in the blood and excretion of the same in the urine, and accompanied by severe emaciation.

Etiological factors are said to be:—Age between 40 and 60, Jewish race, worry, nervous strain, and lesions of the pancreas. In the *treatment*, carbohydrates should be gradually removed from the diet until either the urine is free from sugar or the diet is free from carbohydrates. When the urine is free from sugar, carbohydrates may be gradually resumed, but must be reduced or stopped on the re-appearance of sugar in the urine.

4. In *gastralgia*, the pain is sudden, and burning, boring, tearing or lancinating, originating in the epigastrium and radiating in various directions.

In *ulcer of the stomach*, the pain varies from a gnawing sensation to a feeling of soreness in the epigastrium or a painful sense of lump or oppression. It is usually located in the epigastrium, more rarely in one or the other hypochondriac region, with a tendency to run to the back. The pain may occur within fifteen to twenty minutes after the ingestion of food, or it may be deferred until one or two hours after eating.

In *lead colic*, there is a violent outbreak of spasmodic abdominal pain. It may be chiefly umbilical, or epigastric, or diffuse over the entire abdomen.

In *appendicitis*, the pain may occur two or three hours after eating and may be relieved by eating. The location of the pain, roughly speaking, is epigastric, but lacks the accurate localization that is seen in ulcer. In many cases the pain is felt lower down in the abdomen below or to the right of the navel, and even though the pain may originate in the epigastrium radiation downward toward the umbilicus or lower abdomen may occur.

In *gallstone colic*, the pain is immediate, severe, and lancinating, appearing suddenly in the epigastrium and radiating to the right and upward or to the right side of the back. The pain is continuous, with periods of intense exacerbation, and is uninfluenced by food, fluids, or alkalies.—(From Lockwood's *Diseases of the Stomach.*)

In *peritonitis*, the pain is at first local and corresponds to the seat of the primary lesion, but soon becomes diffused and general. Except when due to perforation of a gastric ulcer, when it is referred to the chest, back, or shoulder, the greatest pain is below the navel. The pain is increased by pressure or movement.

In *renal colic*, the pain is sudden and agonizing, having its origin in the lumbar region, and following along the course of the ureter. It is felt also in the testicle and down the inner side of the thigh, and is at times referred to the glans penis. It may last only a few minutes or for hours.—(From Butler's *Diagnostics of Internal Medicine*).

5. *Cause of secondary anemia:* Hemorrhages, nephritis, cancer, suppuration, tuberculosis, malaria, poisons (such as mercury), syphilis, and very high fevers.

Secondary anemia has an ascertainable cause; and a blood examination shows the red cells reduced to about 1,000,000 to the cubic millimeter, a relatively low hemoglobin estimate, a few normoblasts and megaloblasts, and the white cells generally increased in number.

Primary pernicious anemia has no ascertainable cause; and a blood examination shows a marked reduction in the number of red cells, but a relatively high hemoglobin estimate; nucleated red cells are quite common; and the white cells are generally decreased.

6. An *aneurysm* is a pulsating sac containing blood, and communicating with the lumen of an artery. Aneurysms may be classified as:—true, false, and dissecting; also fusiform, and sacculated.

ANEURYSM OF ASCENDING AORTA.	ANEURYSM OF TRANSVERSE AORTA.
Physical signs. Pulsation often expansile, in second and third interspaces.	Pulsation in episternal notch.
On palpation, systolic thrill and diastolic shock to right of sternum.	Systolic thrill in episternal notch.
Dullness to right of sternum, above cardiac area.	Dullness over manubrium sterni.
Rough systolic murmur, loud clanging second sound. May have diastolic murmur from implication of aortic valve.	Murmur more distinct over manubrium. Diastolic murmur rare.
Parts liable to pressure and results of pressure. Vena cava superior; dilated superficial veins, edema of head and neck.	Left innominate vein; edema of left side of head and neck.
Innominate artery: weakness of right radial pulse.	Any branch of the arch; weakness of right or left radial pulse.
Heart; downward displacements of apex.	
Ribs to right of sternum; pain.	Manubrium sterni; pain.
Right bronchus; defective respiration on right side.	Trachea or left bronchus; paroxysmal dyspnea, altered cough, defective respiration on left side.
Right recurrent laryngeal (rarely); paralysis of right vocal cord.	Left recurrent laryngeal; paralysis of left vocal cord.

—(Wheeler and Jack's *Handbook of Medicine.*)

7. Obstruction of the common bile duct produces jaundice because the bile being unable to pass from the liver into the intestine is absorbed into the hepatic vein, and carried into the general circulation. The causes of jaundice from mechanical obstruction of the bile-duct, are given by Murchison as follows:—

(*a*) *Obstruction by foreign bodies within the duct:* Gallstones and inspissated bile; hydatids and distomata; foreign bodies from the intestines.

(*b*) Obstruction by inflammatory tumefaction of the duodenum, or of the lining membrane of the duct, with exudation into its interior.

(*c*) Obstruction by stricture or obliteration of the duct: Congenital deficiency of the duct; stricture from perihepatitis; closure of the orifice of the duct in consequence of an ulcer in the duodenum; stricture from cicatrization of ulcers in the bile ducts; spasmodic stricture.

(*d*) Obstruction by tumors closing the orifice of the duct, or growing in its interior.

(*e*) *Obstruction by pressure on the duct from with-*

out, by: Tumors projecting from the liver itself; enlarged glands in the fissure of the liver; tumors of the stomach, duodenum, pancreas, kidney, or omentum; abdominal aneurysm; accumulation of feces in the bowels; pregnant uterus; ovarian and uterine tumors.

The *clinical manifestations* are: Jaundice or discolored skin, some of the secretions are tinged with bile or contain bile pigment, there may be a bitter taste in the mouth, the digestion is disturbed, pruritus is generally present, there may be skin eruptions, xanthopsia is present, and there may be some cerebral symptoms; in addition to these, the inability of the pancreatic juice to reach the intestine will cause fatty stools, emaciation, and glycosuria.

8. *Pellagra* is a chronic specific disease, probably infectious, characterized locally by erythema involving usually the exposed portions of the body surface and recurring from year to year during the summer months; characterized constitutionally by symptoms involving the gastrointestinal tract and the mental and nervous systems. Languor and debility are frequent prodromata. Bacteria, maize, metazoa and protozoa have all been supposed to be the main etiological factor. The skin symptoms are the most striking, most constant, most characteristic and most important from a diagnostic standpoint. In their absence, a diagnosis of pellagra is unwarranted. The eruption usually appears suddenly as an erythema, irregular in outline, involving most frequently the dorsal aspect of the hands. It is symmetrical, and may encircle the wrists or appear on the face. The skin becomes pigmented and thickened. Digestive disorders and dysentery often appear; and mental depression, insomnia, headache, vertigo, and tremors may be present. Treatment is chiefly symptomatic; arsenic (Fowler's solution or atoxyl) has been recommended.—(*Pocket Cyclopedia.*) The most recent methods of treatment are: "Organo-polymineralized serum"; salvarsan (intravenous injection); and direct transfusion of blood.

GYNECOLOGY AND OBSTETRICS.

1. The *liquor amnii* consists chiefly of water, but contains small amounts of albumin, epithelial cells, urea, phosphates, chlorides, etc. Its specific gravity is about 1.001 to 1.008. Its source is unknown; it is probably derived from the amnion, by transudation from the maternal vessels of the placenta.

2. "*Menael's formula* may be set down as follows: if D represent a plant with the dominant red and its germplasm, and R one with the recessive white and its germplasm, then the first generation of crosses of D and R will all be DR, and if these DR individuals be crossed the result will be $x\ (DR + DR) = x\ (DD + 2DR + RR)$, or in other words, a dominant crossed with a recessive gives in the second generation, as regards this one particular feature, one dominant, two hybrids, and one recessive, and of these, each dominant will give nothing but dominants, each recessive nothing but recessives, and each hybrid the same proportion of dominant, hybrid, and recessive."—(Adami and McCrae's *Text-Book of Pathology*).

3. The *pelvic floor* is composed of skin, connective tissue, pelvic fascia, perineal fascia, levator ani, coccygeus, sphincter ani, transversus perinei, constrictor vaginæ, and triangular ligament.

4. *Some of the indications for producing sterility in a woman* are: Excessive pelvic deformity rendering delivery of a living child either impossible or decidedly dangerous to the mother; advanced tuberculosis.

The operation may be a ligature and division of the two Fallopian tubes.

5.

INVERSION OF UTERUS.	UTERINE POLYPUS.
1. No pedunculated attachment to uterus.	1. Attached to uterine wall by broad surface or by narrow pedicle.
2. Uterine cavity being obliterated, sound can be passed but short distance, in incomplete and not at all in complete inversion.	2. Sound passes by the side of the mass through external os far into uterine cavity.
3. Vaginal or rectal conjoined examination shows a ring or depression where the uterus should be, and fails to show the uterus above the vagina.	3. Uterus felt above vagina.
4. The inverted uterus is a symmetrical pyriform body.	4. Not usually symmetrical and may be very asymmetrical.
5. Orifices of the Fallopian tubes usually demonstrable.	5. Not present.
6. Muciparous glands of the uterus present and microscopially demonstrable.	6. Not present, or if present less perfectly developed.

(Dudley's *Gynecology*).

In *chronic inversion of the uterus*, the patient is anesthetized and the uterus is reduced and kept in place by means of a repositor. Sometimes a celiotomy must be performed to allow of the reduction; and sometimes amputation of the uterus is expedient.

Uterine polypus will require dilatation of the cervix and removal of the polypus by cutting through the pedicle.

6. *The normal course of delivery in occipito-posterior positions*, is the same as in occipito-anterior positions except that the head must rotate to the front through three-eighths of a circle; of course this takes longer and is more tedious.

In abnormal cases, the management is as follows:

"(*a*) *When diagnosed while the head is at the brim.* (1) Leave it alone. The occiput will probably rotate to the front all right if it is given plenty of time. (2) If flexion appears to be deficient, try to increase it by pushing up the sinciput with the fingers in the vagina during a pain, at the same time pressing down upon the fundus with the other hand. (3) The head may be rotated by passing the hand into the vagina and grasping it between the fingers and thumb. At the same time the shoulders must be rotated by abdominal palpation, or else the head will at once go back to its original position. This maneuver requires an anesthetic.

"(*b*) *When diagnosed after the head has entered the pelvis.* (1) Leave it alone. After exercising the patience of all concerned, it will probably rotate spontaneously. Only about one case out of twenty fails to do so. (2) An attempt may be made to increase flexion as before. (3) Manual rotation may be attempted as before, but the head must first be flexed and gently pushed back out of the pelvis. (4) If the pains are weak, forceps should be applied well back on the head, so that when traction is applied, flexion will be promoted. The head should then be pulled well down on to the pelvic floor. If it begins to rotate, take off the forceps and leave the rotation to nature, merely keeping the head on the pelvic floor by pressure on the fundus. After rotation the forceps may, if necessary, be reapplied and delivery completed.

"(*c*) When the occiput has definitely rotated into the hollow of the sacrum, and the case has become a persistent occipitoposterior, forceps should be applied and the head delivered with the occiput posterior. The perineum should be guarded as much as possible, and any tears stitched up at once. In extreme cases craniotomy and pubiotomy may require to be considered."—(Johnstone's *Textbook of Midwifery.*)

In the latter case, the maternal mortality is *nil*; the fetal mortality is about 12 to 15 per cent.

7. *Diseases of the breast liable to occur during the puerperium* are: Engorgement, inflammation, abscess, and cracked nipple.

Engorgement is treated by giving the patient salines, limiting the amount of fluid ingested, and compressing the breasts with a binder. *Inflammation* is treated by resting the part, supporting it, applying a hot boracic acid fomentation, nursing from the affected breast should be stopped at once. *Abscess* is treated by making an incision radiating from the nipple, and drainage; thorough antiseptic and aseptic precautions must be observed; the breast should be put at rest for a couple of days; saline cathartics may be necessary, also supportive measures. *Cracked nipples* require to be kept clean and dry; they may be protected by a nipple shield while the infant is nursing; an application of tannic acid, or nitrate of silver may be used.

Prophylactic measures consist in not touching the breasts (by doctor or nurse or patient) without thoroughly clean hands; by washing and drying the nipple before and after nursing, and by proper attention to hygienic conditions before labor, and the nipple and breasts being preserved from pressure.

8. *The indications for emptying the uterus* are: "Intractable toxemia of pregnancy, chronic nephritis, extensive vascular degeneration of the chorion, irreducible retroversion of the pregnant uterus, absolute contraction of the pelvis, death of the fetus, chorea, pernicious anemia or leucemia.

"*At two months*, the operation can be carried out at one sitting by the method of dilatation by graduated bougies. This is carried out exactly as for a curettage. The genitals are cleansed and shaved, the vagina washed out, and the cervix fixed and drawn down by vulsella. The dilators are then passed in one after the other until the cervix admits one or even two fingers. The ovum is then separated, and extracted by the fingers or an ovum forceps.

"*At six months* the patient is anesthetized and placed in the lithotomy position. After the external parts have been scrubbed, the operator puts on boiled gloves and washes out the vagina. The cervix is then exposed by the speculum and drawn down by the vulsella. If necessary the os may be dilated by one or two Hegar's dilators sufficiently to admit the finger, which is then swept round the lower uterine segment and the membranes separated. One bougie is then gently introduced between the membranes and the uterine wall, great care being taken not to rupture the membranes. If difficulty is met with in passing the bougie, force must not be used, as the obstruction is probably due to the edge of the placenta. The bougie must be withdrawn and inserted in another direction. If no obstruction is encountered, the bougie should be passed in as far as it will go, which usually leaves about an inch or so projecting outside the cervix. A second and even a third bougie may be introduced in like manner. The ends of the bougies are then wrapped in sterile gauze and left in the vagina, which is lightly packed. The patient is kept in bed afterwards. Labor may be expected in about twelve hours, although it may start within half an hour, or be postponed for thirty-six hours, or even a day or two. Hot vaginal douches may be given every few hours in the meantime. If labor has not ensued after forty-eight hours, the bougies should be withdrawn, the vagina well douched, and either a fresh set of bougies introduced or the cervix tamponed with sterile gauze soaked in glycerin. If labor ensues after the introduction of the bougies they should be left *in situ* until expelled by the uterus. If removed too soon the labor may stop and the pains pass off again."—(Johnstone.)

SURGERY.

1. *Hematuria may be produced by:*—Inflammation, congestion, contusion of kidney, ureter, or bladder; stone in kidney, ureter or bladder, catheterization; tumors of bladder or kidney; urethritis; traumatism; purpura; hemophilia; scurvy; metallic poisons; the *Bilharzia hæmatobia:*

2. *Resection of the elbow-joint:*—"The patient is supine, but inclining to the sound side, the affected arm being held almost vertical, with the forearm flexed and nearly horizontal. The incision is made on the posterior surface of the joint. A single posterior incision is usually employed. An incision is made a little internal to the long axis of the olecranon, beginning two inches above and terminating two inches below the tip of the olecranon. This incision goes down to the bone, and throughout the entire operation the surgeon must guard and shield the ulnar nerve. The periosteum and soft parts are well separated; the olecranon is sawn off; forced flexion exposes the joint cavity freely, and enables the surgeon to lift the periosteum and soft parts from the humerus; the humerus is sawn through at the beginning of its condyloid processes; the radius and ulna are cleared and are sawn at a level below that of the base of the coronoid process of the ulna. Diseased tissues are cut and scraped away; the wound is irrigated, sutured, drained, and dressed. In some cases an H-shaped incision is employed, but the cicatrix of a transverse cut will limit flexion of the limb." (Da Costa's *Surgery.*) The ulnar and posterior interosseous nerves are to be specially guarded.

3. The *various dislocations of the shoulder-joint* are: (1) Subcoracoid—forward, inward, and downward. (2) Subglenoid—downward, forward and inward. (3) Subspinous—backward, inward, and downward. (4) Subclavicular—forward, inward, and upward.

"In *subcoracoid dislocation*, the head of the bone lies below the coracoid process upon the neck of the scapula. The tendon of the subscapularis is torn or stretched over the neck of the humerus. The supraspinatus, infraspinatus, and teres minor are either tightly stretched, producing external rotation, or torn (sometimes with great tuberosity), with internal rotation There will be found: Local contusion; restricted mobility; flattened outer border of shoulder; head of the bone is felt below outer end of clavicle; elbow is displaced from the side outward and backward, and cannot touch the chest wall when the hand is placed on the opposite shoulder; there is little or no shortening. *Treatment:*—Kocher's method: Anesthetize. Elbow is held to the side. Hand is brought forward and outward, so as to externally rotate the humerus and relax the external rotators. Elbow is adducted to the mid-line—this makes the margins of the gap in the capsule tense Elbow is raised, so as to slacken upper margin of the rent and keep lower tense. Hand is placed on the opposite shoulder, *i.e.* arm is rotated inward, to make the head of the humerus slip into capsule. Elbow lowered."—(Groves' *Synopsis of Surgery.*)

4. *In ligation of the lingual artery:* "The incision is a curved one two inches long, its concavity directed upward from the anterior edge of the sternocleidomastoid muscle, half an inch above the great horn of the hyoid bone, to a point one inch within the median line of the neck. Divide the skin and platysma, displacing the superficial veins, and open the deep fascia, when the submaxillary gland will be exposed; this is displaced upward with the handle of the knife, when the tendon of the digastric muscle attached to the hyoid bone, and the hypoglossal nerve will be exposed; next divide the fibers of the hyoglossus muscle midway between the hypoglossal nerve and the hyoid bone, and the lingual artery will be exposed. The needle should be passed around the vessel from above downward, in order to avoid the nerve."—(Wharton.)

5. "In the treatment of compound fractures the main object is to render the wound aseptic and to give efficient exit to the discharges. For this purpose the patient should in all cases be anesthetized, the limb shaved, and thoroughly purified, and the wound enlarged and thoroughly washed out with some reliable antiseptic. It may be advisable to excise torn and dirty fragments of skin, muscle, and tendon, especially when dirt has been ground into them. Loose fragments of bone are removed and portions denuded of their periosteum may be taken away lest necrosis should ensue; where fragments retain any considerable connection with the soft parts they may be left without fear. When a sharp end of one of the fragments is protruding through a small opening in the skin it is first purified thoroughly before attempting its reduction and then replaced after enlarging the wound in the skin, or a portion sawn off. Hemorrhage is dealt with in the usual way, and the fragments are placed as nearly as possible in their normal position. If the fragments can be brought accurately into position it is well to fix them by some mechanical appliance: but where the ends of the bone are much comminuted the small portions must be arranged in position as well as possible, and no attempt made to wire them. A good-sized drainage tube is inserted, and, if need be, counter-openings are made; the external wound is closed or not, according to circumstances, and dressed, and suitable splints are then applied."—(Rose and Carless.)

6. ACUTE INFECTIVE OSTEOMYELITIS. "*Symptoms.*—The disease begins with a rigor, high temperature, and severe pain. The part becomes swollen, infiltrated, and congested, with distended veins over it. The pulse is rapid and small and the tongue dry, and delirium soon comes on. It should be distinguished from acute rheumatism by the fact that the interarticular and not the articular region is affected. Fluctuation can be detected if the bone be superficial, or the abscess may burst on the surface. The bone is then found to be bare over the extent of the abscess cavity. When the bone is deeply seated or the disease confined to the medulla, the swelling is later in evidence, but the pain and toxemia are very severe, and the patient may die from this before local signs show themselves. When the epiphysis is attacked, septic arthritis often quickly follows, and a loose flail joint may result.

"*Treatment* must be very prompt. A free incision must be made through the periosteum and the pus evacuated. In any case, whether pus is found or not, the surface of bone must be gouged away to expose the medulla freely, and any gangrenous tissue scraped out The cavity must then be washed out and freely drained. The wound in the soft structures is not closed in any part. If symptoms of pyemia occur, it

may be necessary to amputate the limb through the joint or bone above, so as to cut off the source of emboli. When a large portion of, or the whole diaphysis is necrosed, there are two courses; either to cut short the disease by removing the dead portion at once, or to leave the sequestrum to stimulate the formation of an involucrum. Where there is a single bone, as in the arm and thigh, the sequestrum is left; where there is a double set of bones, as in the forearm and leg, the sequestrum is removed at once. Celluloid, zinc, and ivory rods have been inserted to stimulate osteogenesis. In most cases it is doubtful how much bone is actually dead, so that it is better to open up the cloacæ in the newly formed involucrum to remove the sequestrum. The cavity heals by granulation."—(*Aids to Surgery.*)

7. A *chancroid* is an ulcer, usually of venereal origin, due to infection with the bacillus of Ducrey.

Chancroid of the penis may be treated by being sprayed with peroxide of hydrogen, dried with cotton, then touched with pure carbolic acid and then with pure nitric acid; afterwards a dressing soaked with black wash may be applied. The penis should be soaked in hot salt water every few hours, the above treatment being repeated.

The *incubation period* is about five to ten days.

8. *Tracheotomy*:—"The patient is placed on the back with a narrow pillow under the neck. Chloroform or cocaine can be used as anesthetics. An incision, one and a half inches long, is made downward from the cricoid cartilage, keeping strictly in the mid-line. The incision is deepened till the trachael rings and isthmus are exposed. Enlarged veins give trouble during this stage if there is dyspnea. A director-hood is thrust into the trachea, and the point of a knife is slid along the groove to open the trachea from below upward. The patient is allowed to cough for a few minutes while the wound is kept open with dilating forceps; then the tube is tied in."—(*Aids to Surgery.*)

BULLETIN OF APPROACHING EXAMINATIONS

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION†	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan. 12
Arizona*	J. W. Thomas, Phoenix	Phoenix	Oct. 6
Arkansas	W. S. Stewart, Pine Bluff	Little Rock	
California	C. B. Pinkham, Sacramento	Los Angeles	
Colorado	David A. Strickler, Empire Building, Denver	Denver	Oct. 6
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov. 10
Delaware	J. H. Wilson, Dover	Dover	
Dist. of Col'bia	Geo. C. Ober, Washington	Washington	Oct. 13
Florida*	E. W. Warren, Palatka	Palatka	Dec. 2
Georgia	C. T. Nolan, Marietta	Atlanta	Oct. 13
Idaho*	J. F. Schmershall, Jerome	Wallace	Oct. 6
Illinois	C. S. Drake, Springfield	Chicago	
Indiana	W. T. Gott, Crawfordsville	Indianapolis	
Iowa	G. H. Sumner, Des Moines	Des Moines	Sept. 10
Kansas	H. A. Dykes, Lebanon	Topeka	Oct. 13
Kentucky	J. N. McCormack, Bowling Green	Louisville	
Louisiana	E. L. Leckert, New Orleans	New Orleans	Oct. 20
Maine	F. W. Searle, Portland	Portland	Nov. 10
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec. 8
Massachusetts*	W. P. Bowers, State House, Boston	Boston	Sept. 8
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Lansing	Oct. 13
Minnesota	T. McDavitt, St. Paul	Minneapolis	Oct. 6
Mississippi	S. H. McLean, Jackson	Jackson	Oct. 13
Missouri	J. A. B. Adcock, Jefferson City	Kansas City	Sept. 28
Montana*	Wm. C. Riddell, Helena	Helena	Oct. 6
Nebraska	H. B. Cummins, Seward	Lincoln	Aug. 12
Nevada	S. L. Lee, Carson City	Carson City	Nov. 2
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	
New Jersey	H. G. Norton, Trenton	Trenton	Oct. 20
New Mexico	W. E. Kaser, East Las Vegas	Santa Fe	
New York	H. H. Horner, Univ. of State of New York, Albany	New York, Albany, Syracuse, Buffalo	Sept. 22
N. Carolina	B. K. Hays, Oxford	Raleigh	
N. Dakota	G. M. Wilhamson, Grand Forks	Grand Forks	
Ohio	Geo. H. Matson, Columbus	Columbus	Dec.
Oklahoma	J. W. Duke, Guthrie	Oklahoma City	
Oregon	B. E. Miller, Portland	Portland	Jan. 5
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia	
Rhode Island	G. T. Swarts, Providence	Providence	Oct. 6
S. Carolina	H. E. Boozer, Columbia	Columbia	June 8
S. Dakota	P. B. Jenkins, Waubay	Deadwood	
Tennessee	A. B. DeLoach, Memphis	Memphis, Nashville, Knoxville	May
Texas	W. L. Crosthwaite, Waco	Waco	Nov. 10
Utah	R. W. Fisher, Salt Lake City	Salt Lake City	Oct. 5
Vermont	W. Scott Nay, Underhill	Montpelier	Jan. 12
Virginia	J. N. Barney, Fredericksburg	Richmond	Dec. 15
Washington*	C. N. Suttner, Walla Walla	Seattle	
W. Virginia	S. L. Jepson, Wheeling		
Wisconsin	J. M. Beffel, Milwaukee	Madison	Jan. 12
Wyoming	J. B. Tyrrell, Laramie	Cheyenne	

*No reciprocity recognized by these States.
†Applicants should in every case write to the secretary for all the details regarding the examination in any particular State.

Therapeutic Hints.

An Antipruritic Powder.—The following is recommended by Bulkley as effective in the relief of pruritus:

℞ Camphor, ½ dram.
Zinc oxide, 2 drams.
Starch, 4 drams.

Acute Poisoning by Phenolphthalein.—A. Roux reports the case of a girl 19 years of age who, on the fourth day of the eruptive period of an attack of measles, was given two tablets of phenolphthalein (the dose is not mentioned). A few minutes later she was seized with intense delirium and motor excitement, and then passed into coma. The lips and the nail-beds were of a violaceous color, the pupils were dilated, and the reflexes were abolished. In spite of the hypodermic administration of ether and apomorphine, and the performance of venesection, the patient died forty minutes after having been given the drug. The author attributes the series of events in this case to a condition of anaphylaxis. He cautions one against the use of phenolphthalein in cases of infectious disease in which there may be an impairment of hepatic function.—*La Quinzaine Thérapeutique.*

The Treatment of Asthma.—M. Ségard recommends the administration during the attack of the following:

℞ Theobromine, 0.20 gram.
Valerianate of caffeine, 0.05 gram.

This should be given in a cachet, two to four times a day.—*L'Hôpital.*

Autoserotherapy in Anaphylactic Shock.—Widal, Abrami, and Brissaud studied the conditions under which anaphylactic shock might be made to serve a useful purpose in therapeutics. The increased coagulability of the blood which is one of the manifestations of anaphylaxis may be utilized in the treatment of such conditions as hemophilia. But this increased coagulability is not peculiar to anaphylaxis. It occurs as the result of inoculating a person with his own blood-serum, obtained after allowing a small amount of his blood to coagulate at the temperature of the laboratory. This inoculation is not followed by any untoward symptoms, not even by an urticuria. Moreover it has been found that this autoserotherapy serves to counteract the symptoms of anaphylactic shock such as fever, collapse, and urticaria. The method has also been employed favorably in the treatment of three cases of paroxysmal hemoglobinuria that resulted from surface chilling. Martin and Darré found that by injecting infants with .2 c.c. of their own serum they could in one-third of the cases control the unfavorable manifestations of anaphylaxis.—*Le Bulletin Médical.*

The Treatment of Dysmenorrhea.—S. W. Bandler states that in addition to the use of tonics, hydrastis and viburnum prunifolium may be given for long periods. Apiol, 4 minims in capsules, several times a day, may be begun, a week or ten days before each menstruation. A valuable combination is the following:

℞ Tincture of gelsemium,
Tincture of cannabis indica, āā ℥iii
Compound tincture of cardamoms, ad ℥iii

This should be given in teaspoonful doses four times a day, beginning several days before the onset of menstruation.—"Medical Gynecology."

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Original Articles.

METCHNIKOFF'S BASIC PRINCIPLE — INTESTINAL ANTISEPSIS THROUGH BIOLOGICAL AIDS—ATTESTED BY THE BACILLUS BULGARICUS.

BY BOND STOW, A.M., M.D.,

NEW YORK.

PRESIDENT ERNEST FOX NICHOLS in a short address on "Ideas" before his students in the Chapel of Dartmouth College on February 9, 1913, among other things said:

"Behind every method, every practice, every custom lies an idea or group of ideas,—a theory,—a reason. Hence behind the practice lies the theory and a full statement of the theory is the rule of the higher practice. Hence the only really practical things in life are ideas; the only practical man, the man of ideas, the man who knows. It is thus to the man of sound theory we must ever look for better ways of doing the world's work."

The world has been enriched by the lives of a few men who bravely and self-sacrificingly have struggled with and conquered great ideas, ideas that have penetrated the local mists of scepticism and cynicism, like beacon lights, because they represented a vital truth. Prof. Elie Metchnikoff, of the Institut Pasteur, Paris, by his struggles for the past quarter of a century has wrested from the hard-fisted grasp of nature a *large idea* which today successfully is withstanding the world's most insistent challenges, just as his now universally accepted phagocytic theory has done since its incipiency.

He has given the world a second great truth. This new theory of the lactic bacillary treatment of many pathological conditions particularly by the *Bacillus bulgaricus* which Professor Metchnikoff so recently has culminated into practical conclusions, under the severe daily tests of practical application, is gaining in trustworthiness and becoming recognized as a vital truth which promises justly to assume front rank among the great gifts of medicine to mankind. How long it will be before this truth is universally put into practice remains to be seen. Sir Edward Grey in a recent address concluded as follows: "It is not difficult to tell the truth; the difficulty is to get the truth believed. It is easy to get something which is not the truth believed. Anybody can do that. It is common to all human nature to prefer to believe that which is exciting rather than what is soothing."

Professor Metchnikoff from his extensive anthropological, bacteriological, and chemical investigations concludes that man's tissues are deprived of their best work and his life actually shortened because of a constant daily poisoning of his vital organs (the liver, pancreas, kidney, etc.) which causes their inefficiency, gradual disintegration, and premature death. Such an intoxication could have no other source than the intestinal tract harboring as it does myriads of proteolytic, anaerobic, indologenous, putrefactive microorganisms.

These bacteria act upon food products especially the proteins, amino-bodies, and the resultants of a faulty metabolism forming toxic products known as indol, phenol, and paracresol compounds, etc., which are continually being reabsorbed into the system causing serious disturbances in the digestive, cardiovascular, nervous, and that entire correllated system of the ductless glands whose normal functions are so essential in preserving an harmonious action of all the organs in the body. These disturbances are grouped together under the general term —*autointoxication*.

Experimental studies from the Institut Pasteur, Paris, have proved conclusively that the premature senile changes induced in animals by the daily feeding to them some one of these indol, phenol, or paracresol compounds are strikingly similar to those pathological changes common to all that occur in the aged; namely, the invasion of the tissues by mononuclears and macrophages, the increased formation of connective tissues, and consecutive atrophy and gradual disappearance of the parenchyma of the vital organs. Thus the two factors active in the formation of these deadly aromatic poisons are diet and the bacteria of the intestinal tract. The control of man's diet is readily accomplished, but mastery over his intestinal bacterial flora is not.

The removal of these hostile microorganisms is spoken of as intestinal antisepsis, for many years one of the chief aims of all therapeutists. The expression "intestinal antisepsis" is here used in a medical sense rather than a strict surgical one since the latter is unattainable. Intestinal antisepsis at all periods of life is a self-evident necessity and particularly so in the very young.

Its accomplishment through drug medication such as purgatives, antiseptics, and germicides, has proved a failure and stands today abandoned by all well-informed, advanced therapeutists. Such measures when used in strength sufficient to act as germicides either cause direct local injury to the intestinal walls or else pervert the natural action of the gastrointestinal ferments. Hence some agency that can overcome these enemies of mankind without injury to the function or tissues of the intestinal walls must be found.

The hopelessness of drug medication to solve this serious problem turned Professor Metchnikoff and his able assistants to biological aids. If the germs of putrefaction cannot be avoided, then the best solution for overcoming them lies in a means of creating constantly conditions in the intestinal tract unfavorable for their growth. His working

formula was: *Malevolent germs must be fought with beneficent ones.* But what microorganisms will prove man's defender and whence the source of these?

Such a question assumes large proportions when one stands and faces it squarely as has Metchnikoff, and it is only from a man of his broad and varied scientific attainments, a veritable student of Life, that the solution of so difficult a problem could be expected. It all seems so simple today, but we who are privileged to enjoy the benefits of his great discovery have little concept of the struggle that wrested the secret out of the great unknown. Metchnikoff's anthropological studies proved most valuable in directing his thought along proper channels for the solution of this problem.

The many notable instances of longevity and the high degree of vitality that exists among the aged in the Eastern countries, where much of their food products are preserved by lactic acid ferments, strongly impressed him. Already years before his renowned predecessor Pasteur, by his epoch-making studies on fermentations, had pointed out the strong antithesis between lactic acid bacilli and the microorganisms causing putrefaction.

Metchnikoff and his assistants at the Institut Pasteur made an exhaustive study of the soured milks so universally used in the Eastern countries and especially of Yahourt, the mainstay of diet of the peasants of Bulgaria, and it was found that the chief agent causing the souring of this milk was a lactic-acid-producing bacillus.

This microorganism is now known as the *Bacillus bulgaricus* and he found it possessed in an eminent degree the following qualifications for this special work of intestinal antisepsis:

(1) It produces the greatest amount of lactic acid of any known lactic-acid-producing microorganism.

(2) It is resistant to external influences so as not easily to be destroyed.

(3) It readily withstands digestion and therefore passes the stomach unharmed.

(4) It will implant itself and readily grow in the intestines, continuing there viable and reproducing itself several weeks after the last ingestion. This latter statement is proved by the scientific investigations of indisputable reliability carried on at the Institut Pasteur, Paris. These experiments were made upon both man and animals and have shown the recovery of the *Bacillus bulgaricus* from the excreta within six to ten days and for several weeks after the last ingestion, from which again pure cultures were obtained.

(5) The *Bacillus bulgaricus* is always nonpathogenic, causing neither general nor local injury to man at any age.

(6) The antagonism of the *Bacillus bulgaricus* to all putrefactive indologenous microorganisms (which demand an alkaline or neutral medium for their development) is twofold: (*a*) it generates nascent lactic acid from sugars and carbohydrates, and (*b*) as Belonowsky of the Pasteur Institute so conclusively has proven, it also produces some form of an enzyme (the exact nature of which is yet to be determined) which also inhibits the growth and destroys the bacteria of putrefaction.

For the above well-named reasons the *Bacillus bulgaricus* that Professor Metchnikoff now recommends (and for good reasons it is best to follow his advice) was selected for this special work of preventing autointoxication which subsequent daily experience proves it most successfully is accomplishing. Thus step by step through long years of study from numerous sources have been forged the links in the chain of evidence that establishes the true theory of intestinal antisepsis, the accomplishment of which is Professor Metchnikoff's basic principle, not so much for prolonging the span of human life (as his conclusions popularly have been misinterpreted), but rather for the maintenance of our nobler tissues in their highest degree of efficiency throughout their natural existence. If such a desired end is accomplished the span of life inevitably must be lengthened.

Keeping uppermost in one's thought this fundamental basic principle it is easy to see how far-reaching in its beneficent results this newly discovered truth must become when universally put into practical use.

Man's natural powers of resistance to infectious diseases, especially tuberculosis, will be enhanced. Tuberculosis cannot be avoided. It is as ubiquitous as blue mold. Some advanced workers in bacteriology even now have strong suspicions that tuberculosis is a streptothrix (distributed everywhere) like unto mold and not a specific entity the same as Loeffler's bacillus is of diphtheria.

The records of the autopsies at Vienna will show as high as 94 per cent. infected with tuberculosis in an active or healed state.

Sir William Osler in his latest London address at a conference on preventing consumption stated: "In 90 per cent. of you would be found somewhere a small area of tuberculosis." What part of that 90 per cent. will be able to resist the disease? What part inevitably must succumb for want of natural protective bodies in their blood with which effectively to overcome the enemy? What part might be saved had they followed Metchnikoff's basic principle: *Intestinal antisepsis* maintained by the daily use of his cultures of the *Bacillus bulgaricus?* These are indeed vital questions. It is useless to try and stamp out tuberculosis. We must teach ourselves to live with it. There is no other treatment for this arch enemy of man than *man himself.* He must maintain in their highest efficiency his blood-making organs creating their defensive agencies. This is accomplished in three ways: (1) Plenty of fresh air and sunshine. (2) Bounteous pure food and drink. (3) Intestinal antisepsis. Metchnikoff has pointed the way how this *third* may be successfully accomplished and has thereby conferred upon mankind one of its greatest blessings.

The average standard of man's capabilities will be considerably higher and the world's work accomplished with greater ease where intestinal antisepsis is maintained. The cleansing of man's inner tissues is of even higher importance than that of his exterior. Both are necessary for the highest efficiency of our human machines.

Man from the beginning has been and ever will be subject to the attacks of these hostile putrefactive bacteria, and the innumerable examples of autointoxication that one sees in his daily walks in life is a proof thereof.

They are the cases that present the sallow, bloodless, or ashy-gray, muddy complexion, foul fecal odorous breath, cold, clammy, moist hands and feet, headaches, malaise, total lack of ambition so that every effort in life is a burden, mental depression often bordering upon melancholia, frequent attacks of indefinite abdominal pains due to flatulency, sud-

den attacks of acute diarrhea alternating with periods of constipation. In others there may be decided attacks of colic accompanied by discharge of mucous shreds and even entire mucous casts from the bowel.

The degrees of these cases of intestinal intoxication vary over a wide range but in *all* intestinal stasis and excessive accumulation of the indologenous putrefactive bacteria in the bowel producing their deadly indols and phenols is the underlying etiological factor. It is this large class of patients for which the physician has advised all forms of purgatives, intestinal antiseptics, tonics, massage, electricity, diet, and finally (as a dernier resort) travel in a foreign land, a *Nirvana* to the physician if not to his poor helpless patient.

Wherein lay his failure? The agencies he employed did not have that hourly punch so requisite to overcome the enemy. They did not strike at the root of the trouble by dispelling a malevolent intestinal flora with a beneficent one. This problem requires an organic force equal and even greater in power than this evil organic one so strongly entrenched in the intestinal tract of every human being.

A battle royal must be fought and when this first great struggle ends in victory for the *Bacillus bulgaricus* it must be kept on the field of battle forever at guard, for the germs of putrefaction are ubiquitous and swallowed with every mouthful of food and drink. If food and drink are essential for the life and growth of human tissues so is some agency that can keep in a healthy state the intestinal tract where that food and drink becomes metabolized, and that agency today Metchnikoff has discovered is the *Bacillus bulgaricus*.

Let us approach a little nearer these combatants, their weapons, and the resultants of this battle for supremacy.

THE BATTLE FOR SUPREMACY.—*Time:*—Past, present, future.

Battle Ground.—Intestinal tract of every human being especially the ileocecal region and ascending colon.

Malevolent Forces.—Bacillus coli, Bacillus proteus, Bacillus welchii (aërogenes capsulatus) (perfringens), Bacillus putrificus coli, Bacillus subtilis, Bacillus sporogenes, Bacillus cloacæ, staphylococci, streptococci, others undetermined.

Essentials for Life and Growth.—(1) Alkaline or neutral medium.

(2) *Food Products.*—(*a*) Proteins, (*b*) aminobodies, (*c*) resultants of a faulty metabolism.

Weapons of Offense (generated in loco).—Indol and phenol (most dangerous, Metchnikoff), paracresol, skatol, aromatic oxacids, hexone bodies, mercaptan, hydrogen sulphide, ptomains, toxalbumins.

Resultants of Attack.—A daily insidious poisoning of the nobler parenchymatous tissues of our vital organs together with an interference with the normal correlations of the internal secretions of the ductless glands (pituitary, thyroid, adrenal, etc.) which regulate the proper functioning of the nervous, circulatory, digestive, and eliminative organs.

Ultimate End Resultant. — Increased arterial pressure accompanied by a gradual degeneration and sclerosis of the arterioles with an increasing growth of the connective tissues and a diminution by pressure atrophy of the parenchymatous tissues ending in their premature decay and death.

Beneficent Forces.—Bacillus bulgaricus, other lactic acid bacteria.

Weapons of Defense (generated in loco).—(1) Nascent lactic acid generated from (*a*) sugars, (*b*) other carbohydrates; (2) An enzyme (yet definitely to be determined) produced from the body of the *Bacillus bulgaricus* (Belonowsky).

Chief Characteristics.—(1) A large (5-50 microns) gram-positive, nonsporogenous bacillus. (2) Forms the largest amount of nascent lactic acid of any known microorganism. (3) The formation of peculiar node-like bodies during the development of the bacillus is its distinguishing morphological feature. The destiny and purpose of these nodes is as yet undetermined. (4) Will not grow in plain bouillon or on agar. (5) Produces no appreciable quantity of alcohol, succinic acid, or acetone. (6) Readily survives digestion and admits of easy implantation upon the intestinal tract of man at any age (30 to 36 hours after ingestion). (7) Remains viable practically for four to six weeks after last ingestion. (8) Causes neither local nor general injury to the tissues. (9) It aids in the assimilation of food products by stimulating the organs of digestion, especially the bile and pancreatic secretions.

Reinforcements.—The *Bacillus bulgaricus* gradually becomes attenuated and dies out if not reinforced, owing to the large numbers of malevolent microorganisms daily ingested with our raw foods and drinkables. An entire reimplantation or else a continuation of the implantation already secured is necessary on this account.

Duration of this Battle.—Malevolent microorganisms are ubiquitous and unavoidable, hence this battle never ceases.

To-day intestinal antisepsis is accomplished with much assurance of success by cultures of the *Bacillus bulgaricus*. But what cultures of this bacillus?

Surely not any old culture much attenuated or practically dead and of low bacterial count. The practitioner must exercise much discretion in the choice of the product he employs. He must convince himself that the cultures he employs are pure, fresh, viable and of highest possible bacterial count. He should acquaint himself with the bacteriologist and laboratory that furnish him his cultures. He should always bear in mind—*This is bacteriotherapy*, and failure to obtain the results looked for are more often due to the inefficient weapons he is employing than the principle involved. Persistent daily use of proper cultures (such as recommended by Professor Metchnikoff) taken before meals and at bedtime, when combined with well-directed dietetic measures, will accomplish more to overcome autointoxication with its direful end resultants than any other line of treatment heretofore attempted, not excepting even in severe types the latest proposed surgical procedure, ileocolostomy as practised by Arbuthnot Lane of London.

The brilliant results of ileocolostomy for cases of intestinal stasis when accompanied by a high degree of toxemia, as performed by Lane, clearly demonstrate Metchnikoff's theory of intestinal autointoxication. But it must be borne in mind this is a very severe surgical procedure and excepting in cases of serious organic obstructive lesions should not be advised until a most thorough and exhaustive trial of the *Bacillus bulgaricus* has been undertaken.

A proper intestinal antisepsis maintained under the lactic bacillary treatment will reduce to a very small percentage the necessity for this dangerous surgical procedure.

Free drainage is a fundamental principle for the

successful issue of a surgical case. Free ileal-drainage is a *sine qua non* for the successful permanent implantation of the *Bacillus bulgaricus*. Just as a field must be cleared and ploughed before planting the seed so must the intestinal tract be made ready for the proper reception of the *Bulgarian bacillus*.

The choice of an eliminant is of no small importance. One must constantly bear in mind he is dealing with a viable microorganism which drug medication may destroy or attenuate.

Naturally then such a purgative as calomel cannot be used. The principle to be observed is that form of an eliminant which will aid the intestinal walls in their natural functions without interfering with the powers of the *Bacillus bulgaricus*. Epsom salts combined with lemon juice or some mild aperient water as the Carlsbad Sprudel salts taken with hot water before breakfast naturally suggest themselves in contradistinction to the strong drastic purgatives. And as early as possible even these simpler eliminants should be abandoned in favor of dietetic measures that induce normal intestinal peristalsis such as stewed prunes and figs (half and half) for breakfast, plenty of fresh fruits and green vegetables with much fibrous residue, and bran biscuits made of molasses and bran flour.

Babies are sacrificed in large numbers to the attacks of these hostile putrefactive microorganisms especially during the heated term of the year, and if physicians and mothers will work together harmoniously in the employment of young, fresh, viable cultures of the *Bacillus bulgaricus* the large majority of these fatalities will be checked.

There is no class of cases where more brilliant successes have been accomplished than in these severe cases of summer diarrheas of infants. The Bulgarian bacillus when rightly employed in these cases works with remarkable rapidity and certainty, and it almost seems a public duty that a knowledge of this specific agent and the manner of employing the same should be cast widespread for the saving of these young imperiled lives. Cultures of the *Bacillus bulgaricus* for infants should be grown in a medium particularly adapted to the conditions of the gastrointestinal tract of young infants. This medium must be a readily assimilable form of food closely resembling the natural nourishment of a young suckling infant. Actual practice demonstrates the need of such an infant culture (devoid of the beef and veal peptones universally found in the ordinary cultures) so as to supply proper nourishment and the *Bacillus bulgaricus* at one and the same time.

If the largest percentage of infant troubles during the heated term of the year is due to derangement of the gastrointestinal tract caused by putrefactive and other microorganisms, then it is easily discernible how the proper employment of *such* infant cultures is the agent *par excellence* with which to combat these pathological conditions. In mild cases of infant diarrheas accompanied by frequent stools, green or otherwise, the use of two or three culture tubes daily taken direct from the tube will suffice within a few days to restore the gastrointestinal tract to its normal conditions. Naturally the usual hygienic measures with reference to cleanliness, sterile implements employed in its feeding, and proper dietary directions must coexistently be employed.

In the severer cases, where extreme emaciation and very numerous stools are present and time is a most urgent factor in establishing in the bowel at the earliest possible moment, a culture of the Bulgarian bacillus, a much more vigorous attack must be made. Here it is advisable to place the contents of two to four tubes in about two ounces of warm water (100° F.) and inject the same high up to the splenic junction of the colon both night and morning. These injections should be made very slowly, the object being to have the solution retained so as to flood the entire colon with the bacillus. At the same time one tube should be given by the mouth as frequently as every two hours for the first twenty-four hours, bearing in mind that the medium of properly constituted infant cultures is a natural food-product of itself. As the symptoms show amelioration the injections should be given at night only and the doses by mouth reduced to once every six hours. After a few days, all injections should cease and one tube given by mouth night and morning. This line of treatment is almost a specific and has been followed by a speedy return of the stools to normal color, odor, and consistency with increase in weight of the child and marked improvement in its blood and general health.

The principle involved here is the same as in the treatment of all intestinal derangements with the *Bacillus bulgaricus*, we are replacing malevolent death impelling microorganisms with beneficent health restoring ones.

The writer's practical studies for many years at the autopsy table and microscope confirms the conclusion,—There is no one biological principle that more deeply concerns the health and longevity of man and of which he stands more in need than *Intestinal Antisepsis*.

Those who daily follow Professor Metchnikoff in this principle with the cultures he himself employs to consummate it will experience the highest efficiency of their tissues. It is not probable that a man of his versatile scientific training, after a quarter of a century of extensive research work on this all-important subject (himself for many years a daily user of the *Bacillus bulgaricus*), has fallen into error. It has rightly been said of him: "He is seventy years young."

200 West Seventieth Street.

ACUTE CONTAGIOUS CONJUNCTIVITIS.

PRELIMINARY REPORT OF A SERIES OF CASES ORIGINATING IN A PUBLIC SWIMMING POOL.

By SAMUEL HORTON BROWN, M.D.,

PHILADELPHIA.

In the larger cities of the United States it is no uncommon occurrence in the summer months to encounter cases of acute conjunctivitis in youngsters who have been patronizing the public swimming pools. Many attribute this to the mechanical irritation of the water and kindred factors. In the early part of August, 1913, the eye clinics of the central and southern part of Philadelphia (the older part of the city) began to be crowded with a distinct type of conjunctivitis, appearing in epidemic form, and readily traced to a public swimming pool operated by the city of Philadelphia at Third and Queen streets. The infection spread rapidly among the children of the neighborhood, mostly of foreign parents, attacking girls as well as boys, and frequently the eyes of the parents were affected and work was out of question.

By the time the opening of the fall school term began the cases were so numerous that the medical

inspectors were cautioned to be on the alert for cases in the early stages, as well as frank cases, to prevent infection of the entire school population. By means of the services of the school nurses and social workers it was possible to follow up the cases, in order to see that they reported for treatment, and also that new cases in the homes of the patients, or those of their neighbors might be unearthed and promptly treated. This resulted primarily in an increase in the number of cases, as would be expected, and ultimately in a shortening of the course of the disease, and the elimination of foci of infection. By Thanksgiving the condition was no longer an epidemic, but scattered cases were encountered from time to time.

It was my privilege to see the majority of these cases in the eye clinic at the Pennsylvania Hospital, and I take this opportunity to express my appreciation of this privilege of studying them to Dr. Peter N. K. Schwenk and Dr. Wm. T. Shoemaker, ophthalmologists to the hospital.

Our entire experience with the condition covered about 500 cases, of which we were able to follow in detail 314 cases. Of these 24 occurred in persons over 25 years of age, 12 in patients between 15 and 25 years, 90 in individuals over 10 years and under 15 years of age, and 188 in children under 10 years. Of this number 235 were males, mostly boys who had patronized the Third and Queen streets pool, and 79 were females. Sixty-four per cent. of the females were infected after the public schools opened. The school girls were practically free until the school term opened, when all the pre-existing cases were brought together to infect a virgin field.

Nothing pleases the average faultfinder so much as to learn that a school, or a swimming pool, or a bath, or a railroad car, or some other public utility is a source of infection. Nothing is so cheerful to such a person. The fact that it is the faulty management of the same that is the cause, not the utility itself, escapes the critic entirely. Most of these individuals are good, straight-laced people, and they would be shocked beyond description by an assertion that Sunday schools spread more infection than any other aggregations. Who ever heard of fumigating a Sunday school?

It must be borne in mind that most of the public swimming pools in the larger cities are located where they are most needed, and not where they would be most ornamental. Consequently many of the patrons are far from cleanly when they come to the pools and bring with them, unconsciously, the infections theat surround them at home.

Analyzing the sources of contagion, we found that the swimming pool at Third and Queen streets was directly responsible for 85 of our cases, and indirectly responsible for nearly all of them. The public bath at Eighth and Catharine streets was accredited with one case. Six weeks after the epidemic character of the condition was noted there were 7 cases traceable to the Ninth and Montrose streets bath. Three weeks earlier 14 cases were seen from the Eighth and Lombard streets bath. During the fourth week of the epidemic 3 cases were seen that were contracted at Eighth and Mifflin streets pool. One case was observed from the bath at Fourth and Gaskill streets. A private bathhouse at Third and Vine streets contributed 2 cases, and a public bath at Fifth and Fitzwater streets one case to our series.

After the factor of the public bathing pools was recognized by the health authorities appropriate measures were taken to prevent other cases from arising from these sources. The disease did not subside immediately with these measures. Thus 64 cases were noted as coming from houses in which there were other cases, although these 64 patients had not patronized any swimming pool. When school opened, September 9, 1913, new cases were still observed, 89 of which were contracted from other cases in the same neighborhood, and not otherwise noted. At the same time 11 cases were observed in our clinic as occurring apparently sporadically in remote sections of the city. One case appeared incidentally, perhaps, in the course of hay fever, and one in the course of pertussis. Thirty-four of our cases failed to admit of a proper classification as to their sources of contagion, but as they came from the same neighborhood and schools as the majority of our patients, it is reasonable to assume a common source for all of them.

The distribution of these cases on the opening of the school term is interesting, showing the possibilities for the dissemination of any infectious disease. The following schools were accredited in our clinic with the number of cases given, but a census of all the dispensaries and hospitals downtown would show a greater number than we have recorded here. From one school alone we are informed by the nurse in attendance, 60 cases were observed. This was the Henry Burk School at Third and Christian streets. Our record, however, shows but fifteen from this school. The James Campbell School, at Eighth and Fitzwater streets gave us 13 cases. The George Washington School, on Fifth street, below Washington avenue, furnished 6 cases; the Hawthorne School, at Twelfth and Fitzwater streets also gave 6 cases; the Randall School, at Ninth and Bainbridge streets, had four of our cases; the Meredith School, at Fifth and Fitzwater streets, had 4 cases; the Beck School and Florence Annex, at Seventh and Catharine streets, registered 6 cases with us; the Mt. Vernon School, at Third and Catharine streets, registered 4 of our patients; the Binney School, at Sixth and Spruce streets, sent us but 3 cases; the St. Paul's Parochial School, at Seventh and Christian streets, furnished 3 cases; the George M. Wharton School, at Third and Pine streets, sent us 2 cases, and the McCall School, at Sixth and Delancey streets, 3 cases. Two cases each were recorded as coming from the Forten School, Sixth street, above Lombard Street; the Richard Henry Lee School, Front and Christian Streets; the Nebinger School, Sixth street, above Carpenter street, and the John Hay School, on Wharton street, near Sixth street. One case each was observed from each of the following schools; Willard School, Emerald and Orleans streets; Weccacoe School, Second and Reed streets; St. Philip's Parochial School, Second and Christian streets; Fourth and Christian streets School; Fletcher (R. H. Lee) School, Front and Christian streets; Sacred Heart Parochial School, Ralston School, American and Bainbridge streets; Christopher Columbus School, Ninth and Carpenter streets; Columbus Annex, and Our Lady of Good Counsel, Fifth and Carpenter streets.

To any one at all familiar with the geography and topography of Philadelphia it will readily appear that the distribution of this infection was over a comparatively restricted area and among communities in constant communication with each other. This foreign section does not intermingle with other sections of the city to any great extent. We repeat

and beg for allowance for the fact that our cases show only the tendencies of the dissemination, and do not cover the total number of cases occurring in the schools. Before the schools opened it was with the greatest difficulty that we were able to determine the school attended by any particular patient; either the children forgot or didn't know.

Among those whom we can regard as adults—namely, those over fifteen years of age, since these individuals for the most part assume the same economic responsibilities, the possibility of dissemination and the field invaded are of interest. Thus, 13 were mothers, practically heads of households; 8 were general utility men, 1 worked as a barber, 1 in a cigar store, 1 as a tailor, 2 in a trunk factory, 1 in a foundry, 1 in a bottle factory, 1 in a paper box factory, 3 went to school, 1 was a baker, 1 worked as a laborer in a stone yard, 1 was a stone cutter, 1 was a clerk in a lodging house—a total of 36. Twenty-nine of these contracted the disease from children, 4 from adults, and 3 directly from the swimming pools and baths. Evidently the disease does not thrive in the adult and the virus is thereby attenuated. As far as our experience went, the infection spread from the children to the elders and there exhausted itself, since there were very few cases in children or adults that had been contracted from adults.

The extent of the dissemination may be appreciated by the figures submitted by the Social Service Department. Thus in 52 instances each case had infected one other person; in 8 instances 2 persons each were infected; in 8 cases, 3 each; in six cases, 4 each; in two cases, 5 each, and in one instance 7 were infected. These were direct cases of infection. In some instances the infection was light and no other cases followed, although all conditions seemed conducive to it. Thus only one case was observed in two households of eleven people, two households of eight people, one of seven people, and two of five people, in a lodging house where the clerk and manager was infected.

The duration of the disease in individual cases was greatly influenced by treatment and by the discovery of latent or rather untreated cases. The Social Service Department, when informed of the presence of a fresh case, usually produced within a day or two one or more cases from the same house or neighborhood of two weeks or more duration. Thus the cases referred from this department to the clinic showed a variation in duration of the disease prior to being observed by us, as follows:

One case, 12 hours; 24 cases, 1 day; 19 cases, 2 days; 70 cases, 3 days; 19 cases, 4 days; 5 cases, 11 days; 1 case, 6 days; 26 cases, 1 week; 14 cases, 2 weeks; 8 cases, 3 weeks; 4 cases, 4 weeks; 1 case, 5 weeks; 4 cases, 2 months; 1 case, 3 months. The cases that consulted us independently of any Social Service showed the following duration prior to our observations:

Two cases, 12 hours; 11 cases, 1 day; 11 cases, 2 days; 19 cases, 3 days; 11 cases, 4 days; 11 cases, 5 days; 6 cases, 1 week; 2 cases, 2 weeks; 1 case, 4 weeks; 37 cases, indefinite. Thus it will be noted that the cases seemed to occur in pairs, two or three days with ten days or two weeks. When the disease began as a monocular condition, however, the fellow eye was infected in twelve to twenty-four hours, which period must, therefore, be assumed as the correct incubation period.

The clinical appearance presented by the patients upon their first visit to the hospital is rather interesting. Thus in 314 cases the bulbar conjunctiva was so intensely congested as to justify the popular designation of "pink eye." The palpebral conjunctiva was the subject of pronounced congestion in but 38 cases and pronounced swelling of the lids was present in but 36 cases. Of much greater frequency was edema of the conjunctiva or chemosis, which was observed in 216 cases out of the series of 314. The bulbar congestion frequently gave the appearance of impending subconjunctival hemorrhage, but a frank hemorrhagic appearance was noted in but 16 cases, and these were in adults. Profuse discharge was observed in 270 cases, although without our records we would have said profuse mucopurulent discharge was a characteristic of the entire series of 314 cases.

Among the subjective symptoms, an inability to use the eyes, was a prominent complaint in 250 instances, and it is this fact that has justified the study of this disease in this particular instance. Any disease or condition that interferes with efficiency, becomes of economic importance. If we determine the aggregate period of disability in this series and multiply it by the average daily wage we readily appreciate the economic loss this disease has caused the community, independent of the time and money expended in an effort to combat and relieve the conjunctivitis.

Pain, itching, and burning were present in 4 cases, all adults; photophobia occurred in 6 adults. There were practically no other subjective symptoms except those incidental to the discharge.

As the disease progressed complications ensued, and perhaps the earliest noted were phlyctenules, which appeared within the first week in 18 cases. When the cases were of long standing the lymphatic follicles in the lower lid enlarged to a noticeable degree in 26 cases, and to a most pronounced degree, resembling trachoma, in 20 cases. Other complications were: Blepharitis, 1 case; herpes simplex of conjunctiva, cornea and eyelids, 1 case; hay fever, 1 case; pertussis, 1 case; episcleritis, 1 case; hordeolum, 1 case; pediculosis ciliarum, 1 case; corneal ulcer, 1 case; facial palsy, 1 case; orbital cellulitis, 1 case; superficial keratitis, 1 case; pterygium, 1 case; macula corneæ, 1 case; remote anterior adherent leucoma, 1 case. These may be taken as largely incidental. Trachoma was present in 4 cases and nasal discharge in 3 cases.

Among the complications it was noteworthy that only one corneal ulcer was observed, and it was probably only an incident and not due to the infection. This will bear out the contention that corneal ulcers seen in all conjunctival inflammations (especially ophthalmia neonatorum and purulent conjunctivitis) are due to injury and direct infection of the cornea and are not caused by swelling of the conjunctiva shutting off the nutrition of the cornea. A healthy cornea with an unabraded epithelial surface, is, in our belief, unlikely to be the seat of ulceration, even when the conjunctival inflammation is most severe and intense.

The enlarged follicles and granulation in both cul-de-sacs suggests an explanation of the great number of cases of trachoma, so-called, seen in some communities. There is no question that follicular enlargements are a terminal stage of most prolonged conjunctival inflammations. With the exception of four of our cases, all underwent involution, but the persistence of these four warranted us in assuming that they were cases of trachoma prior to the Koch-Weeks infection.

At the beginning of the epidemic efforts were made to study the condition from a bacteriological standpoint. Smears and cover glass preparation were made routinely in 26 cases, with the result that gram positive bacteria were found in 1 case, mucus in 3 cases and Koch-Weeks bacilli in 6 cases. It was very evident from this that something was wrong with our technique or else the laboratory men were unusually conscientious and refused to find for us the particular kind of bacteria we had ordered. The entire bacteriology of the cases was then placed in the hands of the laboratory men and fifteen cultures were made. Loeffler's blood serum tubes were inoculated and a pure growth of Koch-Weeks bacillus found in seven instances and the Xerosis bacillus in 4 cases. Staphyloccoci were found in the smears previously noted, but as the investigation was directed against a definite microorganism no mention was made of them.

It is very obvious, then, that our bacteriological investigations were not a huge success. After the third week of the epidemic we were so crowded in the clinic with work that further special work was impossible. We have proceeded, however, to study the natural history of the Koch-Weeks bacillus obtained in the cultures, and this is not completed, hence the term "preliminary" in the title of this paper.

While the bacteriological features of this epidemic were unsatisfactory, there were other features which were highly gratifying. For instance, there were 195 patients who failed to return after the first visit. For all practical purposes they were cured very shortly, because—in the case of school children, which most of them were—the school was notified and the child compelled to seek treatment somewhere—if not at our clinic, at some other one. In any event social workers visited the homes of the patients and determined why the patients did not return. Nearly all of them did not return at the time specified (four days) because they were well enough not to require to do so, they thought.

A number of school children (forty-nine) were infected in the early part of the summer who did not come under the supervision of the school nurses or Social Service in the early stages, but who straggled along in their attendance at the clinic and carried the disease for practically six weeks. At the end of this period the schools opened, and these children were "socialized" and involution of the disease was prompt.

The duration of the disease in other instances, after treatment was instituted, is of interest. Thus in 8 cases the disease lasted 4 days; in 12 cases, 7 days; in 1 case, 9 days; in 9 cases, 11 days; in 5 cases, 13 days; in 5 cases, 14 days; in 3 cases, 16 days; in 4 cases, 18 days; in 3 cases, 19 days; in 4 cases, 20 days; in 4 cases, 22 days; in 1 case 24 days; in 4 cases, 30 days; in 1 case, 5 weeks; in 1 case, 6 weeks; in 1 case, 2 months; in 4 cases, 3 months. Comparing this with the duration of the disease in the untreated cases the difference is remarkable. The duration of the cases that were detected by the social worker and those occurring in patients who voluntarily came to the clinic has already been given.

Each patient was placed upon a routine treatment at the very beginning of the treatment, consisting of iced compresses, boric acid solution (boric acid gr. x, sodium biborate gr. i, distilled water, 1 ounce) every hour, and the instillation twice or three times daily, of one drop of a solution of toluidin blue (1 to 1,000) at the suggestion of Dr. C. P. Franklin. The patient was instructed to return on alternate days to the clinic and the application of a 2 gr. to the ounce silver solution was made. At first treatment was directed only toward the affected eye, but shortly it was deemed advisable to treat both eyes from the very beginning. The duration in the latter was much shorter than in the former cases. As follicular enlargements and granulations made their appearance, boroglycerin, (50 per cent. in glycerin, not water), at the suggestion of Dr. Conrad Berens or glycerole of tannin (10 per cent.) was applied. At the suggestion of Dr. P. N. K. Schwenk, the chief of the clinic, the following preparation—boric acid, gr. xxv, sodium biborate, gr. x, distilled water, 1 ounce—was used in ten cases. The increase in the quantity of sodium biborate to the ounce permits the perfect solution of a greater quantity of boric acid than usually employed. In 55 cases the ordinary boric acid solution (gr. x to the ounce) was employed. In drawing comparisons between these three methods, it would appear that each was equally serviceable in the cases in which it was employed. In 200 cases in which boric acid and toluidin blue were used 61 failed to return after two or three visits, and, we assume, were promptly relieved. The greatest factor in whatever treatment used is the persistent use of it. The instillation of clean, cold water every hour in these cases, we have no doubt, would have been equally efficient; thus it is we find good results from all of the treatments, because through the aid of the Social Service, the treatment was actually employed and not used in the customary desultory way. As regards antisepticizing the conjunctiva, we believe nothing accomplishes that so well as a weak solution of nitrate of silver.

From this survey of 314 cases of acute contagious conjunctivitis, occurring more or less simultaneously, and in a manner constituting an epidemic, we conclude that the causal agent is more likely to be encountered in the public swimming pool than elsewhere, due to the unsanitary regulations governing such institutions. The difficulty with which specific bacilli are cultivated, even from soiled handkerchiefs and towels, places the responsibility directly on the stagnant water of the public pools. We have directly infected pieces of handkerchiefs and towels and the bacilli died of inanition on them, in so far as we are able to determine at this writing. We further conclude that the conjunctival cul-de-sacs of children provide the factors for the growth of the disease better than adults. In adults the virus, or whatever it may be called, became very much attenuated and failed to produce the disease in other adults, except in very few cases, and not at all in other children. Another conclusion we are inclined to reiterate is that severe inflammation with intense swelling, edema and chemosis of the lids and conjunctiva will not produce corneal ulceration if the corneal epithelium be not abraded either by the patient or rough handling by the doctor. That any form of conjunctival inflammation may follow infection of this character is also proved by the occurrence of the several different kinds of complications and sequels. The occurrence of a simple form of granular conjunctivitis, really exuberant granulation tissue unassociated with trachoma and unattached by its complications or sequels, is likewise amply proved by the observations of this series of cases. The value of persistent treatment is again demonstrated and the efficiency of the

Social Service Department is brought out very prominently.

The argument advanced to justify the existence of the Social Service in the hospital is that the follow-up work enables the physician to obtain results from his treatment. This is amply shown by our observation and confirmed by the following report of Mrs. Martha J. Megee, head of the Pennsylvania Hospital Social Service Department:

"The Social Service finds, in perusing its records, a total number of 754 cases of acute contagious conjunctivitis under observation in the eye clinics of the Pennsylvania Hospital from May 1, 1913, to February 28, 1914. Of this number over 200 were referred to the department for investigation, and the several other purposes for which such departments are instituted and organized. The investigators were impressed with the necessity of determining how many other infected individuals were in the family, how many were in the same house, and how many were in the immediate neighborhood. It was then determined whether these cases were under treatment and where; if not under treatment, they were advised to go to some physician or clinic immediately, and encouraged to seek relief at the Pennsylvania Hospital Out-Patient Department. In the case of school children, the school they attended was determined and notified of the existing condition; when these children came to the hospital, the cooperation between the clinics, the Social Service, the school supervisors and associates, and the school physicians and nurses, was such that the course of the disease was carefully observed in all of its features, medical, sociological, etc., to the great advantage of the children and the public with which they came in contact.

"At the beginning of the pronounced epidemic originating, as we subsequently proved, at the public swimming pool at Third and Queen streets, the workers investigated conditions at the pool on more than one occasion and satisfied themselves that the heads of the appropriate departments in City Hall had no immediate knowledge of conditions as they then existed. Similar conditions probably existed in the other pools throughout the city, but of this we have no personal knowledge. City Hall was notified through several sources and attempts were made to ameliorate conditions.

"In the investigating of the home conditions our workers readily appreciated the features of the disease as explained by the physicians in charge of the patients, and it was with little difficulty that they impressed upon the parents of the children the need of a physician's care immediately, the necessity of regular attendance at the clinic and regularity in applying the treatment (often making the treatments themselves or explaining how they should be made in the home), the prime importance of cleanliness, and the means of preventing infection of other people.

"Later, when school opened, the cooperation of the school attachés enabled us to have the children excused and kept from school pending involution of the disease; these children were then followed up and their attendance at the clinic checked up. An absentee was reported to the school and advised to return to the clinic at the appointed time. Failure resulted in notification of the Bureau of Compulsory Education. Children were readmitted to school when discharged by the clinic staff, and the Social Service advised the school supervisor. This courtesy was extended by the school physicians."

The statistics of the cases show some very interesting facts. Thus, from May 1 to July 30 there were 46 cases; from July 30 to September 30 these increased to 405 cases; from September 30 to December 30 the number fell to 221; from December 30 to February 2, 1914, there were only 82 cases. This entailed over 600 visits on the part of the Social Service Department's workers. When it is remembered that for this period of ten months these cases constituted 23 per cent. of the new cases seen in the eye clinics, and that during August and September the percentage jumped to 40, it will be readily seen that this work on the part of the Social Service Department was justifiable and necessary.

The lessons learned through this experience have been placed before the new Director of Public Health, Dr. Richard Harte, formerly a member of the staff of Pennsylvania Hospital, and the prospects are very bright for the prevention of such an epidemic during the rapidly approaching summer of 1914.

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ASPECTS OF VISUAL ACUITY.

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There is probably no other factor quite so important to the enjoyment and usefulness of the human economy as vision. It is the avenue through which the major portion of the stimuli from the outside reach our minds. It is the visual concept which rises in importance directly as there is a rise in our civilization. Civilization means visualization. The visual concept is a most important one in modern methods of education. Now, even the deaf can be made to "hear" through their visual sense, and in this respect the visual sense becomes a combination of the senses of hearing and vision. The higher becomes our plane of civilization the greater call is there made on the visual sense, and the greater is the requirement for an unimpaired vision. This is now everywhere realized, and has resulted in organized attempts at conservation, at least from such tangibly preventable causes as infantile and adult gonorrhea, industrial injuries, etc. Good results of this crusade are already manifesting themselves.

Little attention has thus far, however, been paid to the conservation of visual acuity. Consistent medical inspection of school children demonstrates the large percentage of visual defects among them. In the larger centers efforts at correction and the prevention of further development have been tried. It is important to obtain and to retain for each individual the maximum amount of visual acuity possible. The average range of human vision does not vary much, and if only for uniformity's sake all vision should correspond to that average. The reason for the presence of vision below or above this average is given by some investigators as caused by heredity or hereditary predisposition; by others, as being characteristics entirely acquired. The question is far from being a settled one. From the standpoint of prevention of the development of acuovisual defects, it is probably better to ignore the heredity theory, and accept the acquired theory. The general impression, however, is that several characteristics in the visual complex are concerned in acuovisual defects, and are transmitted merely

as hereditary predispositions. There is a tendency to deny heredity in the nearsighted—the myopes, —and to concede the possibility in the farsighted—the hypermetropes. It is estimated that not more than 10 per cent. of visual defects are hereditary and that the majority of these are the farsighted. Myopia is attributed to one form or another of unhygienic optics, thus making the condition entirely preventable. On the other hand the Galton laboratories found no predominance of visual defects among the overcrowded or the unhygienic. In fact the actual statistics adduced showed better vision among the poor and the unhealthy than among the better classes. Their results showed that health and environment bore no relation to visual acuity. But whatever these investigations show, the fact remains, that there is a large field for prevention in optics, so to speak, which needs to be developed.

In speaking of visual acuity the distance at which an object is distinctly visible, is usually meant. According to this nomenclature the farsighted would have acute vision, and the nearsighted ones subacute. This conception is not entirely correct, since at a certain focal point the myope's vision is just as acute as the hypermetrope's, but in the former that point is much nearer to the eye than in the latter. The myope's acute vision is therefore at a near point, the hypermetrope's at a more distant point. In grading the visual acuity of a myope at half because he sees the standard test type only at half the distance, you do him an injustice, unless, indeed, you qualify the statement properly; since his vision at half the distance is just as acute as the normal's at twice the distance—or some such ratio. On the other hand, a myopic eye can see twice as near, so to speak, as the normal eye, yet the normal eye has not therefore half the vision. The very acute vision at a near point, together with the magnification of objects which the myope possesses, is a decided advantage to him, especially in certain occupations requiring close application. Whether this advantage overcomes the undoubted disadvantage of the restriction of the distant range of vision, is an open question. Clinically, a myope is defective for distant vision, and a hypermetrope for near vision. For the sake of accuracy and to prevent confusion, especially in the communication of these defects to laymen, it is important to specify the type and degree of the defect.

From the standpoint of actual acuity of vision, it is perhaps more proper to say that one has not acute vision who at no distance sees an object clearly or has the image sharply defined. While this may be due to purely refractive errors uncorrected, like astigmatism, in which owing to differences in or asymmetry of the corneal curvature, vision is clear at no point, it is more nearly true in such pathological conditions as are found in diseases of the various media of the eye, the retina, the choroid, optic nerve, or even the cerebral endings. In these conditions there is diminution for both distance and acuity, and lenses can have no correcting influence.

The range of vision in an individual varies between his near and far points, and the regulation of these distances is accomplished through the accomodative apparatus. In young children the power of accommodation is very well developed, even to a maximum of fourteen diopters. A diopter is the unit of refractive power, and expresses the power of a lens whose focal distance is one meter; the higher the dioptric index of the lens, the shorter the focal distance. High power lenses have, therefore, a shorter focal length, and vice versa. The large range and amplitude of accommodation of children, which becomes less as the child grows older, and is slight in adults, frequently masks acuovisual defects. These may not be discovered till later in life, when the damage from the uncorrected refractive error can be but little remedied. For this reason a routine examination of children of school age, perhaps even with a cycloplegic to paralyze accommodation, might not be amiss, in order to determine the presence of possible error, and then to correct it. While complicated refractive errors require the services of trained opthalmologists, the general practitioner should at least be able to determine the presence of the defects, and in the simpler cases to correct them.

For determining the acuity of vision, especially for record purposes, a test type card modified after the principle of the Snellen card, is employed. The test type are letters so arranged that they decrease in size from above downward. The largest letter at the top should be read at 200 feet, the letters on the next line at 100 feet, and so on down to letters so small that they should be read at 20 feet, at 15 feet, and even at 10 feet. Standard vision sees the various sized letters at the designated distances, but for record purposes especially, the 20-foot type at 20 feet. This standard is designated as 20/20 vision. The numerator of this fraction is the fixed number 20, representing the distance at which the patient stands from the test card, the denominator varies according to the size of the letters he sees at this distance. The test type itself is a visual angle of 5′ subtended by the letters, or 1′ subtended by each of the component lines.

A little too much reliance is perhaps placed on the test type as an indicator of visual acuity in civil, commercial, and military examinations. Certain conditions affect this test, and should be borne in mind. The Snellen standard does not represent the average acuity, nor does it represent the maximum acuity. Neither is the result of this test an index of what the eye can do when put to practical test. For this reason the test card characters and the test in general should conform as far as possible to conditions under which the eyes are generally used. For it is a significant fact with how little really acute vision one can get along, and with how much less distant vision. Nearly in every walk of life, except in those occupations in which the very nature of the work requires the maximum amount of distant vision, one sees individuals who get along on a fractional part of the standard vision.

Factors which influence the result of the test type vision determinations are, principally, illumination, familiarity with letters, and the form of the letters themselves: that is, certain letters, as I and L are more legible than others. Enormous differences in visual acuity are found with the decrease in the illumination intensity, but so far no law of correlation for those differences has been formulated. Yet while illumination of the test type will improve the result, an illumination beyond a reasonable amount will have no effect in this respect. Unless, however, some uniformity in illumination intensity is observed, especially where the question of distant vision is important, results will always vary. One individual may pass a test, whereas another with the same visual acuity may fail simply because the illumination intensity has

varied. Individuals of the same visual acuity will be given different ratings, or individuals with different amounts of visual acuity will be given similar ratings. Artificial illumination, because its intensity can be kept uniform, is the best means of illumination. An eight to ten meter candle light is taken as the equal of 75 per cent. daylight. For the purposes of illumination eight meter candle light is considered a low illumination, while a forty meter candle light is very high for ordinary purposes in respect to uncolored illumination. White illumination gives the most acute vision, then red, then green, then blue. The light question is yet an open one with respect to these determinations, but it should not, therefore, be entirely ignored.

The material question of importance in the matter of visual acuity is the question of the fitness of the individual whose vision, thus in a very approximate way, to be sure, has just been determined for the various occupations of life, and the ability for success in such occupations—the ability of the individual to support himself. Certain occupations require a maximum amount of vision, and preferably a maximum without the correcting influence of glasses. This acuity of vision refers here, of course, to distant vision. Other, and most occupations, do very well with a vision corrected to normal. Still others get along with a visual acuity in varying distances below the standard. In the occupations where distant vision is so important, as in the transportation occupations, testing for distant vision alone is not sufficient, for there may be in young adults a tendency to latent hypermetropia, which when it becomes patent in later years may very materially reduce the vision, and which may or may not be then correctable with lenses. A slight myopia in adults while there is some possibility of increase, is very slight at best. Usually the slight myopia of adults has a tendency to disappear as it is neutralized with the hypermetropia (presbyopia) of middle and later life. But a patent hypermetropia has a tendency to increase with the onset of presbyopia.

Experiments (Wunderman) on the economic values of vision in the various trades and occupations have shown very naturally that coarse workers and laborers get along on very much less vision than skilled or professional workers. But here again it must be remembered that scientific and practical visual acuity are not one and the same thing, and that the deductions of these experimentors, with their findings, are rather of less practical than theoretical value. An individual may be found scientifically deficient, and yet be practically efficient.

In whatever walk of life, damaged vision means less ability to retain, but especially to obtain employment. The loss from defective or damaged vision is less as age advances for the reason that part of this loss is lost in the usual loss of usefulness from old age. This is, of course, only relative, for both together make the absolute loss of ability larger. The matter of damaged or defective vision for the various occupations and with certain ages can be made determining factors in the admissibility, because of their relative efficiency, of aliens. The efficiency of an alien with a certain degree of visual defect should be determined in conjunction with his occupation and age. Mathematical computation places the earning ability of the visual power as equal to the functional activity times the square root of the competition. While this again is very theoretical, it is a formula that may have a value when the efficiency of a large number of individuals is to be rapidly considered. It is further estimated that unskilled labor can afford to lose one-half of its vision without economic loss, while skilled labor cannot afford to lose more than one-quarter. When a laborer's vision falls to a 1/20 part he is to be regarded as practically blind; and a skilled laborer is practically blind when his vision falls to a 1/7; in other words, the range of vision for the skilled must be at least between .75 and .15, the laborer's between .50 and .05. These estimations are for the eye having the maximum vision, the other eye may have less, but is not considered in these computations. According to other estimators this latter is not entirely correct, for they credit a one-eyed person of the higher ranged skilled type with a loss in earning power of between 20 and 30 per cent.; and for the lower ranged type a loss of between 15 and 25 per cent. On this scale reduction in the vision of the other eye below the eye in question would have a tendency to further reduce the earning capacity.

Among those requiring the higher range of vision are placed the professions of medicine, law, and theology, students of all professions, engineers, fine mechanics of all kinds, transportation operators and employees, telegraphers, etc. In the lower range are all unskilled laborers, glass workers, quarrymen, miners, building workers, farmers, and the like occupations. These classifications are not intended to be exact, but they do form a rough basis for the practical treatment of this subject. All members of the same trade do not demand the same amount of vision. The personal element, individual skill, etc., are modifying factors. Besides, it must be remembered that the test type determination of the amount of vision is not the actual amount of vision, nor does it give a strong clue to what the vision can actually and practically do. Most individuals can reconcile their vision to their work, or, better, they seem naturally to select for themselves the work best suited to their vision.

Myopes especially, seem to select work best suited to their vision, and they are seen to be prolific in such occupations where distant vision is of no account. They seem to be in a class by themselves, and their usefulness cannot be judged by the same standards as other workers. On the other hand, in transportation occupations, aside from the importance of color vision, the question of distance acuity is of paramount importance. The United States Government controls and enforces the visual examination of those engaged in the navigation of vessels. No license is issued or renewed to those who do not pass the color or distance tests. These tests should be carried out with uniform illumination and attention should be given to latest hypermetropia. The government has, however, no control over railroad and other transportation employees. It is true that the railroads are now conducting examinations of their employees and prospective employees, but the examinations lack uniformity. In interstate traffic of all kinds, not alone railroad, the government could exercise control without interfering with State rights, and as for intrastate traffic the various States could easily be made to see the advantage of allowing the Federal government, through its public health service, to assume control. The operators of all vehicular traffic, even of automobiles, operating between the States should be examined to determine their visual acuity.

With railroad operators distant visual acuity has a more practical significance because of the position of signals which is of such vital importance to railroad operation. It has been estimated approximately that the presence of the semaphore blade should be determined at from two to three miles by the average eye, and as it takes about two thousand feet to bring a high-speed six-car train to a stop, it is essential that the signal should be determined at about half a mile. It is wisest to require normal vision of railroad operators without the correcting influence of glasses. Since even if lenses do correct, an accident to the lenses may mean an accident to the train. The factor of latent hypermetropia must be eliminated, for while a young adult may have normal vision with a latent hypermetropia when it becomes patent in later life, vision may be greatly reduced even to 20 200, with the possibility that even glasses may not correct. Most railroads now reject latent hypermetropes. The determination of this condition is simple. If an individual will see as well with a one or two diopter plus lens (convex) he has a latent hypermetropia equal in degree to the power of the lens he accepts. It goes without saying that myopes should not be employed in these occupations, even though a slight myopia tends to disappear at the age when a latent hypermetropia is most likely to manifest itself.

While hypermetropia handicaps in later life, myopia does so, if at all, in early life. At all events the handicaps of myopes are greatly overestimated, except, of course, in the high myopes, usually in those who have a myopia of ten or more diopters. In these, besides the refractive error, there is usually a pathological condition of the retina and choroid. Otherwise than in such conditions myopes have an almost unlimited field of visual usefulness and occupation. Indeed, it is said that civilization tends toward myopia because the fine analyses, dissociations, and synthetizations of civilization must be carried out at a near point. It is the combination of the many near-work specialties which produces the large finished product. It is only the coarse and crude work that can be done at a distance. Fine work means near work, coarse work means distant work. It is the near requirement of the modern specialized occupations which gives rise to the eyestrain and other eye reflexes. It is particularly the individual with a tendency to hypermetropia who feels the brunt of these requirements. The nearsighted individual, except if he is so nearsighted that his focus is actually tangent with his cornea, or even in back of it, so to speak, does not need distant vision—he can walk to it. It is not surprising, therefore, that so many myopes go without correction. Yet correction for even only a fair degree of myopia opens to them a new world, and they cannot understand why they went so long a time without correction. The farsighted individual without correction strains his eyes when doing the ever present near work. The myope seeks his distance, focuses on it, and is comfortable. He does not see his friends pass him, not because they are necessarily out of focus, but because his eyes are busily engaged keeping their own focus, to keep from strain in trying to negotiate various other points. The reputation of dullness of expression that the myope has because his eyes are always out of focus is not, therefore, always true, because as a matter of fact the myope does keep a focal point, be it ever so near.

Yet myopia of a high degree is a great handicap. The savage is not myopic because his survival depends upon his distant vision. On the other hand, it is said that the savage's vision is not better than the civilized individual's but he apparently sees better because he is educated to observe and interpret properly what he sees. This is undoubtedly the case with the high myope, who gets along though he does not see well, because he learns to observe, to interpret, and to accommodate himself to circumstances. The question of accommodation to conditions is illustrated in the high percentage of myopes in such trades as the jewel, lithographic, and printing trades. The theory that these trades cause this defect in their workers is not as plausible as the theory that myopes from natural adaptation choose these occupations, which they may be able to do better because they are myopic. This should be considered in judging the efficiency of individuals having this defect of vision to a greater degree but who are engaged in these occupations. In Germany, a country in which the sciences are highly developed, myopia is extremely common. It is estimated that about 60 per cent. of the student body and a lesser percentage of the adult population are myopic. The large amount of myopia among the German school population is placed at the door of the unhygienic type which is used in all but scientific publications, and which these otherwise enlightened people refuse to change from a sense of pseudo-patriotism. Myopia is so much on the increase in that country that if it continues to increase in number and degree they may become, so to speak, racially myopia-blind. The relative percentage of myopes increases with age because, in all likelihood, the range of accommodation becomes less as the child grows older. Whatever the cause, however, the increase in the number of myopes makes it imperative that this condition receive more study with the view of instituting methods of prevention and control.

It is to be remembered that the near work or reading distance and distant visions are not in a fixed ratio to each other; so that while a lens may give a standard or nearly standard reading distance vision, the same lens may not nearly give the standard 20 20 vision for distance. There does not seem to be a correlation between the two, either when corrected or when uncorrected. In other words, it can perhaps be said that the correction which should give at least a degree of vision which ought to be minimum for distance becomes in fact only the maximum for near work vision. Confusion is frequently caused by designating the degree of vision by other fractions than the standard Snellen fraction. While 20 20 is standard normal, 20 40 is not properly designated as one-half vision, nor 20 200 as one-tenth vision, because the Snellen standard fractions are only relative working bases for comparison and are not the equivalents of actual fractions, since as there is no standard vision real enough to call the unit, it is obviously impossible to designate an aliquot or other part of that vision.

In children the question of visual acuity has more than a present material or clinical import. The eyes are the main channels through which the mind receives the stimulation necessary to its development. A child with defective vision loses these stimuli, and if by reason of the visual defect enough of these stimuli are deprived from the mind, that mind will be defective. Ofttimes a child rated as mentally defective improves, to become even normal when the eyes are corrected to give even only a fair

degree of vision. Defective vision is often coupled with mental and physical degeneration. In many intelligence and good vision seem to travel together. In others, however, the degeneration which is only apparent is arrested and made to rise when the vision is corrected.

Competent ophthalmological examination can nearly definitely determine the cause and the degree of the refractive error of ophthalmic disease. There is, therefore, little excuse for any one to remain without at least a fair degree of visual acuity. But the degree of error indicated by the instrumental examination does not always coincide with the amount of correction that the patient's eyes will tolerate. The lenses must usually be modified in accordance with the individual tolerance, at times giving a degree of vision far below the standard and far below what is desired. The visual acuity must often be sacrificed to comfort. Very often full correction is not possible. The degree of refractive error with its equivalent correction as ascertained by instrumentation does not solve the problem of refractive errors. As in general medicine, each individual case must be separately considered, and the correcting lenses suited rather to the patient than only to his eyes. The general practitioner is frequently called upon to determine, roughly to be sure, with the test type, degrees of refractive errors. He should be able to do it more accurately and be able to determine the type of refractive error, and in simple cases even to prescribe the appropriate lenses. The optometrist would have a much smaller field. At any rate he should be able to say that a case needs the services of an ophthalmologist.

It was the general rule to give hypermetropes the least amount of correction that gave clear vision; and to insist that myopes get the highest correction in order to arrest the condition. Astigmatism always receives the full correction called for, and which the patient will tolerate. Now, however, in high myopes, full correction is not advised. Many times it causes great discomfort, may be harmful, and a lesser correction is certainly fraught with no danger. The extremely thick lenses called for in high myopia are serious cosmetic objections. It should be considered when treating high myopics. Thick lenses are in a manner disfiguring, and patients hesitate to betray broadcast their severe defect. Many patients, especially women, insist upon thinner glasses even at the sacrifice of better vision. Many mechanical methods are tried to reduce the thickness of the lenses and thus mask the condition. Lenses of higher refractive index would reduce this objectionable feature. Very nearsighted persons are not looked upon with a great deal of favor, not even socially, probably because the term nearsighted is too often used to define an analagous mental complex.

While the public seems to realize the advisability, and even the necessity, of obtaining as much acute vision out of their eyes as possible, it may seem odd that so great a number of persons are satisfied with the optometrist type of visual correction. The great impetus that this business has received in recent times does not, however, mean that there has been a decline in the work of the legitimate ophthalmologist; it indicates merely that the optometrist is an incidental evil in a movement for the good, namely, the movement for the conservation of vision. In large part the optometrist caters only to the crude, to those who in the absence of the optometrist and his advertisements would not recognize the necessity for better vision and lens correction. The optometrists sell glasses to all who may apply without regard to their needs, or whether they will be benefited or harmed by them—that is their business. Not everyone who applies to the ophthalmologist or even to the general practitioner gets lenses, for there are other indications which the optometrist does not recognize. Those for whom better vision means better work apply to the ophthalmologist sooner or later. This class of individuals is an ever-increasing one as more skilled labor and professions are demanded.

Physicians who wish to take up the practice of ophthalmology, in which refraction forms such a large branch, should first be certain that their own vision is good, conforms to the standard, or is capable of correction. In this work one is handicapped whose vision is below standard. With various degrees and kinds of corneal or lens defects it is very difficult and frequently well-nigh impossible to make the necessary computation corrections necessary to be made because of the defect of the examiner. Young men who have not yet even accommodative error do the best work. Many of the older ophthalmologists engage young men as assistants to do especially this branch of their work.

And, finally, it is to be remembered that after the many trying and time-consuming examinations, with the many modern delicate instruments for the determination of the error, both the physician and the patient are dependent on the optician in having the prescription for the lenses filled; and that in many instances the prescriptions are not properly filled to the harm of the patient and the chagrin of the physician. This can in a manner be obviated by sending patients only to opticians who do not attempt to refract their own cases but who devote their entire time and equipment to the lens production, but particularly by testing the lenses obtained with the lens-measure or spherometer, to see whether they conform to the prescription.

In conclusion it is urged that it is important to conserve visual acuity in the race, and that to accomplish this early diagnosis is important; that immediate correction of defects must be instituted; that the general health must be improved, and that hygienic measures as regards school life, occupations and industries, illumination and improvement in the reading type form must be enforced. As with other human ills which it is sought to eradicate in the present generation, but especially in the future, the eugenist will offer his theory as the means of solution. If it will be remembered, however, that real eugenics concerns itself not merely with the nature and reproduction of racial qualities, but more especially with their *nurture*, much good can come from this movement in this instance also. In visual defects the heredity incidence is small and knowledge on the subject almost negligible. Selective breeding for the eradication of racial ills and the production of racial qualities is still a phantom, but prevention by prophylactic measures is a reality.

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The Paths of the Internal Secretions.—R. Lépine points out that a part of the internal secretions passes into the lymphatics and a part passes directly into the blood vessels. In addition certain internal secretions exist in the walls of the blood vessels themselves.—*Revue de Médecine.*

THE PHYSIOLOGY OF WORRY.

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With the possible exception of those in the period of happy childhood, everyone is at times a victim of worry. In fact, the average individual thinks of and accepts worry much as he thinks of and accepts disagreeable weather conditions—as one of the bitter things of life which must be taken with the sweet. In other words, he regards it as a fact, but does not attempt to analyze it. The wisest thinkers of all times have recognized the condition, and many well-known writers have expressed their views of its psychology. What has not been sufficiently recognized, however, until very recently, is the importance of worry, not merely in itself, as implying the absence of happiness, but as the cause of ills far greater than itself, the cause predisposing to secondary manifestations which would otherwise have been escaped altogether. Having fully comprehended this fact, the next logical step in scientific progression is to determine the exact mechanism by which these disturbances are brought about. Through the conjoined efforts of psychologists and physiologists, we are just beginning to reach the true physical basis of this important subject.

The keynote of worry is beyond doubt a disturbance of the mind. It may be defined as the restless consciousness of all encumbrances which we accept under protest. To elaborate this definition, it is the mind's unrest about anything which concerns us, whether it relates to our future, our dear ones, a cause we have espoused, our happiness, our salvation, our means of support, our position in life, our health, our fate, or our success in general. It does not consist solely in our interest in all these things; it is rather a disquietude arising from a feeling of helplessness before the various chances and claims of life. The popular opinion seems to be that the mental condition is one of depression, possibly because the physical manifestations are chiefly depressive in nature. The fact cannot be too strongly emphasized, however, that the primary mental condition is one of overactivity, and moreover, overactivity along lines of fixed ideas.

Without taking up individually the phases of worry brought about by the various specific causes, the physical manifestations of worry in general may be said to be—depression of respiration, sighing, disturbances in rate and force of heart beat, vasomotor changes, disturbances in secretion, pallor, cold extremities, relaxation and decreased motility of the alimentary tract, dilatation of the pupil, loss of weight, insomnia and general physical exhaustion. These disturbances may vary in their prominence, and may appear as groups of symptoms characterizing well-known diseases. Thus, worry is sometimes an important agent in the production of diabetes, gout, exophthalmic goiter, and chronic heart disease.

Inasmuch as worry is primarily a disease of the mind, and since every portion of the body is intimately connected with every other part by a network of nervous tissue of great complexity, we naturally seek for the causes of these manifestations, first of all, in the nervous system.

In every individual, at a given time, there is a limited amount of potential energy stored up in the cells of the brain. This function seems to rest in the chromatin granules of the nerve cells, and it has been shown repeatedly that a liberation of nervous energy, whether in response to a psychic or sensory stimulus, results in a physiological degeneration of the chromatin granules, and consequently of the cells themselves. Obviously, a prolonged discharge of nervous energy diminishes by so much the amount left in the brain cells. Furthermore, stimuli of sufficient number, intensity, or duration may cause exhaustion and death.

Exactly this phenomenon occurs in the state of worry, except that the degree of fatigue rarely reaches the fatal extreme. Through mental overactivity, and the corresponding chromatolysis in cells concerned in mental processes, discharges of nervous energy to all parts of the body take place through the cerebrospinal axis and the sympathetic system. Whether the action of a given structure is augmented or inhibited, of course, depends upon its inervation. One of the most constant effects of such long-continued discharges, however, is the production of a certain amount of tonic contraction of most of the voluntary muscles, which, if at all noticeable to the individual, he describes as a slight increase of body tension.

A physiological degeneration of nerve cells is normally offset by a slow regeneration, occurring during the periods of physical and mental repose. In worry, because of the fact that the catabolic process is at first more rapid than the anabolic, gradually diminishing as the lower limit is approached, and because continued mental activity gives rise to insomnia, a period soon arrives when the expenditure of vital force in the shape of obvious work done has reached a point where the regenerative process, slow as it is, is just about able to offset the breaking down. The phenomena expressing the depletion of the vital force are termed "physical exhaustion." This is to be distinguished from "shock," wherein the stimuli lead to no obvious work done, and the expenditure of energy is extremely rapid.

The sympathetic system, probably because of its intimate relation to vegetative functions, seems to be susceptible to a much slighter degree of stimulation than are the nerves of the cerebrospinal axis. When, in the course of events, therefore, the latter nerves are no longer able to respond adequately to the stimuli arising from the mental activity, the sympathetic is apparently capable of carrying on functions even greater than those which it is normally called upon to serve.

Bearing these facts in mind, we see a possible explanation of some of the various physical phenomena. For instance, stimulation of the sympathetic, with a decreased activity of the motor oculi nerve, causes dilatation of the pupil. Depression of the vagus, phrenic, and intercostal nerves decreases the breath rate. The sigh, so often observed in worried individuals, is simply a very deep inspiration which occasionally takes place to compensate for what would otherwise be insufficient oxygenation of the blood. Through depression of the vagus and the simultaneous stimulation of the sympathetic, the heart action frequently becomes rapid and weak. The vasomotor changes are chiefly constriction of the peripheral vessels, due to stimulation of the sympathetic nerves. In this connection the reciprocal action of the veins of the omentum is brought into play, these vessels often

becoming enormously distended with blood. Constriction of peripheral vessels, combined with enfeeblement of the circulation, accounts for the pallor and cold extremities so often seen. The secretions are often decreased in amount, through narrowing of the vessels supplying the glandular tissues. The extremely dry mouth and lips which probably everyone has observed when he has been worried, is a familiar example of this. The stimulation of the sympathetic may, on the other hand, be so severe as to bring about increased secretion in spite of the diminished blood supply, as is evidenced by the so-called "cold sweat." Inhibition of motility of the stomach and intestines appears to be brought about by stimulation of the splanchnic nerves, again a part of the sympathetic system.

In addition to the nervous system as a means of coordinating the various parts of the body there is a method which makes use of chemical processes. In some of the lower organisms this latter method is the only means of unification and is developed to a relatively high degree. The difference between the two methods is essentially one of time, the nervous system being obviously the more rapid by far. These chemical substances have been given the names "hormones" and "colyones," according to whether their functions are those of augmentation or inhibition. They are all included under the general heading of "internal secretions."

Internal secretions are substances produced by gland cells from raw materials furnished by the blood, which are afterward passed back to the blood or lymph stream, to assist in regulating the general nutrition of the economy, or to serve some more specific purpose of equal importance to the organism. They differ from the better known, or external secretions in that in all typical cases the latter are poured out upon epithelial surfaces which communicate with the exterior, while the internal secretions are discharged upon the closed endothelial surfaces of the blood and lymph vessels. With their development in any organism, a susceptibility to their action must arise in certain of its structures. In the broadest sense, internal secretions must be looked upon as something common to all active tissues, but the best known and probably the most important ones are produced in the liver, pancreas, thyroid, adrenals, pituitary body, and probably the ovary, testis, thymus, kidney, and spleen. From the standpoint of their importance in worry, those derived from the pancreas, pituitary body, thyroid, and adrenal glands seem to occupy first place according to the theories evolved as the result of the most recent investigations.

For experimental corroboration of our theories we are compelled to make use of animals, such as the dog and cat, because of the fact that chemicophysiological experiments such as these necessitate extensive and dangerous surgical procedures. Therein lies a great difficulty. Although the animals are readily obtainable we are never sure that a condition of worry analogous to that found in the human organism is simulated. These animals are, however, visibly susceptible to agencies producing fear, and by modifying the results obtained while they are in this state, in accordance with the intimate relation known to exist between fear and worry, many of the theories regarding the influence of the internal secretions may be substantiated.

The function of the internal secretion of the pancreas seems to be that of assisting in the combustion of glycogen, the product of starchy materials ingested as food, in the muscles. Muscular energy is derived from this oxidation, but in order for it to take place two ferments, one produced in the muscle itself, and the other the internal secretion of the pancreas, must be present in quantities of a certain definite proportion. If the balance is destroyed it cannot take place, and the sugar accumulating in the blood to more than the normal percentage, appears in the urine.

Two theories as to the part which worry plays in diabetes deserve consideration. The first is to the effect that the pancreatic ferment is decreased, owing to constriction of the blood-vessels in the glandular tissues. The other is that by stimulation of the sympathetic nerves the secretion is increased. The latter theory seems to have the more supporters, but in either case diabetes results from an overturning of the balance between the muscle ferment and the product of the islands of Langerhans.

Worry also seems to increase the internal secretion of the pituitary body. Recent experiments show conclusively that an excess of pituitrin in the blood, without other complications, produces a marked rise of blood pressure and a slowing and strengthening of the heart beat. It appears to slow the heart by acting upon the peripheral endings of the vagus, the nerve whose function it is to bring about that phenomenon normally. An interesting feature of its effect upon vasomotion is that while most of the peripheral vessels are constricted the arterioles of the kidneys are dilated, allowing an abundant supply of blood to those organs. At the same time, pituitrin exerts a direct stimulating effect upon the secreting cells of the uriniferous tubules. These three factors—increased blood supply of the kidneys, increased blood pressure, and hyperactivity of the secreting cells—may well account for the marked diuresis so often observed in worried individuals.

Occasionally after long-continued worry or extreme fright, the symptom complex—known as exophthalmic goiter—is observed. It probably does not affect an individual unless a previously enlarged or disturbed thyroid gland is present. However this may be, the disease is undoubtedly associated with a hypersecretion by this gland. Since it is supplied by the sympathetic it seems reasonable to infer that this oversecretion is brought about by the stimulation of its controlling nerves. An excess of this substance in the blood, in contrast to the effects of pituitrin, dilates peripheral arterioles, probably by a direct action on the muscle in the vessel walls, bringing about a visible flushing of the skin. It also appears to have an antagonistic effect upon the substances which influence the nutrition of the body, as is evidenced by the rapid loss in weight in this disease and the excretion of large quantities of nitrogen, carbon dioxide, and water in the urine. That it has a definite action upon the nervous system is shown by the tremor usually present. The pulse is at the same time rapid and throbbing in character.

The effects of the internal secretions thus far considered must not be regarded as constant manifestations of this emotion. In fact, the cases are relatively rare in which diabetes and exophthalmic goiter do occur. Inasmuch as we have come to ascribe to all body tissues powers of secretion, is it not entirely reasonable to presume that secretory disturbances in one organ may be offset or held in check in a majority of cases by products of other structures? We know this to be an almost universal principle in ani-

mal function, exemplified by the opposed actions of the vagus and sympathetic in the control of the heart. Denied this liberty, we can only, at present, make use of the vague term "individual susceptibility" in explaining this seeming inconsistency.

There is an internal secretion, however, that of the adrenal glands, which appears to be always associated with the most constant effects of worry. Adrenalin, or epinephrin, as it is called, is an excellent example of the manner in which most of the internal secretions and the nervous system interact and supplement each other, for it has been shown that it does not act upon any organ or tissue which has no sympathetic or autonomic nerve supply. In fact, its point of attack appears to be the end arborization of the nerve fiber where it joins the muscle or tissue. The presence of physiological quantities of adrenalin in the body, seems to be a necessary condition for the normal functioning of the entire autonomic system.

The secretion of adrenalin is controlled by the sympathetic and is increased in worry. We cannot say that its presence in the blood in abnormal quantities is responsible altogether for the phenomena which are dependent upon the autonomic nerves, for we have seen how the increased stimulation of the sympathetic, by means of mental overactivity, can bring about these things. It does, however, magnify the action of the sympathetic and is capable of maintaining this action alone, for a considerable period of time after the sympathetic stimulation has been removed. The latter phenomenon is accounted for by the fact that there is an autogenous continuance of most of the internal secretions, including adrenalin. In other words, these substances, coming in contact with the tissues which originally produced them, tends to stimulate still further production. After a time, however, even this mode of adrenalin derivation ceases, for the blood gradually gives up its epinephrin by aeration in the lungs.

After the foregoing discussion it can readily be seen that many features of worry have not been considered. This condition together with its allied emotions, constitutes an enormous field for further scientific investigation. In view of the rapid improvement which modern laboratory technique is undergoing, and the increased interest with which experimentalists are viewing psycho-physiological matters, there is a great probability that within the next few years many of the remaining doubtful points will be satisfactorily explained.

THE MEDICAL ASPECT OF ATHLETICS.*

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In this age of athleticism we are very apt to lose sight of the fact that athletics may be for evil as well as for good. No one will deny the good accomplished by the introduction of athletics into our public and private schools, colleges, associations, clubs, societies, leagues, boy scout organizations, army and navy, turning clubs, and other organizations where men and boys gather together for recreation, study, and pleasure. One has only to observe the steady growth and improvement in the physique of the growing boy who takes part in athletics. In Japan, Norway, Sweden, and Denmark as well as in Germany the physical training incident to the activities carried on in their turning and wresting clubs undoubtedly improves the physical make-up of their male population. America is distinguished by the advance which goes steadily on in the physical training of the school children. This physical training is a salient feature of our American school education. Our ancestors with fewer gymnasiums were a remarkably sane people, however, and we may ask ourselves the question if the great increase in insanity has anything to do with our present system of physical training. Asylums and hospitals are crowded and athleticism increases in proportion. One rarely sees the statement that the worthiest college student is the best athlete, as in the case of Albert Cyril Rothwell of the class of 1914 of Columbia.

It would be interesting to know if physical training will accomplish a decrease in street accidents, an increase in moral tone, an improvement in physical condition, a decrease in gangs, a decrease in truancy and better discipline in our boys. There is reason to believe that physical training means competitive games in which the vital organs are overtaxed. When this obtains a great injury may be done to a boy's constitution. The injury may be a permanent one and markedly shorten his life.

It has been proved beyond question that immoderate college athletics lead to physiological hypertrophy of the heart. Athletic training leads at first to physiological hypertrophy, but when prolonged and marked by severer athletic contests it usually leads to hypertrophy plus dilatation of a variable degree frequently marked by valvular insufficiency. Functionally the hypertrophied heart, even when dilated and giving distinct evidence of valvular insufficiency, may prove more fitted to carry the man through a severe athletic contest than a normal heart would be. On the other hand, acute cardiac dilatation occurs more frequently in athletes and men used to severe muscular strain than in the normal man and the effects are more prolonged and severe. L. Shumacker and W. S. Middleton conclude that there is reason to believe that for normal human activities an athletic heart is distinctly disadvantageous.

The death of Clarence Panzer of the National Guard brought to light the fact that shortly after his enlistment in 1911 he developed an athletic heart with a certain amount of hypertrophy and dilatation. Later on a valvular lesion occurred which aggravated the cardiac trouble. He appeared to be a man in robust health and of strikingly good physique. Three months before his death he was given three inoculations of typhoid vaccine. An attack of the grip, mild in character, apparently was sufficient to cause his death. The influenza germs had found a place of lowered resistance. An attempt was made to prove that the typhoid serum was the cause of death, but this was not proved by the facts in the case. The autopsy showed death to have been caused by a severe type of endocarditis with general septicemia. Clarence Panzer's brother, George, in spite of his magnificent physique, developed tuberculosis and later heart disease, finally dying after four years' illness.

Carefully collected statistics show that deaths of athletes are caused by the following diseases in the order of their frequency: cardiac diseases, tuberculosis, typhoid fever, pneumonia, and Bright's disease. The dangerous games indulged in with fatalities in the order of the greatest danger are football, baseball, and boxing. In looking over the history of boxing we find that many champions

*Read before the American Medicopharmaceutical League, May 25, 1914.

have died from tuberculosis. Whether this disease may have been produced by excessive athletic training in preparation for the contests, severe punishment, and tests of endurance in the ring, or lax habits of living when out of training, it is difficult to state. The writer once heard a second speak very disparagingly regarding the championship possibilities of a very promising young pugilist in the following words: "He'll never be a champion because he stays out late nights and smokes cigarettes in training." And although this young man's prediction was made fully two years ago this particular pugilist has never become a champion, though he has knocked at the door several times.

Undoubtedly athletic training does promote the moral tone for all athletes, and trainers know the importance of correct living along moral lines which is so necessary to produce good results. Early to bed, early to rise, no smoking, no drinking, no sexual indulgence, have been a part of the rules of every training camp since the beginning of time. Old time observers would refuse to have confidence in a fighter who had recently married. They used to say it would take about a year for him to round into form again. Knowledge of the internal secretions teaches us that there was a basis for the latter belief for we all know how easily the individual becomes obese and mentally and physically sluggish, with excessive venery. To stimulate the vital forces a sufficient amount of testicular secretion should be stored up and without this the male may become slow and lazy. Without this natural secretion or stimulant he will not enjoy active exercise and will not profit by it when he takes it. Asexual obesity is a well established and well recognized ailment and calls for hygienic measures in the treatment of this condition.

The following case report shows the evil which may be occasioned by immoderate athletics. It is an exceptional instance but it may serve to help in a consideration of the subject of athletics when carried to excess.

Case.—G. L., age 20; occupation, clerk; nativity, United States; physique not robust, of the blonde type, not large in build. Family history negative, except that a sister died at the age of thirty of heart disease after nine years' illness. Previous history shows that patient never had rheumatism, tonsillitis, scarlet fever, or any other infectious disease or condition. History of development: when the patient was fourteen the family physician first noticed on examination a degree of cardiac hypertrophy with a slight aortic regurgitation, which he believed was due to athletic training, gymnastic exercises, and outdoor sports. The boy was advised to discontinue all athletic work and at the age of seventeen his father sent him to Switzerland, where he attended school for a period of two years. While in Europe he disobeyed all instructions and entered games even to a greater extent than he did in America. In one contest he chinned himself fifty times. He returned to America, however, in apparently good health. A short time after arriving home he began to have attacks of indigestion marked by vomiting, at times with severe headache. Urine was not examined. March 13, 1913, he was referred to an ophthalmologist because he appeared to have a cold in the right eye. At this time he had a cold in his head with a slight sore throat. There was a severe headache also. Right eye was marked by redness. Examination of eyes showed: vision in right eye 1 15, vision in left eye 1 12; double sided chocked disc with some hemorrhages; numbness of right arm and leg; some loss of power on right side; brain tumor suspected; urinary analysis showed a large amount of albumin, 16 per cent., a large number of granular casts, an acid reaction, and a specific gravity of 1006. Examination of the heart showed an accentuated second sound with a loud murmur heard over the entire cardiac region. Blood pressure 250; heart intensely hypertrophied. Murmur could be heard in vessels of neck and lower extremities. Apex beat displaced downward as far as the waistline. Liver much enlarged; no ascites; arteries hard and tortuous. Examination April 30, 1913.—Eye findings: Vision 1 12 and 1 18; extensive hemorrhages in fundus; signs of edema of limbs; some dyspnea. Diagnosis: neuroretinitis alburinuria; chronic interstitial nephritis; cardiac hypertrophy; aortic regurgitation; epistaxis; organic loss of sight; uremic coma; date of death, August 14, 1913; age at death, 20 years and three months. In the words of the family physician: "In my judgment the organic trouble was brought on by athleticism only."

General Considerations.—The foregoing case report would suggest the fact that this young man should never have been allowed to take part in athletic competitive games. There was some unusual sensitiveness to muscular excess. His muscular system was undervalued and there was not adequate development. The cardiac murmur was recognized when he was fourteen years of age and his family physician is positive that athletics brought on the damaged heart condition. He had never had any of the infectious diseases or infective conditions such as scarlet fever, rheumatism, or tonsillitis, which are known to produce cardiac complications or sequelæ. It is evident that there was no watchful care such as we should expect on the part of those who manage athletic games and sports. The boy's best interests as regards his health and future existence were not conserved by his teachers and those who were over him. His trip to Switzerland was disastrous because there was no vigilance displayed. The boy's inclinations and bent were along the athletic competitive line, probably because he excelled. There was no repression because his condition was not watched as it should have been by medical men well qualified to judge of a proper amount of exercise compatible with a damaged heart. The boy went almost blind before it was realized how serious his malady was. The damage to his circulatory system must have been enormous, for with the decompensation of the heart there were all the sclerotic tissue changes in the arteries, the kidneys, and the liver. It is interesting to note the high systolic blood pressure in a youth twenty years of age. Unusual sensitiveness to muscular excesses during the period of boyhood must be considered in relation to immoderate athletics in the growing youth. Age is a factor of great significance. It is doubtful if a person's constitution *per se* is made better or is improved by athletics. It must, however, be taken into consideration when one is to determine the fitness of a person to compete. Good nutrition, a competent nervous system, and adequate development must not be undervalued. Personal superiority and the stimulus of victory may make for the overdoing of deeds with their consequent ill effects.

Conclusions.—(1) Physical training is a very important factor in our American school system of education. (2) An athletic heart is distinctly disadvantageous for normal human activities. (3) An athletic heart may be better fitted to carry a person through an athletic contest than a normal heart would be. (4) Athletes appear to be as susceptible to infectious diseases as other persons in the ordinary walks of life. (5) Deaths of athletes are caused by the following diseases in the order of their frequency: cardiac diseases, tuberculosis, typhoid fever, pneumonia, and Bright's disease. (6) Fatalities occur most frequently in the games of football, baseball, and boxing in the order of the greatest number of deaths per year. (7) Athletics increase moral tone and discipline. (8) If possi-

ble competitive features in athletics as practised in our public schools should be eliminated. Feats of strength and endurance should also be eliminated. (9) All means should be used to diagnosticate diseased conditions in schoolboys and special attention should be paid to the circulatory system, especially the heart. Tests should also be made for vasomotor tone and finally the nervous system and the condition of the kidneys should not be undervalued.

428 Forty-seventh Street.

ACUTE SUPPURATIVE OTITIS MEDIA.

By H. LELAND FIFIELD, M.D.,

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EYE AND EAR SURGEON TO THE SYRACUSE HOMEOPATHIC HOSPITAL.

In the consideration of acute suppuration of the middle ear it will be my aim to call attention to the common form or the condition we most often meet, and the more latent and at the same time the more dangerous. There is no class of cases with their attendant complications which gives the physician more anxiety than suppuration of the middle ear. The time has long since passed when we hear of a physician advising the parents of a child who may have a discharging ear to delay treatment until the child has reached puberty.

There are two well-defined infections of the middle ear which are distinctly different as regards both the symptoms and the end results. I think I am safe in saying that a goodly number of intracranial complications have been caused by the latent form of otitis which has escaped diagnosis until treatment was useless. There is no condition that we fear more than an extension of an inflammation to the adjacent tissues from the tympanic cavity or mastoid.

In otitis there are two well defined cocci, a non-capsulated bacterium, the one most often found, and the *Streptococcus mucosus* the capsulated bacterium. The former occurs as a chain of small cocci while the latter is seen arranged in a chain usually of four together, each individual coccus having a well defined capsule.

Otitis Media from the Non-capsulated Coccus.—This condition which is the most frequent and most easily diagnosed is in the large majority of cases a secondary infection coming on after the exanthemata (measles, scarlet fever, diphtheria, whooping cough) tuberculosis, syphilis, tonsillitis, growths in the pharynx (adenoids), extension from rhinitis or empyema of the nasal accessory sinuses. One cause is the influx of water through the Eustachian tube into the middle ear, in which nasal douching and diving play their part.

Otitis media is easily recalled by its symptoms—a dull full feeling of the ear for a few hours then a sharp stitching piercing throbbing pain coming on suddenly; a rise of temperature to 102°-104° with or without a chill. If a child who may be suffering from any of the diseases mentioned has a chill look for a middle-ear involvement; a diarrhea which may appear at the same time tends to lead us away from the ear.

If we examine the ear we find it sensitive. The external canal may or may not be swollen, the drum is swollen, there is a diffuse congestion over the whole membrane, the details are gone and the cone of light is missing. There may be a bulging of Schrapnell's membrane and the cuticle of the drum is macerated and heaped up, with later a sticky exudate in the canal.

At this time it is well to do a paracentesis, for if we leave the case to nature she will break down the membrane, finding an exit for the secretions. The pain, if not relieved at once, will be less severe and in a few hours usually subsides. As the pain is due to the pressure in the tympanic cavity it is good surgery to open the membrane early, provided we have bulging. It is, however, impossible at times to prevent further involvement of the mastoid even with an early paracentesis.

For convenience we will divide otitis into four stages, which cover a period of six weeks provided we have no complication:

First stage, serous, 4 to 7 days; second stage, purulent, 7 to 10 days; third stage, mucous, two weeks; fourth stage, catarrhal, two weeks.

In the first stage we have the inception with the pain, increase in temperature, and a rapid progress of the condition with the rupture of the tympanic membrane provided we have failed to secure drainage for the pus during this stage. In this stage we have the inflammation at its maximum, the streptococcus being an infectious agent which works rapidly, reaching its fastigium in four to seven days and then beginning to subside.

In the second stage for two weeks we have a steady flow of pus changing into a stringy, ropy mucoid discharge in the third stage.

In the last stage there is a catarrhal discharge with a cure at the end of six weeks. With the lessening of the discharge we again recognize the anatomical landmarks. One thing we must keep in mind: free drainage is absolutely necessary, and should the wound made in the drum close it will need to be opened again and kept open.

Otitis Caused by the Streptococcus Mucosus.—With this condition we have no severe symptoms. There may or may not be fever. The condition starts as a mild or low grade infection of the tympanum. The patient first notices a slight irritation from noises, and at the same time complains of a feeling of fullness of the affected ear with slight pain. He complains most of the fact that whatever he does he is constantly aware of a dull pain in the ear (organ feeling). After three or four days the pain ceases, no more noises; a little uneasiness on that side at times, but the patient returns to his occupation; he is apparently well for three months or a year, perhaps longer, then without any warning he develops a complication. He has a brain abscess, meningitis, or sinus thrombosis with severe fever; the prostration increases coincidentally with the rapid onset, and now something must be done and done in a hurry.

The *Streptococcus mucosus* enters the tympanum by way of the Eustachian tube and in the tympanum may set up a mild inflammatory lesion. This coccus having a perdilection for bony tissue proceeds to settle down in the bone around the tympanum and goes to work; when the time comes that this inflammation has broken down the wall which separates the tympanum from the surrounding internal structures the patient exhibits symptoms of a complication. It is very seldom that we have the labyrinth involved, but one form of circumscribed labyrinthitis may result from this variety of infection.

When we are called to a case presenting the symptoms I have enumerated we should do first a paracentesis and examine the smears from the secretion of the ear for *Streptococcus mucosus*. If we

are unable to find the coccus then a lumbar puncture should be done, for often when the pus from the ear does not show the coccus the cerebrospinal fluid will present the offender.

Now after we have made smears it is a good plan to proceed as follows: (1) Stain one of the smears with methylene blue to find the streptococcus. (2) Stain another smear with carbol fuchsin to find the tubercle bacillus. (3) Stain the third with thionin to find the *Streptococcus mucosus* (capsular). If we use a concentrated fresh watery solution of thionin we are able to find the *Streptococcus mucosus* arranged in chains of four with a well-defined capsule.

Some time ago I saw a typical case of mucosus infection. A man came into the clinic complaining of a dull heavy indefinite feeling in his left ear, slight pain, no elevation of temperature, pulse normal; in fact he seemed to have very little wrong. He said that in the daytime while at work he was hardly conscious of his ear. On examination, the tympanum showed redness over the whole drum, there was no bulging of the drum, the tests for hearing were poor, all other tests were negative. Otitis media catarrhalis was our diagnosis, and he was ordered to report at the clinic twice weekly for inspection. After two weeks all symptoms subsided except a slight indefinite feeling in the left ear, and he came in a few weeks after to tell us this had gone. He said that he felt entirely well. He was discharged and told to come back in case he had further trouble. Nothing was heard of him for six months until one day he came in with an elevated temperature and a marked nystagmus to the left side. The patient was put to bed and prepared for a mastoid operation. On opening the mastoid the antrum was found filled with a mass of broken-down carious material, the walls of the frontal semicircular canal were carious. A complete radical operation was done and the patient returned to bed. In this case a smear was taken when the mastoid was opened and the *Streptococcus mucosus* was found. For that reason the wound was treated by the open method instead of being closed as in a non-capsular streptococcus case. Recovery was uneventful.

Treatment of Suppuration of the Middle Ear.—In the first form the first step necessary is to secure free drainage, which is best obtained by a paracentesis. In doing this we should exercise in minute detail the strictest asepsis. I irrigate the ear with saline and follow with 1 to 3,000 bichloride. When the ear is prepared a liberal incision is made in the drum. In case there is an opening in the drum it many times is of the small central variety; this should be enlarged, then Siegel's otoscope may be used to draw out the pus.

The practice of inflating the middle ear is dangerous and should be done with extreme care if at all. The application of cold to the mastoid is safe provided the patient has pain and it is not kept on too long a time. Depletion with leeches or the artificial leech may relieve, but one must remember that it may be necessary to open the mastoid at any moment. These cases should be cared for preferably in a hospital where materials are at hand for immediate operation.

In the *Streptococcus mucosus* variety treatment may be stated in one word, operation, and that early. It is, however, the most difficult task to convince such a patient that operation is the only cure, if all he suffers from is the indefinite pain which I have mentioned. The consideration of these two forms of otitis can but show us one thing, and that is, in every case of middle-ear suppuration, where there is pain with bulging we should perform a paracentesis and make smears; if we are unable to stain them we should send them to some one who can, and then we are certain whether we have the *Streptococcus mucosus* present.

The medical treatment in these cases is only rarely of value; the use of the autogenous vaccines has proved beneficial but it does not prevent extension to the mastoid, nor does it cure in all cases; stock vaccines have proved a disappointment to me.

614 South Warren Street.

A RHINOLOGICAL ASPECT OF SOME MENTAL DISTURBANCES.

By J. A. HAGEMANN, M.D.,

PITTSBURGH, PA.

Horace, in the course of one of his poetical epistolæ, says: "If anything affects your eye, you hasten to have it removed; if anything affects your mind, you postpone the cure for a year." One might paraphrase his statement without subjecting truth to a tensile test by saying that parents will provide prompt treatment of possibly minor physical defects in their children, but procrastinate when dealing with a manifest psychic inferiority.

To one who in our era of amazing progress in the realms of physiology and pathology harks back to the elementary days of these sciences, it must be apparent that the early investigators were not lacking in acumen when noting the relationship existing between cause and effect. Expressions which have become idiomatic and enduring took their inception from the nomenclature of these primitive savants. And while some of their theories have in the light of later knowledge proven fallible, the fact nevertheless remains that those who advanced the postulates were remarkably alert.

The spleen was supposed to be the seat of several emotions, such as anger, bad temper, grudge. Hence the expression "to vent one's spleen." When we bethink ourselves that the sufferers from malaria are wont to have a considerably enlarged spleen, and that their disposition is usually not remarkable for amiability, we can readily conjecture that the "grouch" manifested by the patient might have been attributed to the condition of the aforesaid gland. The word melancholy means having black bile. The term itself implies the prevalence of the idea that a certain condition of the biliary secretion bore an etiological relationship to the mental depression suffered by certain persons. If we consider that the roisterers of former days probably awoke with a bad taste and in a penitent frame of mind, we can believe that they fancied their livers required some restorative treatment. Physicians of that day, encountering a case of mental depression of apparently similar type, would probably feel justified in attributing the ailment to the baneful effect of the black bile, and inferentially term it melancholia.

While these and allied impressions no longer prevail, they nevertheless were the antecedents of the modern conception of the influence exerted by noxious substances which are borne along in the blood current of many persons, and the effect they exert upon particular nerve or brain centers. When a toxin like that of diphtheria makes its invasion the system promptly begins to produce an antitoxin. Unfortunately the process is slow and horse-serum containing antitoxin must be administered to supplement that being generated by the respective human economy. If the patient could survive long enough he would probably provide autogenous antitoxin in sufficient quantity to conquer the disease. Contrarily and unhappily the same is, however, not true of some other toxins or substances whose es-

sence we are not yet familiar with. What we do know is that they exert a maleficent influence upon the association-centers in the brain, and that the human economy apparently does not produce any antitoxins to contest the field with the invading host. There can be no doubt that the mental conditions evidenced in children who are suffering from pathological conditions of the thyroid gland are due either to a toxic secretion of that organ or to the lack of an essential element which the gland fails to supply. The vacillating moods which one notes during the establishment of puberty and while the menopause is in progress can probably be attributed to the derangement of the intellectual centers by the epochal secretions of the genital organs at those periods. These disorders come under the observation of every practitioner and are only cited to distinguish them from less evident etiological relationships between certain nasal pathologies and definite mental conditions.

Aprosexia, characterized by inability to concentrate the attention upon a definite object, weak memory, nocturnal enuresis, and tardiness in comprehending abstract subjects is symptomatic of nasal obstruction caused by adenoids or other impediments to nasal respiration. Evidence of this relationship lies in the fact that where the obtrusion is removed the aprosexia soon vanishes in gratifying manner. There has been much contention as to whether the mental sluggishness is caused by the mechanical obstruction to the flowing of lymph from the brain toward the nasal chambers with consequent retardment of the products of metabolism, or whether it is but one of the concomitant symptoms of the general neurasthenia accompanying adenoids. However that may be, we have the empirical knowledge that surgical intervention signifies a promptly resultant progressive mental advancement. A transient mental alienation is sometimes encountered during the course of an empyema of a maxillary sinus. Usually the relationship is sufficiently evident, so that the establishing of a diagnosis is not attended with serious obstacles.

On the other hand, a frequently unrecognized cause of mental depression, and sometimes suicide, is empyema of the ethmoidal cells. The absence of nasal outpouring may mislead one into making a negative diagnosis, although the patient is constantly or intermittently swallowing pus-bearing discharges which perhaps unnoted trickle down the posterior pharyngeal wall. The consequent autointoxication from the biochemical products liberated in the intestinal tract establishes a neurasthenic condition characterized by great despondency. Whether a direct action upon the cerebral association-centers may be exerted by an ethmoidal sinusitis is problematical. The lymph-currents all tend in the opposite direction. Yet one might picture to oneself the possibility of noxious fluids finding their way into the brain via the sheaths of afferent nerves. The mooted point need not evoke controversy, as the solution in either eventuality would be the same—surgical intervention.

Many parents unfortunately suffer from mental astigmatism when it comes to the observation of mental defects in their adolescent children, and despondency in an adult is frequently attributed to some tangible crisis in the patient's temporal or spiritual affairs.

The above-mentioned psychic manifestations of physical abnormalities are not cited with a view of encroaching upon the domain of the alienist and neurologist, but rather to accentuate the necessity for collaboration where obscure mental cases are under consideration. Not all patients with melancholia have nasal disease, neither do all patients with suppurating noses contemplate suicide, but we know that numerous factors enter into the genesis of mental depression in its protean forms. To quote the bard of Avon:

"O, melancholy!
Who ever could sound thy bottom? find
The ooze, to show what coast thy sluggish craft
Might easiliest harbor in?"

HIGHLAND BUILDING.

Medicolegal Notes.

Father's Liability for Medical Services to Son.—Action was brought against a father for medical services rendered to a minor son while the latter was away from home, at school, against his father's wishes. The father did not know of his son's illness, nor that the plaintiff was attending him; the disease was of a private nature, which he would naturally desire to conceal from his parents. His father at the time was contributing nothing to his support. Information of the son's illness could speedily have been conveyed to the father, who resided only a few miles away. The father was held not liable. The court said that there was some evidence of the real need for medical services, none of a failure of duty on the part of the father. Nor was there any exigency, such as the imminent peril of the son and his distance from home, to take the case out of the rule that parental duty must be neglected before a stranger may supply what the parent ought to supply, at the expense of the parent.—Sassaman v. Wells, Michigan Supreme Court, 144 N. W. 478.

Malpractice—Evidence.—In an action to recover damages for alleged malpractice in the treatment of an eye, it is incumbent on the plaintiff to prove that the treatment administered by the defendant was negligent or unskillful, and also that the injuries claimed were the result of such treatment. Proof that a good result was not obtained is, of itself, no proof or evidence of negligence or want of skill. There must be affirmative proof or evidence of such negligence or want of skill, and that the injuries complained of resulted therefrom; and such proof can be established only by the testimony of experts skilled in the medical profession. The evidence in the present case showed that the defendant, after treating the eye a few times, advised the plaintiff to go to an eye infirmary, where it was necessary to remove the eye on account of gonorrheal infection, and there was no evidence to show negligence on the part of the defendant.—Phebus v. Mather, 181 Ill. App. 274.

Right to License Without Examination.—In mandamus against the board of medical examiners of the State of Oklahoma to compel it to issue a license to the plaintiff to practise medicine, it appeared that, on September 12, 1907, the territorial Supreme Court had affirmed the decision of the district court, in a suit brought by the territory, canceling and annulling the territorial license under which the physician had been practising on the grounds of fraud and deceit in procuring the same, and no other license had been issued to him. It was then held that the applicant knew, at the time he made his application, that he was not a graduate of a reputable medical college. It was held that the plaintiff was not entitled to registration.—Board of Medical Examiners v. Gulley, Oklahoma Supreme Court, 136 Pac. 1083.

Board of Chiropractic Examiners—How Chosen.—Chapter 291 of the Kansas Laws of 1913 provides that the state board of chiropractic examiners shall be composed of one ordained minister, one school teacher, and three practising chiropractors of integrity and ability, who have practised within the State for two years. It is held that the act does not require the Governor to appoint upon that board persons who have not complied with the statutes regulating the practice of medicine and surgery. By the power vested in the Governor to fill vacancies, he is authorized to appoint the two other members of the board provided for in the statute whenever three properly qualified chiropractic members are appointed.—Green v. Hodges, Kansas Supreme Court, 138 Pac. 605.

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MISCONCEPTIONS REGARDING DEFICIENCY DISEASES.

WHENEVER a new theory regarding the production of any disease is suggested it always, and naturally, is combated. If it is false it will soon be disproved and cast into the limbo of medical fancies, but even if it is basically true it may be overthrown for the time because some link in the chain of reasoning is not properly forged. If it is true and supported by incontestable facts, it may nevertheless be attacked by many honest investigators who have grasped only the broad aspect of the theory and have failed to acquaint themselves with all the details necessary to a full comprehension and appreciation of the new truth. Finlay's yellow fever theory, for example, which blazed the path for the greatest feats of sanitation the world has ever witnessed, made little headway, in spite of his cogent arguments, until the United States Army Commission discovered the fact of an incubation period for the virus in the body of the mosquito. Ignorance of this was the weak link, the strengthening of which made the chain unbreakable. Again, when the mosquito theory of malaria was propounded it was opposed by many who brought against it what they thought to be the unanswerable argument that mosquitos were found in abundance in many nonmalarious regions, all the time unaware of the fact that the culex mosquito was not the malaria-carrying variety, or that the bite even of an anopheline mosquito is innocuous, so far as this disease is concerned, unless the insect has previously charged itself with plasmodia from the blood of a malarial subject.

Arguments of the same nature are now being brought against the vitamine theory of the origin of beriberi. Because the theory was first established in the Far East, where the staple diet of the natives is rice, many have thought that the theory was that the disease could occur only among rice eaters. Others misconceived the theory entirely, thinking it taught that milled rice causes beriberi, totally missing the point that beriberi is a deficiency disease, not due to the action of some substance in the milled rice, but rather to the lack of the vitamine present in the nonpolished grain. The fact is that beriberi is no more and no less dependent upon a diet of rice than upon one of bread. An exclusive diet of white bread and other dishes made from bolted flour will cause beriberi just as readily as one of polished rice. It is not the white flour that causes the disease, but the lack of the vitamines present in the husk of the grain. An exclusive diet of canned foods will sooner or later cause beriberi; it is not any poison in the contents of the cans that causes the disease, but the absence of vitamines which have been destroyed in the process of sterilizing and canning.

These facts are insisted upon by Vedder in his interesting work on "Beriberi,"* and also in an article entitled "Some Further Research on Beriberi," published in the *American Journal of Tropical Diseases and Preventive Medicine* for June of the present year. In the latter he takes up a number of instances of beriberi occurring among prisoners and others not fed on rice and cited by various writers as disproving the rice theory. He admits that it effectually disposes of the rice theory, but shows that the true theory of the nature of beriberi is not a rice theory but a vitamine theory—two very different propositions. A point well brought out by Vedder is that those who report cases which seemingly contradict the vitamine theory are under obligation to state exactly the nature of the diet of those who suffered from beriberi and not simply affirm that it was a "sufficient" diet, or a "rice-free" and "nourishing" diet. A diet of white bread, flour pudding, and canned meat and vegetables is not a "sufficient" diet in the vitamine sense. Another and very important point is that one may live wholly or very largely on the improper diet for a period of ninety days before the symptoms of beriberi become manifest. Accordingly it is not sufficient for the objectors to describe the diet at the time the disease was observed; it is necessary to state what the diet was during several months prior to the outbreak of beriberi.

Vedder's article is interesting not only as an argument in support of the vitamine theory of beriberi, but also as pointing the moral that one should first get a clear idea of a theory before starting out to demolish it.

STAPHYLOCOCCUS INFECTION OF THE RESPIRATORY TRACT IN CHILDREN.

BACTERIOLOGICAL examination of the secretions in catarrhal or inflammatory affections of the upper and lower respiratory tracts in children has shown as a rule the presence of various types of streptococci, such as the *Streptococcus hemolyticus* and the *Streptococcus viridans*, or of the pneumococcus. The staphylococcus has rarely been isolated from these cases. Nevertheless in a period of eighteen months four instances of staphylococcus infection of the respiratory tract occurring in children came under observation in the service of H. Schottmüller in the Eppendorfer Krankenhaus, and are reported in the Festschrift commemorating the twenty-fifth anniversary of the foundation of this institution, in the *Beiträge zur Klinik der Infek-*

*Beriberi, by Edward B. Vedder, M. D., Captain, Medical Corps, U. S. Army. New York, William Wood & Co., 1913.

tionskrankheiten und zur Immunitätsforschung, Vol. III, Nos. 1 and 2. The study of the four cases of what is designated as staphylomycosis of the respiratory tract and lungs shows that this condition presents a typical clinical picture.

This condition which is supposed to be more common than is generally recognized, is in the majority of cases the result of a hematogenous infection, as when a pulmonary abscess is formed secondary to an osteomyelitis. But in the cases reported by Schottmüller the infection came from the outside by way of the upper respiratory tract as was evidenced by the isolation of the micro-organisms from the latter, and by the clinical course of the disease. It appears that children are more susceptible to this type of infection than adults. Most of the cases are fatal, but the conjecture is made that there are many instances of slight or superficial infection which escape observation or whose staphylococcus origin is unsuspected.

When the lung is invaded only one lobe and usually an upper one is affected. Multiple abscess formation, chiefly in the periphery of the lung, results, and there is regularly an involvement of the pleura in the suppurative process. In one of the author's cases the infection penetrated the mediastinum and involved the pericardium. The clinical picture is that of a severe acute illness from the outset, although in one of the cases there was a mild invasion of the disease. The symptoms point to a generalized involvement of the lungs with the rapid accumulation of a pleural exudate. The latter is the chief characteristic of this type of infection. A favorable outcome is to be expected only upon the early recognition of the presence of this pleural exudate and its prompt evacuation. In cases in which the pleural exudate has not yet acquired a purulent character, the demonstration of the presence of the *Staphylococcus aureus* gives an unmistakable clue to the diagnosis. The condition is ushered in by the symptoms of pharyngitis and tracheobronchitis, which are soon masked by these associated with the presence of pus in the pleural cavity. It is easy, particularly if the possibility of staphylomycosis is not borne in mind, to confound the condition with an ordinary pneumonia.

In the treatment, which on the whole has a dismal outlook, the method of aspiration devised by Perthe seems to offer the best results.

FREE FAT AND FASCIA TRANSPLANTATION.

When Kirschner, in 1909, reported his successes in the use of free fascial transplants, many others undertook experiments in this field and it was soon seen that the method gave promise of great usefulness. One of the most interesting of the recent reports of such investigations was that of Von Eberts and Hill (*Surg. Gyn. and Obst.*, March, 1914) who carried out a series of twenty-four operations on dogs, transplanting segments of fascia lata to repair defects in the tendo Achillis, peritoneum, and even in the dura mater. Dural defects were repaired in three instances, two being entirely successful, while the third animal died from edema of the lungs at the end of the operation. In man the method has been successfully employed in bridging tendon defects, in the repair of herniæ, in lesions of the urinary tract, trachea, and elsewhere. In one case of ectopia vesicæ a large area of the transplanted fascia remained exposed and still prompt healing occurred. Kirschner has reported the use of fascial transplants in man in fifty cases of various kinds, practically all with good results, and many others have reported a goodly number of equally successful cases. Fat flaps have had their widest use in arthroplasty and in intraabdominal work; though recently they have been used to advantage in cosmetic surgery also.

Two particularly interesting cases, showing the successful use of each of these tissues, have recently been reported by Tibor Verebély (*Pester Med.-Chir. Presse*, May 24, 1914). In the course of an operation for naso-orbital encephalocele in a three-year-old child, it was found necessary to close a defect the size of a silver gulden in the dura mater. A transplant of fascia lata was used for this purpose, while a flap of the neighboring skin, soft tissues, and cortical portion of underlying bone was sutured over this. The result was entirely satisfactory, the wound healing without complications of any kind. The second case was that of a sixteen-year-old girl who in the course of a few months had developed an enormous hypertrophy of the right breast. The breast, which formed an irregularly shaped mass, hung down upon the abdomen and its weight had resulted in the production of marked lordosis. Verebély made an incision under the breast, shelled out the gland and transplanted in its place three pieces of fat, each about the size of a child's fist, taken from the buttock. This was sufficient to make the right breast correspond in size to the left. Here also primary union was obtained, there were no complications, and the result was eminently satisfactory from a cosmetic standpoint.

These two cases furnished as hard tests of the efficiency of free fat and fascia transplantation as even the most skeptical could wish. The ultimate range of application has not yet been determined and we look for the rapid further development of the procedure.

BIOLOGICAL ASPECTS OF WAR.

The time is long past when there were many who believed with Shelley that

> "War is the statesman's game, the priest's delight,
> The lawyer's jest, the hired assassin's trade—."

Whim or momentary passion can no longer be said to precipitate a nation into a fiendish combat with another. The causes of war are deeply rooted in the laws that direct or the difficulties that beset the evolution of the race. The thoughtful physician whose training in the diagnosis of human ills tempts him to essay the diagnosis of the ills that

afflict the body politic, may look upon the present insensate war, which has burst with such sudden violence upon almost every country of Europe, with keen interest.

According to Lombroso, war is the lineal descendant of crime. Whether or not this view be accepted there can be no doubt that war is frequently based upon criminal aggression, and is always accompanied and followed by an increase in the crimes perpetrated by individuals. But in a larger sense the so-called political causes of war are based upon fundamental racial antagonisms and aspirations. Economic necessity, such as the "law of diminishing returns" in agriculture and the overcrowding of population, may also plunge a nation into the mania of conquest. Apart from these primal causes there are transient but no less potent factors that act as compelling forces in driving an entire people into the throes of conflict. One may speak of national hysteria, of the hypnotic influence of leaders, of the insensate violence of mobs, of the madness resulting from suggestion and imitation, and also of an unreasoning, though perhaps none the less to be respected, national pride.

The physician is interested in war not as a mere spectator but as an active participant. War would be so fearful as to be almost impossible without the ministering arm of the medical profession. It is to be regretted that the very skill which tends to alleviate the horrors of battle is in itself a means of prolonging and rendering more effective its fiendish onslaughts. The ingenuity of the gunsmith, the wizardry of the chemist, the daring of the aviator, are all aided by the learning of the physician and the dexterity of the surgeon. Yet, aside from being an indispensable part of an army, the physician is usually inspired by motives of patriotism. He is thus urged on by a twofold impulse—that of service to his country and that of service to his fellow man.

Second Class Meat.

The lowering of the tariff on meat and other foodstuffs has, for reasons which we cannot discuss here, been followed by a rise instead of a decline in the prices of these articles, and these prices will rise still further in the near future if America is called upon to feed the warring millions of Europe. In view of this and of the fact that every pound of meat that is condemned necessarily adds to the cost of producing meat that is passed, the Department of Agriculture has given permission to the packers to sterilize and cook thoroughly certain classes of meat and sell it in cans or sealed containers, labeled "Second-class, Sterilized." This sterilized cooked meat is the meat of portions of animals the fat of which the old regulations permitted the packers to make into edible lard and tallow. The process of rendering served to sterilize the fat. The new plan extends the same principle so as to utilize the lean portions of this meat which heretofore, because of the presence of certain localized cysts or lesions, packers have not been allowed to sell for food purposes. The meat is of the type which the German and Austrian Governments permit their packers to sterilize and sell in a cooked condition. Under the Department's regulations, in cases where the diseased condition is strictly localized, the unaffected portions of the carcass, which are free from any suspicion of disease, are passed for food and allowed to be sold in the raw state. On the other hand, all carcasses diseased to an extent rendering them unfit for food are condemned. Between these two classes lies the class which may be sterilized under the new regulations. This consists of parts of carcasses believed to be entirely sound, but which come from carcasses affected to a somewhat greater extent than would allow the passing of these parts for food in the raw state, because these parts may contain a chance cyst which, if eaten raw, might lead to tapeworm or other diseases. While the packers of Germany and Austria in this way save a huge waste of meat, it is not known how far the American packers will care to follow the practice, nor how far the American consumer will care to profit by it. At first probably the packers would have to look for their market to the recent immigrants who have been used to this kind of meat in their former homes, and perhaps where the choice must be made between winter vegetables and "second class" meat, even some of our native carnivores may overcome their repugnance to the idea.

The Viability of Stained Preparations of Bacteria.

It has been probably an almost universal belief that the drying, fixing, and staining of a bacterial film on a glass slide resulted in the sterilization of the material which therefore became harmless. The occurrence of three cases of infection, however, in which the cause could be traced to such preparations led Thurn (*Centralbl. f. Bakt.*, 1914, lxxiv, 81) to investigate the subject. He made thin films on glass slides from twenty-four-hour agar cultures, fixing them in the usual way by "passing three times through the flame." He was able after twenty-four hours to get cultures from such preparations of the *Staphylococcus aureus*, typhoid bacillus, colon bacillus, anthrax bacillus, cholera vibrio, diphtheria bacillus, and *Saccharomyces cerevisiæ*. *Staphylococcus aureus* and the anthrax and colon bacilli remained alive even though the slide was kept for twenty-six days in the diffuse daylight of the laboratory. In his study of stained preparations he used in addition to the above organisms the *Micrococcus roseus*, *Sarcina flava*, Friedlander's, Gartner's, and the paratyphoid bacilli, *B. prodigiosus*, *B. fluorescens*, *B. mesentericus*, and *B. vulgaris*, the vibrio Finkler and the *Mycobacterium lacticola*. With the exception of the saccharomyces, none of these organisms was affected by fuchsin or methylene blue after five minutes' application. Only the spore-bearing organisms were able to resist the warm carbolfuchsin stain and all were uniformly killed by treatment with the Gram stain. He was also able to establish that the iodine was the primary bactericidal agent of the Gram stain. It is rather remarkable that such a fact should have for so long escaped observation and it speaks highly for the carefulness of laboratory workers that a larger number of infections have not been traced to this source. Thurn's work deserves wide circulation for it is doubtful if many members of the profession or even laboratory workers themselves realize fully the danger of handling film preparations of bacteria.

Pan-American Surgical and Medical Journal

This is the name of a new journal published in New Orleans, the latest addition to the already long list of American medical periodicals. It is a monthly magazine of the same format as the *Journal of the American Medical Association*, well printed, though the illustrations, largely portraits of the editors and of members of the Louisiana State Society, are not handsome (we mean not handsomely executed), and conducted by Drs. Waldemar T. Richards and Adolph O. Hoefeld, Editors in chief, and Merrick W. Swords, Associate Editor in chief, assisted by a staff numbering one hundred and ninety. It is the official organ of the Louisiana State Medical Society, the Mississippi State Medical Association, the Pan-American Surgical and Medical Association, and the various Parish and County Medical societies of Louisiana and Mississippi. The journal gives promise of being interesting and the editors are to be congratulated on the general good appearance and valuable contents of the first two numbers. There are several things about the paper, however, which strike the reader as rather out of the ordinary. The name is peculiar, reversing the usual order of medical and surgical, thus giving one a little mental jolt whenever the title is read. The first issue, for June, 1914, was called Vol. I, No. 1, but the July issue jumps to Vol. XIX, No. 7. In their salutatory the editors said: "In offering this journal we promise honesty of purpose; we promise truth; we promise a medical journal ethical in every sense. We promise that our advertisements shall be governed by the standard of the American Medical Association." The first three promises are lived up to in the two issues that have thus far appeared, but we fear the last one is shattered beyond repair, for in the second issue more than one-quarter of the advertising space is given over to articles specifically condemned by the Council on Pharmacy and Chemistry and anathema maranatha to the Association *Journal*. Upon the appearance of Vol. I, No. 1, the new periodical was warmly commended by the *Journal of the American Medical Association* for the ethical purity of its business end; we await with interest the latter's comment on the outside pages of Vol. XIX, No. 7.

The Karell Diet.

Karell published an account of his "cure" (a restricted milk diet) before 1892 and in the latter year Hirschfeld pointed out its usefulness in unburdening the circulatory system. The method did not come into common use until Lenhartz revived it in 1908. Strauss and Widal showed that chlorine withdrawal in nephritis was brought about by the Karell diet. A mild form of the latter is useful in elderly sedentary men with subjective sense of abdominal fullness and headache. A loss of up to five pounds in weight relieves the tension of the abdomen. Laxatives and diuretics should also be given along with respiratory exercises. Mild degrees of albuminuria seem to disappear under the same regimen. In the elderly, not over five pounds should be taken off and the patients should rest during the treatment. Hirschfeld, before the Berlin Medical Society, July 1 (*Muenchener medizinische Wochenschrift*, July 7), presented a paper on the Karell cure, which he now prefers to call the underfeeding diet, or as one might term it a starvation cure, since less than one-fourth of the total daily requirement is all that is allowed. The milk cannot be shown to have any specific value as compared with other forms of nutriment. While the Karell diet surpasses other substandard diets, it is not intended for prolonged use. Banting's diet comprised but 1100 daily calories, while in obesity a still smaller daily requirement is sometimes prescribed. The Karell cure is simply a variety of underfeeding.

News of the Week.

Plague in New Orleans.—Two additional cases of bubonic plague were discovered in New Orleans on July 26, making thirteen cases in all since the contagion appeared a month ago. Twelve infected rats have also been found.

Traffic Accidents.—During the month of July twenty-three persons were killed by vehicular traffic on the streets of New York City, making a total of 141 who have lost their lives in this way since January 1 of this year.

New Drug Ordinance.—The New York City Department of Health on July 28 adopted the following ordinance, which is designed to prevent the efforts of the drug users to circumvent the Boylan law by importing cannabis indica: "No cocaine or salts of cocaine, alpha or beta eucaine, either alone or in combination with other substances, or any substance under any other name giving a physiological reaction similar to the physiological reaction of cocaine; and no opium or preparation of opium, and no morphine or salts of morphine, and no cannabis indica or preparations of cannabis indica, or the derivatives of either or any of the substances named herein, shall be held or offered for sale or sold or given away at retail by any person in the city of New York, except upon the written prescription of a duly licensed physician, veterinarian, or dentist. Nothing hereinbefore mentioned, however, shall apply to compounded mixtures containing opium or morphine or cannabis indica or their derivatives for external use only, in the form of liniments, ointments, oleates or plasters."

Health of the Philippines.—Dr. Heiser, Director of the Bureau of Health for the Philippine Islands, in reporting on the employees of the Philippine Government, gives the following statistics: Total number employed, 9,318; Americans, 2,312; Filipinos, 7,006. Deaths: among Americans, 2; among Filipinos, 10. Death rate per 1,000, Americans, 3.51; Filipinos, 5.79. For the month of May the death rate among the residents of the city of Manila was 18.97 per 1,000, which is the lowest rate reached since the American occupation, and is probably much lower than any that has been had during the past one hundred years.

Infant Mortality.—During the week ending July 25, there was a further increase in the infant mortality in New York City, probably as a result of the humid weather. The total deaths of babies under one year of age numbered 294, as against 260 for the preceding week. The number was, however, five less than that of the corresponding week of last year.

Tuberculosis Census.—The National Association for the Study and Prevention of Tuberculosis is planning to collect from the ministers of several thousand parishes through the country statistics as to the number of deaths from tuberculosis in

the parish during the last year, the number of living cases on September 1, the number of deaths from all causes, and the number of members of the parish. The figures will be made the basis of an educational campaign which will culminate in the Fifth Annual Tuberculosis Day to be observed during the week of November 9.

Prof. Paul Reclus.—The death of Prof. Paul Reclus of the department of clinical surgery of the University of Paris, France, was reported on July 29. Dr. Reclus, who was in his sixty-eighth year, was also attending surgeon at the Hotel-Dieu, Paris, an officer of the Legion of Honor, and a member of the French Academy of Medicine.

Personals.—Dr. LEWIS A. SEXTON, for the past six years resident physician at the Willard Parker Hospital, New York, has resigned his position in order to accept the office of assistant superintendent at the Johns Hopkins Hospital, Baltimore. He will fill the vacancy caused by the death of Dr. Rupert Morton and will enter on his new duties on September 1.

Dr. GEORGE E. DE SCHWEINITZ has resigned as ophthalmologist to the Philadelphia General Hospital, and has been appointed consulting ophthalmic surgeon. Dr. Edwin Shumway, formerly assistant ophthalmologist, has been advanced to fill the vacancy.

Dr. JACOB PARSONS SCHAEFFER has been elected professor of anatomy and director of the Daniel Baugh Institute of Anatomy and Biology of the Jefferson Medical College, Philadelphia, in succession to Dr. Edward A. Spitzka, resigned. Dr. Schaeffer was graduated from the University of Pennsylvania in 1907, and since 1913 has been professor of anatomy in the Yale Medical School. An additional gift of $5,000 has recently been made to the institute by Mr. Daniel Baugh, to be used for extensions and improvements.

Dr. JAMES F. DONNELLY, of this city, has been appointed first lieutenant in the Medical Reserve Corps of the United States Army.

Gifts to Charities.—The Nassau Hospital, Mineola, N. Y., receives a bequest of $5,000 by the will of the late Mr. W. Burling Cocks, of New York.

Bowdoin College, Brunswick, Me., has received a gift of $15,000 from the estate of the late Dr. Frank Hartley, of New York, the money to be used for the establishment of a scholarship fund as a memorial to the testator's father, John Fairfield Hartley, of the class of 1829, Bowdoin, and for many years assistant treasurer of the United States.

Sioux Valley Medical Association.—At the nineteenth annual convention of this society, held at Sioux Falls, S. D., on July 23, the following officers were elected: *President*, Dr. Robert Evans, Fort Dodge, Ia.; *Vice-Presidents*, Dr. Julius A. Hohf, Yankton, S. D., and Dr. Charles L. Sherman, Luverne, Minn.; *Secretary*, Dr. George S. Browning, Sioux City, Ia.; *Treasurer*, Dr. Walter R. Brock, Sheldon, Ia.

Obituary Notes.—Dr. CHARLES GARTNER of Brooklyn, N. Y., died at the Lutheran Hospital on July 25 of heart disease. He was a graduate of the Albany Medical College in 1895, and was a member of the Brooklyn Medical Society, the Medical Society of the County of Kings, and the Medical Society of the State of New York.

Dr. CHARLES L. WILLIAMS of Columbus, Ga., a graduate of the Bellevue Hospital Medical College, New York, in 1867, a member and vice-president of the Medical Association of Georgia, and a member of the Muscogee County Medical Society and the Chattahoochee Valley Medical and Surgical Association, died at his home, after a short illness, from dilatation of the heart, on June 16, aged 69 years.

Dr. THEODORE ERSKINE HAMILTON of Springfield, Mass., a graduate of the College of Physicians and Surgeons, New York, in 1861, and surgeon in the Eighth Connecticut Volunteers in 1864 and 1865, died at his home on July 21, aged 80 years.

Dr. CHARLES J. HOLMES of Gaylord, Kan., a graduate of the New York University Medical College in 1868, died at the home of his daughter in Ponca City, Okla., on July 10, aged 71 years.

Dr. THOMAS ARTHUR MCMURTRY of Carthage, Mo., a graduate of the University Medical College of Kansas City, Mo., in 1895, died at his home on July 12, aged 43 years.

Dr. WILLIAM D. BOLLINGER of Lancaster, Pa., a graduate of the Homeopathic Medical College of Pennsylvania, Philadelphia, in 1867, died on July 13, aged 68 years.

Dr. EDWIN J. FARR of Eau Claire, Wis., a graduate of the Castleton Medical College, Castleton, Vt., in 1852, died at his home on July 10, aged 82 years.

Dr. SYLVESTER S. BOGERT, of Pearl River, N. Y., a graduate of the College of Physicians and Surgeons, New York, in 1865, a member of the New York State and County Medical Societies, and one of the founders of the East Side Dispensary, New York, having practised in this city until his retirement ten years ago, died at his home from apoplexy, on July 26, aged 70 years.

Dr. JEREMIAH C. WASSEN, of Rhea City, Tenn., a graduate of Vanderbilt University, Medical Department, Nashville, in 1880, died at his home on July 20, aged 78 years.

Dr. JOHN MILTON SINGLETON, of Kansas City, Mo., a graduate of the Kansas City Medical College in 1884, and a member of the Missouri State and Jackson County Medical Societies, died at his home, after a short illness, on July 21, aged 57 years.

Dr. FRANCIS M. BENNITT, of Springfield, Mass., a graduate of the New York Homeopathic Medical College and Hospital in 1883, and a member of the staff of the Wesson Memorial and Wesson Maternity Hospitals, died at his home on July 29, aged 56 years.

Dr. JOHN HENRY GRIFFITH, of Phillipsburg, N. J., a graduate of the Jefferson Medical College, Philadelphia, in 1870, a member of the American Medical Association, the Medical Society of New Jersey, and the Warren County Medical Society, and Mayor of Phillipsburg in 1882 and 1883, died at his home suddenly on July 28, aged 72 years.

Dr. JAMES FOSTER WILSON, of Philadelphia, a graduate of the University of Pennsylvania, Department of Medicine, Philadelphia, 1895, died at his home on July 24, aged 42 years.

Dr. EVAN NORTON, of Conway, S. C., a graduate of the Washington University, School of Medicine, Baltimore, in 1869, and a member of the South Carolina and Spartanburg County Medical Societies, died at his home from pellagra, after a long illness, on July 21, aged 72 years.

Dr. THEODORE ERSKINE HAMILTON, of Springfield, Mass., a graduate of the College of Physicians and Surgeons, New York, in 1861, a surgeon in the Eighth Connecticut Volunteer Infantry during the Civil War, and formerly a member of the staff of the Springfield Hospital, died at his home from cerebral hemorrhage, on July 21, aged 80 years.

Correspondence.

A SIMPLE METHOD FOR CLEANING SLIDES AND COVER-GLASSES.

To the Editor of the Medical Record:

Sir:—Laboratory workers usually experience a lot of bother in cleaning old slides and cover-glasses, particularly old balsam and immersion oil slides. The common method is by boiling with fairly strong alkaline solution, then washing with weak ammonia water or alcohol. The process is tedious, the results uncertain. I have found the following method to be very simple and quite effective. Make solution No. 1:

NaOH solution (40 per cent.) ..... ℥ii
Xylol ..... fl. ℥ii
Alcohol (denatured) ..... fl. ℥ii
NaCl solution (10 per cent.)
q. s. ad fl. ℥vi

Solution No. 2:

HNO_3 ..... ℥i
Alcohol (denatured) ..... ℥iii
Water ..... q. s. ad ℥vi

Each solution is poured into a separate drinking glass and the slides or cover-glasses gently stirred in solution No. 1, two or three times and transferred to solution No. 2, for two or three seconds. Subsequent washing is unnecessary. Mechanically wiping off with a clean towel is all that is required. The glass will be perfectly clean. I have tried the oldest and dirtiest slides I could find, and always with the same good results. In solution No. 1 the xylol is in suspension, therefore the gentle stirring is necessary.

M. Benmosche, M.D.

Nashua, N. H.

OUR LONDON LETTER

(From Our Regular Correspondent.)

PREVENTION OF INSANITY—DEPUTATION TO PRESIDENT OF LOCAL GOVERNMENT BOARD—MR. SAMUEL HERBERT — HIS REPLY — PSYCHOLOGICAL AND OTHER SOCIETIES.

London, July 24, 1914.

The prevention of insanity and its treatment in the early stages as well as that of cases of nervous breakdown likely to lead to the more serious disease has again been brought before the government. A deputation waited on the president of the local Government Board last week and presented a recommendation signed by 236 medical men besides a large number of politicians. This expressed a desire for the provision of greater facilities for the treatment of incipient mental cases without subjecting them to certification. There is so much prejudice both by patients and their families against being certified and retained in asylums—which really tends to aggravate some cases—that it was urged these measures should be restricted to the graver condition in which they have become necessary. For incipient cases the deputation advised preventive treatment should be provided in reception homes and observation wards in special hospitals and poor house infirmaries. To this end the L. G. B. was urged, with a view of preventing the continued spread of insanity, to encourage and enable County and Borough Councils and other local authorities to supply or aid the supply of such institutions which should be subject to the Board's approval and control. Into such homes patients would enter on an absolutely voluntary footing without being certified or subjected to any authorization. Of course they would abide by reasonable regulations while in the institution, but would leave it at any time, though they would be expected to give an agreed notice as in the case of ordinary boarding houses. Unless urgency demanded no patient in such homes should be certified except by an independent doctor and that after leaving the institution certain patients of the class now received in Poor Law Infirmaries for observation and found not to be certifiable, could be accepted in the new homes for proper treatment and would be dealt with on modern hospital lines, as indeed would the private patients. The object aimed at is to prevent people becoming certifiable, but it is most important that the homes should not be looked upon as half-way houses to the asylum. Such a notion would carry on the prejudice against treatment of the mental condition. It is therefore essential that the proposed homes should have no connection with the board of control, whose function is to deal with the mentally deficient who are certified as "of unsound mind." A measure of this kind would probably prevent the increasing spread of lunacy which would be a great gain to the community and check the costly accommodation of our asylums.

Sir J. Jardine told the president of the board that his own experience had shown that many cases of breakdown, owing to overwork, worry, or other causes of impaired health, pass by if properly treated. Something had been done by rest-houses, hospitals, and charities, but the plan proposed would be far more effectual, especially for the poor who cannot obtain rest or change.

Dr. Chapple told what had been accomplished by the Scottish L. G. B. Special wards had been isolated from one of the hospitals. Persons supposed to be perhaps insane were examined in their homes and if there was hope of improvement were recommended for admission without being certified. Last year 1,116 patients were received in this way, of which 330 were cured and 130 improved. Less than half had to go to our asylum.

Dr. Mott urged treatment of mental cases in an institution and deplored the fact that most only obtained treatment when they were chronic. Out of 20,000 cases in the London County asylums half had been inmates for 10 years. In a small hospital being built it was hoped something might be done for the scientific investigation of insanity. In large asylums each patient cannot have as much attention but the object of the State is rather different. The villa system had been good but did not remove the stigma. Mental hospitals would do more than anything.

The president of the board (Mr. S. Herbert) replying admitted the importance of the matter brought before him. As in many things, he said, our Scottish friends were in advance. Legislation had been introduced in 1889, 1890, 1904, and 1905, but the bills differed from the views advocated by the deputation in that the essential feature of their plan was that the board of control was not to have any concern with it. If they required further legislation the prospect of obtaining it was not bright. But he thought much would be done on the proposed lines by administrative action. He would direct the medical department of his board to make a special study of the problem, communicating with L. G. B. of Scotland, the Board of Control, which he knew was sympathetic, and other authorities. Having carefully considered their weighty memorial he

would not hesitate to take administrative steps.

You will not be surprised to learn that the report of this deputation and the reply of the president of the L. G. B. has given rise to a good deal of correspondence in which some conflicting views are expressed, besides which the existing arrangements have been greatly discussed in the newspapers and societies occupied with the questions involved have had their proceedings examined.

On Monday representatives of London Boards of Guardians and others met to consider a paper by Sir William Byrne read at a conference a few weeks ago on the "administration in London of the Mental Deficiency Act." The chairman of the Metropolitan Asylums Board and the Westminster Union presided and was able to say his board was willing to enter into arrangements with the County Council. In fact these bodies have already conferred together and there was every reason to anticipate an agreement such as would be supported by the L. G. B. and the Board of Control. The Asylums Board further hoped the poor law authorities might place some of their accommodation at the disposal of the board so as to prevent unnecessary building. The conference might rely on the cooperation of the Asylums Board to secure the best plan in the interests of the ratepayers as well as of the unfortunate mentally defectives.

The Medico-Psychological Association, an influential body of over 750 medical men interested in questions relating to insanity, its prevention, management, and treatment in asylums or elsewhere, had its annual meeting at Norwich last week. Defects in our present system were acknowledged and suggestions made. A committee which had had the matter under consideration presented its report, which will shortly be in circulation. One of its suggestions is for clinics at general hospitals for nervous and mental cases. Of course such would be on the voluntary system, but it is said powers of detention for a limited period might be granted for certain cases under strictly defined special circumstances.

"The Society for the Early and Non-compulsory Treatment of Nervous Breakdown Apart from Lunacy Administration" announced its formation on Monday. Its spokesmen (two secretaries) declare some measure is required further than those at present adopted to make it possible for patients to be treated in an earlier and more curable stage than those entering asylums. There seems much doubt as to the necessity of a new society. I lean toward the doubters.

OUR BERLIN LETTER.

(From Our Regular Correspondent.)

DIMINUTION IN THE BIRTH RATE—ECONOMIC CAUSES—RELATION TO THE DEATH RATE—ANTAGONISM OF PUBLIC AND PERSONAL INTERESTS—MEASURES FOR COUNTERACTING THE EFFECTS OF THE DIMINISHING BIRTH RATE—FAMILY SUBSIDIES—ENCOURAGEMENT OF MARRIAGES—SALE OF CONTRACEPTIVES SHOULD NOT BE PROHIBITED BY LAW.

BERLIN, June 1, 1914.

OF all medical questions none has aroused so much interest in Germany within the past few years as the diminution in the birth rate. The present status of this subject was set forth in an address by Krohne before the German Public Health Society. The maximum birth rate was attained in 1876 when it reached 40.9 per thousand. The rate sank steadily from that time until it reached 28.2 per thousand in 1912. The decrease was most marked in the cities but within recent years it has been also quite pronounced in the country. Such a rapid diminution in the birth rate has not been observed in other countries which are also struggling with this problem. The higher classes particularly have been subject to this decreasing birth rate but within recent years the laboring classes have been similarly affected. The diminished mortality partly offsets the menace of the diminishing birth rate. Since there has been no falling off in the marriage rate and since there has been no increase in venereal disease the cause of the diminishing birth rate must be attributed to certain voluntary practices that are the result of economic stresses, including the industrial employment of women in Germany.

This subject was discussed by Prof. Schlossman before the Society of Medicine. Schlossmann is of the opinion that in the course of time the diminution of the death rate will reach a natural termination. If the death rate in the most favorable years was 16.9 per thousand, then the most favorable limit would be twelve to thirteen per thousand. Since the birth rate would continue to sink the excessive population would get smaller and smaller. The real reason for the diminution of the birth rate lies in the antagonism between the interests of the state which demands as many people as possible, and those of the individual to whom a large number of children brings a certain disadvantage. This antagonism has always existed but is now particularly great because the child becomes productive much later than formerly and the general care of children nowadays costs more than formerly. Since the children begin to earn money later than formerly, and since military service for a time puts an end to this income, the total income of the family is therefore diminished. The provision for cheaper food is an important public question. One means of alleviating the strain on the family treasury when there are many children would be state annuities and the reduction of taxes. Before the same society Prof. Mayet discussed the measures that may bring about an increase of population. He maintained that it is very important to further the welfare of those children that are born rather than to seek to increase the birth rate. On a small scale this has already been accomplished but its general introduction is still far from being achieved. It is important that the health of the mother be conserved during the childbearing period; that illegitimate children should be properly cared for; that the adolescent should be carefully supervised; that marriages should be encouraged, that a campaign should be instituted against the one-child, the two-child, and the childless unions; and that maternity insurance, midwife reform, and the systematic encouragement of maternal nursing be carried out. Homes for friendless women and children should be established. Public parks and playgrounds would further the health of women and children. In the public schools cooking lessons should be given so that women may become better housekeepers. Marriages may be increased by removing the restrictions that now effect women school teachers and office-holders. Venereal disease should be energetically combatted, possibly in time by means of gratuitous treatment.

The Berlin Society of Gynecology has gone on record in favoring the statutes forbidding the sale

of abortifacients but not favoring the laws that prohibit the sale of contraceptives, since this prohibition is regarded as a means of favoring the increase in venereal disease.

Progress of Medical Science.

Boston Medical and Surgical Journal.

July 23, 1914.

1. Ulcerative Angina. An Occasional Early Symptom in Typhoid Fever. N. B. Potter.
2. Some of the Problems of Private Sanatoria for Tuberculosis as Observed During Ten Years' Experience in the Pottenger Sanatorium for Diseases of the Lungs and Throat. F. M. Pottenger.
3. The Development of Artificial Pneumothorax. G. M. Balboni.
4. Pylorectomy for Ulcer. P. E. Truesdale.
5. Causes of Insanity. H. W. Wood.
6. Organotherapy. H. G. Jarvis.

1. Ulcerative Angina in Typhoid Fever.—N. B. Potter states that in six to twelve per cent. of the cases of typhoid fever there appear about the same time as the roseola one or more small superficial ulcers, usually upon the anterior pillars of the fauces, constituting the so-called typhoid angina or Bouveret's ulcers. These ulcers may appear sufficiently early to be of some value in the clinical diagnosis of typhoid fever. An appreciation of this lesion will prevent the mistaken diagnosis of syphilis, diphtheria, croup, etc., and of scarlet fever. The ulcers are probably the result of a secondary infection upon a mucous membrane altered by the existing disease. They also occur, but much less frequently, in tuberculosis.

3. Artificial Pneumothorax.—G. M. Balboni points out that success in the use of this method of treatment depends on the manner in which the pneumothorax is produced and maintained. It is best to produce the pneumothorax by large quantities of nitrogen, and to bring it slowly up to the desired volume and pressure. The rapid production of a pneumothorax by large quantities of nitrogen is dangerous as it does not give the adjacent organs time to adjust themselves to the changed conditions; besides the expulsion or sudden evacuation of large quantities of purulent matter may infect the sound lung. The only exception to this is in unilateral hemoptysis where it is desired to control the hemorrhage quickly. It is essential to have a free pleural cavity or one that can be made sufficiently free by subsequent injections to allow complete collapse of the lung. The other organs must be in such a condition as to be able to withstand the extra work thrown upon them. The patient ought to be in a sanatorium under the complete control of the physician. Frequent x-ray examinations are essential for the treatment. Artificial pneumothorax is not an indifferent procedure and should be undertaken only after the careful consideration of each case. The patient should be fully informed that the treatment is long, tedious, troublesome, and expensive and not devoid of dangers.

New York Medical Journal.

July 25, 1914.

1. Primary Perineorrhaphy by Buried and Subsurface Catgut Suture. R. L. Dickinson.
2. Roentgen Examination of the Appendix. J. T. Case.
3. Tubal Gestation. J. A. McGlinn.
4. The Significance of High Blood Pressure. H. Brooks.
5. Pott's Paralysis. Restoration by Albee's Operation. A. J. Davidson.
6. The Present Status of Cataract Extraction. L. W. Crigler.
7. The Quantitative Estimation of Uric Acid, Cholesterin, and Sugar in the Blood. R. Weiss.
8. Protection of the Public by Law. C. E. Whitney.
9. Is Constipation an Evil? W. F. Waugh.

1. Primary Perineorrhaphy by Buried and Subsurface Catgut Suture.—R. L. Dickinson believes that upon buried catgut of small size entire reliance may be placed for pelvic floor repair after labor. This form of suture is even more satisfactory than in secondary operations. In fifty-seven fresh injuries of various degrees, primary union resulted, whether interrupted stitches were closed over by running intercutaneous lacing, or whether a single strand ran as continuous tier suturing and the two ends came together, one submucous, the other subcuticular, the whole secured by one deep knot and one hidden surface knot. The wound is practically invisible from the first. Levator laceration particularly demands tier suture, and anterior fascial gaps are thus best united. The buried layers provide for almost immediate disappearance of the wound, freedom from dressing and stitch drag, skin comfort and skin dryness, and notable swiftness of union. Plain catgut No. 1 does well for all lesser tears, and it may be that it will be found to suffice for all. Chromic gut No. 1 has been employed for about two thirds of the cases. In layer work this has sometimes been used double. Three ways have been tried and found to work well. (1) Interrupted buried stitches, either circular in sweep or of figure-of-eight form. In this method the vaginal portion of the injury may be closed by buried sutures whose knots come just under the surface. Better still, the stitch farthest up the vagina has one end left long, and this becomes a submucous suture. In like manner the stitch nearest the anal angle has an end that works forward, as subcuticular, to meet the vaginal stitch. (2) Continuous layer catgut, in two or three tiers, the last being subsurfaces, the work being done generally with one strand, the larger bights locked by the buttonhole form of stitch. One begins either at the upper end or in the middle, working in both directions with the same strand or several strands. (3) Figure-of-eight, continuous, centerlocking, the same strand going on to make the subsurface closure. Any choice or combination of the foregoing may be used.

2. X-Ray Examination of the Appendix.—J. T. Case notes that in acute appendicitis little need or opportunity for *x*-ray examination will be likely to present itself. Perhaps in doubtful cases, as for instance, suspected left sided appendicitis, a careful injection of the colon with the bismuth clysma under the guidance of the fluorescent screen, followed by careful and intelligent palpation of the abdomen under the screen, may be of some service. In studying chronic appendicitis, however, and its complications and sequelæ, the author believes the Roentgen examination to be capable of rendering valuable service in a large number of cases. Of course when the lumen of the appendix is closed as the result of an obliterative process, bismuth will fail to enter and the appendix shadow will not appear, but in the large percentage of cases in which the appendix shadow can be studied under the fluorescent screen, there are a number of facts capable of demonstration. One may study the size and length of the lumen; the presence or absence of constrictions or links; adhesions; the question of drainage (emptying time) of the appendix; the relation of the visible appendix shadow to a point of pain on pressure; the position of the appendix, whether retrocecal, procecal, etc.

Journal of the American Medical Association.

July 25, 1914.

1. Cerebrospinal Fluid as a Problem in Intracranial Surgery. C. H. Frazier.
2. Treatment of Placenta Prævia. E. P. Davis.
3. Hysterotomy. J. B. Deaver.
4. The Necessity for the Establishment of a National Leprosarium. W. C. Rucker.
5. The Duty of the Government in Leprosy Care and Control. J. Dyer.
6. The Therapeusis of Pericarditis. R. L. Wilbur.
7. The Abuse of Normal Salt Solution. L. Litchfield.
8. Therapy of Cardiovascular Disturbances. J. H. Newburgh.

9. A Comparison of Cholesterinized and Non-Cholesterinized Artificial Antigens in the Wassermann Reaction. C. C. W. Judd.
10. The Adrenals and the Pulse Rate. R. G. Hoskins and C. R. Lovellette.
11. The Time When the Breath Can Be Held as an Index for Acidosis. Y. Henderson.
12. Variability in the Results of Intelligence Tests. D. D. V. Stuart, Jr.
13. The Use of a No-Sound Stroke in Percussing Out the Boundaries of Superficial Dulness of Airless Bodies. H. L. Smith.
14. Intestinal Myiasis. H. C. Blankmeyer.

1. The Cerebrospinal Fluid as a Problem in Intracranial Surgery.—By C. H. Frazier. (See MEDICAL RECORD, June 27, 1914, page 1192.)

2. The Treatment of Placenta Previa.—By E. P. Davis. (See MEDICAL RECORD, June 27, 1914, page 1191.)

3. Hysterotomy.—By J. B. Deaver. (See MEDICAL RECORD, June 27, 1914, page 1191.)

5. Governmental Care and Control of Leprosy.—I. Dyer recommends that the Lafferty bill providing for a national leprosarium should become a law and that the provisions for leprosy isolation should be adequately undertaken at once. The institution of a leper colony should carry with it all of the necessary details for the proper care of the patients as well as for the study of the disease. The cases should be grouped according to their type and stage. Terminal cases should be separated from recently developed cases. An infirmary should care for those with complicating diseases. Single rooms are better than wards, and these should be arranged with ample ventilation—as nearly open air as possible. Frame buildings are more desirable than other structures as they may be easily destroyed or renewed should this be desired. The walls, ceilings, and floors should be of such material as to permit frequent fumigation. Men, women, and children should be separated in any colony provision aiming at final cure. All hospital plans should look out for the provision for bathing facilities, hot water especially. No matter what experimental treatment may finally attain, accepted methods should be systematically followed. The first and most important thing is to have a national asylum established. Then its opportunities should be broadly offered to all students of the disease. The hospital facilities should be of such a character as to attract the leper who wishes treatment and care. The general public should know early that the national leper home is not for compulsory detention but for the care and possible cure of the disease.

6. Treatment of Pericarditis.—R. L. Wilbur states that the accessibility of the pericardium makes local treatment valuable and surgical treatment possible, and leads to the hope that further study may permit the application of remedies directly to the interior of the acutely or chronically inflamed sac. Induced pericarditis in animals offers a good field for study along this line. An early diagnosis of dry or serofibrinous pericarditis permits of the most effective treatment and must be based largely on a vague feeling of oppression in the chest or actual pain, cardiac irritability, and friction rub. Early aspiration, preferably to the left of the nipple-line, is of value in the diagnosis of pericardial effusion, and tapping should be practised when the heart-action is markedly disturbed from apparent increase in intrapericardial pressure. The Brauer method should be more often used in patients giving evidence of pericarditis with adhesions and presenting signs of cardiac hypertrophy or dilatation. It will often diminish disability and often prolong life. Careful attention should be paid to the differentiation of pain in the region of the heart resulting from acute or chronic pericarditis from true angina pectoris, since the prognosis is necessarily so different. Careful and repeated examination for a friction rub should be made over the whole cardiac area in patients with precordial pain.

7. The Abuse of Normal Salt Solution.—L. Litchfield concludes that the administration of any artificial serum as a routine postoperative practice is questionable therapeutics. Too much water may fatally embarrass the heart. Too much salt may fatally embarrass the kidneys. When fluids cannot be taken by the mouth, thirst may be relieved by tap-water or by isotonic dextrose solution given by enteroclysis. The dextrose solution is preferable when there is danger of acidosis and in all cases of inanition. When there is a distinct indication for an artificial addition to the amount of the circulating blood-serum this may best be accomplished by the use of dextrose solution; isotonic (5.1 per cent.) by enterocylsis; isotonic, hypertonic (up to 30 per cent.) or hypotonic (2 per cent.) by intravenous infusion. There are no contraindications to the use of dextrose, but there are often serious contraindications to the use of saline solutions. In all urgent cases the intravenous method is preferable. Greater care should be exercised to see that all water used intravenously is not only sterile but also nontoxic. In medical practice artificial sera should be more frequently employed. Isotonic or hypotonic sera should be used after severe hemorrhage, exhaustive vomiting, or diarrhea; or in cases of extreme inanition. Hypertonic sera should be used in toxemic cases, including eclampsia and uremia; in cases of oliguria with threatened uremia; to combat acidosis; or in toxic states, as after anesthetics, gas, or morphine poisoning, etc. The author regards Fischer's theory of nephritis as a gratuitous hypothesis and his recommendations regarding treatment not justified either by established physiological facts or by clinical experience.

8. Therapy of Cardiovascular Disturbances.—L. H. Newburgh performed an investigation to determine whether the poison of infectious diseases injures the vasomoter mechanism, and to determine whether strychnine and caffeine, both of which are commonly used to stimulate the cardiovascular apparatus, do actually have such an effect. He notes that since the blood pressure is not low either in persons showing grave symptoms of pneumonia or in those dying of that disease, and since it has been proved that the vasomotor arcs are normal in animals near death from pneumonia, it is logical to conclude that the vasomotor mechanism is not impaired in pneumonia. The author believes that strychnine does not improve or augment the work of the heart in persons suffering from broken cardiac compensation. It could not be shown that either strychnine or caffeine stimulated the cardiovascular apparatus in any of the conditions studied.

9. Cholesterinized and Non-Cholesterinized Artificial Antigens in the Wassermann Reaction.—C. C. W. Judd finds that standard cholesterinized antigen does not yield an appreciable number of non-specific reactions. Standard cholesterinized antigen detects many luetic cases which do not yield positive results with Noguchi antigen. Standard cholesterinized antigen, though amenable to the influence of treatment, is less susceptible to extinction by therapeutic measures. Standard cholesterinized antigen possesses splendid keeping properties, is always available, and is easy of preparation. It is an ideal artificial antigen.

10. The Suprarenals and the Pulse-Rate.—R. G. Hoskins and C. R. Lovellette states as the result of his experiments performed upon dogs that intravenous injections of suprarenal extract under conditions closely simulating suprarenal discharge cause not only an increased blood-pressure but generally also an accelerated

pulse. Acceleration of the pulse, therefore, is one of the adaptive functions of the suprarenal glands.

11. **The Time That the Breath Can be Held as an Index of Acidosis.**—Yandell Henderson believes that such an index of the degree of acidosis is afforded by the length of time that the breath can be held voluntarily. The point of view now coming to be accepted regarding the relation of acidosis to the rate of pulmonary ventilation and the alveolar carbon dioxide is based to a considerable extent on data accumulated by the Pike's Peak expedition. During a stay at the summit and after the descent the author and his associates had frequent occasion to note that the length of time the breath could be held was shorter as the alveolar carbon dioxide was lower, that is, according to the intensity of the acidosis which causes the increased respiration of great altitudes. The relation was not, however, a direct proportion. While the alveolar carbon dioxide was reduced about one-third most of the members of the party could hold their breath for less than half as long as at sea-level.

The Lancet.

July 18, 1914.

1. Prognosis. W. Hale White.
2. Incomplete Rotation of the Intestinal Loop as a Cause of Retrocolic Hernia. A. G. T. Fisher.
3. Hemorrhagic Typhoid Fever. A. Caddy and B. Molony.
4. Oral Sepsis in the Diagnosis and Treatment of Pulmonary Tuberculosis. R. C. Wingfield.
5. Auricular Flutter Followed by Paroxysmal Auricular Fibrillation. E. B. Gunson.
6. The Bacillus of Bovine Tubercle as a Factor in Phlyctenular Affections of the Eye. S. Stephenson.
7. Femoral Hernia Treated by Bone Transplantation. W. H. C. Greene.
8. Intrapharyngeal Administration of Warmed Ether Vapor by the Nasal Route. H. M. Page.
9. Primary Carcinoma of the Liver in Child 3 Years Old. W. T. Freeman.
10. English Medicine and Surgery in the Fourteenth Century. D. Power.

1. **Prognosis.**—W. Hale White quotes Hippocrates who said: "The best physician is the one who is able to establish a prognosis." In tuberculosis anorexia, vomiting, and diarrhea are very bad signs, especially if persistent; indeed, loss of weight from any cause is bad. A persistently rapid pulse, continued pyrexia, and frequent profuse sweats are all bad, but it is surprising how some of these symptoms may persist for a long time, and yet return to normal. In heart disease, generally speaking, the louder the murmur the better, for it means that owing to the vigor of the cardiac muscle the blood is being sent forcibly through the diseased valve. An irregular pulse is not so often of bad prognostic significance as a rapid one. In lobar pneumonia a most important circumstance is the age of the patient. Pneumonia is chiefly fatal by the action of the toxin on the heart; a very rapid feeble pulse of poor volume is always very serious. If sufferers from pneumonia sleep badly they do as a rule badly, and if they sweat much apart from the crisis they do badly, probably because the sweating indicates severe infection. An important circumstance in the prognosis of chronic interstitial nephritis is the age of the patient. Young subjects with chronic granular kidney rarely if ever do well, and almost anyone under 30 who has it will soon die. The sufferer from this disease who complains of general weakness does badly, so does the patient who is thin and pale, and if a patient takes to bed because of weakness he will not live long. In cerebral hemorrhage the following point to a fatal result: (a) Coma still present at the end of 24 hours; (b) Cheyne-Stokes breathing as a result of the hemorrhage; (c) much mucus in the lungs; (d) paralysis of all four limbs; (e) a very low temperature; and (f) a very high temperature. Diabetes is a disease of great interest from the viewpoint of prognosis. In the first place it is a racial disease, being terribly common among the natives of India; it is commoner in Jews than in Christians. Quite apart from race, however, it is a family disease. The most important thing about the prognosis of diabetes is the effect of treatment; it is possible to know beforehand whether a patient is going to respond easily to this. The other important thing is whether the sufferer is going to live in easy and comfortable circumstances. One cannot possibly tell whether a treatment is good or bad unless one knows what the natural course of the disease is. A study of life insurance statistics clearly shows that the mortality from any disease increases in proportion as the abdominal girth of the patient over that of the expanded chest increases. It is well known that overindulgence in alcohol greatly damages the prognosis in any disease. Lastly, there is the mental factor: every doctor dislikes the patient with an acute illness who is sure he will die, and likes the patient who is certain he will recover.

3. **Hemorrhagic Typhoid Fever.**—A. Caddy and B. Molony report three cases of typhoid fever which came under their observation in Calcutta, two of which cases developed very unusual symptoms. In the first case during the course of the fever there occurred an extensive purpuric eruption, which was followed by a generalized bleeding from the mucous membranes—viz., the tongue, gums, bladder, and intestines. In the second case hematemesis occurred while the fever was at its height. This happened on three occasions, together with bleeding from the bowel. The third case was one of intestinal hemorrhage complicating typhoid fever and ending in recovery. In each case the patient was given a course of quinine, although it is very uncommon for Europeans living in the English quarter of Calcutta to get infected by malaria. This quinine treatment in cases which eventually prove to be typhoid often seems to aggravate the disease. As regards purpura complicating typhoid fever and hemorrhagic typhoid fever the authors have been able to find very few references in current literature. In discussing the question of treatment of these cases (other than dieting and nursing) one must think of them as examples of two different types of hemorrhage as it occurs in the course of typhoid fever—viz., (1) hemorrhage due to widespread damage of the vessels in different parts of the body; and (2) hemorrhage due to gross damage by ulceration to one or more vessels in the gut. To stop the bleeding the first essential is to rest the bleeding part. This may be obtained by the administration of opium. The coagulability of the blood may be increased by giving calcium salts. In all future cases the authors would use emetine hydrochloride as advocated by Low. To make up for loss of body fluids it seems logical that one should transfuse the cases of the second type; hypertonic saline, as likely to help in increasing the coagulability of the blood, would be the fluid of choice.

British Medical Journal.

July 11, 1914.

1. On Diathesis in Infancy: A Plea for Its Closer Study. H. C. Cameron.
2. Carbon Monoxide Poisoning in the Senghenydd Explosion. I. J. Davies.
3. Report on Tuberculous Milk in Edinburgh. A. P. Mitchell.
4. Some Observations on Modern Vascular Problems. F. J. Smith.
5. How to Increase the Usefulness of the British Medical Association. J. L. Stretton.
6. Recent Legislation and the Medical Profession. J. Russell.

1. **Diathesis in Infancy.**—H. C. Cameron states that the exudative diathesis of Czerny is so common that its manifestations in greater or less degree are met with every day in practice and are familiar to all. In early infancy the most common way in which the inheritance

shows itself is the complete or relative failure of breast-feeding. The children often show none of the strength, vigor, and firmness of the normal breast-fed baby. From the first they may be meager, small, and complaining, and persistently dyspeptic. The mother's breasts may be well formed and full of milk, and yet for weeks and even months no improvement takes place. Dyspepsia, with the passage of green stools and vomiting, is frequent, and in a breast-fed child should always suggest the existence of this diathesis. In other cases, however, a different picture presents itself. The infant achieves a rapid rise in weight, yet the more rapid the growth the more marked do the other symptoms of the exudative diathesis become. Finkelstein has emphasized especially the tendency for infants who show the diathesis to belong to one or other of these two types; the thin and wasted type; or the fat, pasty, and eczematous type. Seborrhea of the scalp is extremely common. A dry eczema of the cheeks and chin is common especially in thin infants. Urticaria papulata is often seen and intertrigo occurs readily. Nasopharyngeal catarrh, with the accumulation of secretion in the posterior nares and glands is common. Laryngitis, bronchitis, and otitis media are frequent complications. The lingua geographica, eczematous or phlyctenular conjunctivitis, and circular caries of the teeth are seen in later infancy. The mucous membrane of the intestine is also affected. In earliest infancy constipation or dyspeptic green stools are common symptoms. The spleen, thymus, tonsils, lymphatic glands and intestinal follicles all show a tendency to enlargement which is probably secondary to the chronic irritation in the areas which they drain. The symptoms of the diathesis are encouraged or controlled largely by the composition of the diet. Especially marked as a rule is the ill effect of a fat rich diet, such as cow's milk. Even the breast milk may disagree for this reason. Limitation of the amount of milk and the early substitution in part of carbohydrate food is usually the most successful line of treatment. Without dietetic regulations the local treatment of the various manifestations, the repeated catarrhs, of the lymphoid overgrowth—as, for example, the adenoid enlargement—is often without avail. Overfeeding, Cameron says, is especially harmful, and the food should be reduced so that it just covers the physiological needs.

British Medical Journal.

July 18, 1914.

1. Some Problems in Cardiac Physiology. A. F. Stanley Kent.
2. Causation, Prevention, and Cure of Goiter, Endemic and Exophthalmic. R. Farrant.
3. Anoci-Association in the Prevention of Shock and Post-Operative Discomforts. H. B. Butler and E. W. Sheaf.
4. Radical Cure of Inguinal Hernia. J. O'Coner.
5. Uremia with an Unusual Degree of Urea Retention. H. B. Day and W. H. Wilson.
6. Latent Dysentery or Dysentery Carriers in Sarawak, Borneo. W. L. Christie.
7. Infective Arthritis Treated by Specific Methods. D. W. C. Jones.
8. Pneumococcic Arthritis Following Acute Pneumonia. W. S. Richardson.

1. Some Problems in Cardiac Physiology.—A. F. Stanley Kent notes that cases have occurred in which an interruption of the normal rhythm of the heart has been observed, although the auriculoventricular bundle has been proved to be intact, and cases of normal rhythm have occurred in which the bundle was subsequently found to be destroyed. In 1892 the author described the existence of an additional muscular connection between the auricle and ventricle in the right lateral wall of the heart. Recent histological investigations by the author have shown that there exist in the heart, in the neighborhood of the auriculoventricular groove on the left side of the organ, neuromuscular structures whose constituents are partly nervous and partly muscular, and these have connections with the nervous structures of the groove and with the muscular tissue of the auricle and of the ventricle. There exists in the right lateral wall of the heart a mass of hitherto undescribed nodal tissue. In association with the latter there exists at least one muscular path between auricle and ventricle along which impulses can pass, and which is able to keep the chambers in physiological association, even when the auriculoventricular bundle has been cut. Experimental results have been obtained which completely bear out the anatomical fact of the existence of an additional muscular path between auricle and ventricle.

2. Goiter, Edemic and Exophthalmic.—R. Farrant records observations made between 1909 and 1914 on 85 cases of goiter (exclusive of simple hyperthyroidism) concerning the relationship between toxemias and diseases of the thyroid. He sought to prove that in cases in which the thyroid is diseased the causative microorganism or toxemia can be determined and to show that in this way diseases of the thyroid cannot only be cured but also prevented. Endemic goiter is caused by the toxins from the atypical forms of *B. coli*. The mutants are usually conveyed by water. They become indigenous in the intestine, and different mutants of *B. coli* are to be found in the feces of cases of endemic goiter. The mutants set up an apyrexial toxemia which stimulates the thyroid, leading to a colloid hyperplasia and eventually to enlargement of the gland. The whole process can be imitated in the laboratory, and endemic goiter can be induced in guinea-pigs by feeding it with small doses of the mutants. The supervention of a fresh toxemia while the gland is in a hyperactive state causes a complete hyperplasia, with absorption of colloid and signs of hyperthyroidism up to a condition of exophthalmic goiter. This is dependent on the intensity and duration of the fresh toxemia. Endemic goiter is preventable by the avoidance of water contamination and by the sterilization of contaminated water. It can be cured by the administration of intestinal antiseptics and the gland returns to normal, providing no degeneration has taken place. The gland as a whole involutes to normal, but the adenomata or cysts are left. A condition similar to endemic goiter can be caused by other toxemias capable of inducing a colloid hyperplasia. Exophthalmic goiter is due to a combination of toxemias of an intensity sufficient to cause a hyperplasia with absorption of the colloid material. One acts during a period sufficient to give rise to a complete hyperplasia associated perhaps with slightly marked signs of hyperthyroidism without necessarily any glandular enlargement. The supervention of another infection stimulates the gland, which usually enlarges, and the signs of hyperthyroidism become very evident; the case develops into one of typical exophthalmic goiter. A nervous shock may suggest the diagnosis by suddenly bringing into evidence the symptoms of hyperthyroidism, especially those connected with the nervous system. The severity and duration of exophthalmic goiter are dependent on the intensity and duration of the toxemias. If they are of short duration the disease will disappear in a few months. Exophthalmic goiter can be prevented by the detection of the early cases of hyperthyroidism and the consequent removal of the basal toxemia. It can be cured, Farrant holds, if the causative agents are removed before degeneration has occurred either in the gland or in those organs that are affected by the hypersecretion.

Deutsche medizinische Wochenschrift.

July 9, 1914.

Paravertebral Conduction Anesthesia.—Siegel, an assistant of Krönig, after duly recognizing the work of Crile in nerve block (the Germans are all too slow in this respect, believing apparently that Crile uses the simple conduction technique) gives his results with paravertebral anesthesia in gynecology. The method resembles that of parasacral anesthesia applied to the lumbar vertebræ, each spinal nerve being anesthetized just as it leaves the foramen. The author employed it in 170 cases and in 70 per cent. of these no inhalation narcosis was superadded. Of the 170 cases 20 were obstetrical, the rest gynecological. The term paravertebral does not exclude parasacral, for the sacral nerves were also anesthetized, either *per se* or in combination with the lumbar nerves. The "twilight sleep' so freely practised in Krönig's clinic was employed to exclude the psychic trauma, serpolamin and narcophin being employed for the purpose. Crile is given credit for this idea. The author admits that his 170 cases are too few to establish a new induction, but is entirely satisfied with them as they stand. The range of intervention is the same as in intraspinal anesthesia.

Clinical Notes on Strophanthus.—Johannessohn and Schaechtl refer to the uncertainty of strophanthin when given per os because of the possible injury sustained from the digestive fluids. It was learned by experiment that pepsin and pancreatin were inert, but the acidity and alkalinity of the juices were alike able to weaken the action of strophanthin. It is known that there are several forms of the drug, characterized by letter prefixes, and that these have different behavior in regard to digestive fluids. The so-called g-strophanthin of Thom has the action of strophanthin, but may be given in larger doses (intravenous dose double; daily dose by mouth three or four fold greater). Given per os in this form it acts more promptly than digitalis, and produces an unusually profuse diuresis in cases of ascites and edema. In vitro this strophanthin cannot be attacked by any of the digestive fluids, acid or alkaline. There is much less tendency to cumulation than when digitalis is used. These attempts to equal or surpass the virtues of digitalis per os are doubtless due to the superior quality of strophanthin when given intravenously.

Double Perforation of a Tuberculous Nodule into the Aorta and Bifurcation of the Trachea.—Girardet relates a case of an accident which might in theory be more frequent than literature warrants, when we consider that the tracheobronchial glands are more frequently the seat of tuberculosis than any other one structure. Perforation of the aorta *per se* is not of such extreme rarity because this is one of the readiest explanations of acute miliary tuberculosis, the original focus being the tracheobronchial glands. Softened glands also rupture into the lower portion of the trachea. The double perforation, however, seems to have been reported but once before, as far as complete conformity with the author's case; but cases more or less resembling the author's in which the tuberculous focus made two openings.

Münchener medizinische Wochenschrift.

July 7, 1914.

Anesthesia of the Uterus.—Kraus implies that local anesthesia is but a stepmother to the uterus. The first attempts were directed to the cervix and parametria, while Sellheim obtained superior results with conduction anesthesia. The author believes he has made a further advance by employing pressure anesthesia, so well known to the dentists. The stretching of the cervix is a painful operation. The operator inserts into the cervix rods of cocoa butter, which contain the proper content of novocain—suprarenin. These can be pressed quite up to the fundus, after which they melt and the entire mucosa is rendered anesthetic. Hegar's dilator is then introduced. To improve the asepsis the latter was coated with melted cocoa butter containing the anesthetic and the whole, after the butter had hardened, pushed into the cervix. The first results were imperfect and instead of cocoa butter a syrup containing the anesthetics was substituted. The syrup was boiled and allowed to congeal on the dilator. Thus far asepsis and anesthesia have been assured. The author has operated upon 24 cases of endometritis (curettage) with the above anesthesia, with satisfactory results.

Hysterical Dermatoses.—Antoni refers rather to the relationship between these affections and perhaps to their coincidence in the same subject, because naturally an hysterical woman can suffer from any dermatosis. Since peculiar affections occur in hysteria which can hardly be artefacts but psychogenic dermatoses, there are, however, others which are readily recognized as artefacts. These smack of simulation and are recognized chiefly by their traumatic nature and by their limitation to areas accessible to the finger nails. The author relates a case of difficult diagnosis in a young woman, in which an ulcerous condition, suggesting either tuberculosis or syphilis, covered the entire abdomen. These ulcers had been treated in every conceivable way, including transplantation, but to no avail. The sores were markedly serpiginous and fetid. A few had healed with marked scarring; while in other cases sloughing areas were present. The WaR was negative, but the patient had evidently been treated with salvarsan at some period as shown by the scars following intravenous injection. There was a history of hysterical attacks and of many other phenomena suggesting hysteria, occurring especially in the skin—recurrent erysipelas, spontaneously appearing and healing sores, profuse sweating, dryness of skin, etc. At 14 she had pus in the abdomen, requiring laparotomy and healing perfectly. Six years later she fell and ruptured the scar, suppuration followed and then ulceration. The condition had gradually spread. After reviewing the case a watch was set upon the patient, and it was learned that while supposedly asleep the patient had leaned upon a hot stove, thereby causing bullæ and eventually the severe condition described. The snap diagnosis before the watch was artefacts produced by hot water.

Double Intranasal Dacryocystotomy for Lachrymal Disease.—D. R. Paterson reports the case of a girl aged 16 years. "Watering" of both eyes noticed for three years. She had been treated two years ago for atrophic rhinitis, which was still present. About five weeks before admission a phlegmon appeared over the left lachrymal sac with the formation of an abscess or fistula. On the right side there was a blenorrhea of the sac, a quantity of thin pus being evacuated on pressure. West's operation of opening the sac from the interior of the nose was done on both sides. On the right side the sac wall was overlapped by an affected ethmoidal cell, which was opened up; on the left it was necessary to resect the upper part of the septum in order to get room. The result of the operation was immediate and the fistula closed. The case illustrates (a) some conditions of the tear-sac brought about by stenosis, viz., blenorrhea of the sac, dacryocystitis, phlegmon, and fistula, and their dependence often upon a nasal affection; (b) the intranasal conditions usually met with in the operation; and (c) the advantages of the intranasal route to the lachrymal sac. —*Proceedings of the Royal Society of Medicine.*

Insurance Medicine.

SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

THE INADVISABILITY OF INSTRUMENTAL EXAMINATIONS FOR LIFE INSURANCE.

It is difficult for the members of the field force to understand why the making of an instrumental examination by a physician serving as a medical representative of a company is inadvisable, even though the report of the regular examination happens to be incomplete without the information that could be gained by a resort to some such procedure. The objections to instrumental examinations may be considered from two points of view:

1. The natural reluctance of corporations, companies, or associations to allow or countenance any procedure which might afford an opportunity for the institution of one of the many legal claims for damages that arise without foundation or upon slight provocation. They realize from past experience that they have small chance for justice from the average jury. Life insurance companies are erroneously regarded in the same light as great money-making corporations and the fact that the policyholders must pay the bill when a company is mulcted, is forgotten. A disgruntled applicant, through this unfortunate condition in the courts of justice, has the power to inflict unfair expense, trouble, and annoyance upon a company by instigating a suit for damage claimed to be the result of an instrumental examination, the damage being feigned or imaginary.

2. The instrumental examination is usually one which requires the experience of a specialist, and actual injury may be inflicted through carelessness or the unpractised hand of an examiner. The harm done would rarely be more than one of slight degree, but would, nevertheless, afford an opportunity for an unscrupulous lawyer to impress a jury, already inclined to favor the individual.

Whenever, then, an instrumental examination is needed to complete the physical examination, the applicant should be requested to furnish a certificate covering the point in question from his attending physician or from a competent authority. If he is unwilling to assume the responsibility, the risk should be postponed until this requirement is fulfilled.

Some of the important instrumental examinations may be cited as follows:

Passing urethral sounds. This is a delicate operation, especially if there happens to be an obstruction. The procedure is fraught with danger of damage to the tissues unless conducted by one familiar with every detail.

Rectal examination. This procedure is required in some cases of anal and rectal trouble and should be carried out more often than has been the practice, instead of assuming that hemorrhoids is the sole cause for the disturbance. Malignant growths, tuberculosis, fissures, fistulas, and ulcerations will be revealed occasionally by an instrumental examination, when the milder condition only has been supposed to exist. An examination of the prostate is necessary at times in men past middle life. Moderate hypertrophy of this gland will only be appreciated by one who has constant practice in this line of work.

A section of a tumor or growth, or the removal of fluid may be desired for pathological examination. Blood tests are called for by some companies when there is a history of syphilis, a process which necessitates the withdrawal of a considerable quantity of blood.

The examinations of the larynx, nasopharynx, and middle ear require the services of specialists in order to obtain a report of value. The instrumental examination of these parts should be carried out by specialists for the purpose of obtaining reliable information as well as for the object of guarding the company against the liability of accidents.

What Significance Should Be Imputed to Smoking in Estimating the Duration of Life?—In the theory of life insurance there is no concern as to smoking or nonsmoking. As a rule there is no question about smoking upon the application blank. Nevertheless in the individual case the prognosis as to the use of tobacco often plays a serious rôle, when the examiner finds something which might represent the action of nicotine.

The point of view varies much, some regarding tobacco as a race poison from all angles, while others look upon it as harmless when used in moderation. Among the former are those, for example, who ascribe the downfall of the Spanish race to incessant smoking.

We know that millions of men use tobacco without suffering any apparent harm. On the other hand we frequently encounter cases of tobacco poisoning due to abuse of smoking. Individuals react in different forms to the latter. One complains of headache and vertigo; another is anemic; a third is nervous, irritable, and soon fatigued; a fourth has a tobacco heart; a fifth has amblyopia, etc., etc. Especially pronounced are the effects of the drug when smoked in cigarettes in childhood. Hence it is not only the quantity smoked, but the individual reaction which must be considered. In this regard tobacco ranks with alcohol and coffee.

We should not discuss the ill effects of tobacco alone, but also the smoker. He may use spirits or drugs, or may be subject to business cares which are aggravated by oversmoking.

Finally tobacco is one of the great creature comforts, acting, according to circumstances, as a sedative or stimulant to the mind and with little influence on the emotional sphere. No serious attempt is made to calculate any alterations of the expectation of life due to tobacco.—*Blätter für Vertrauensärzte der Lebensversicherung*, May-June, 1914.

Life Insurance and Aortic Disease.—At the meeting of the British Life Assurance Medical Officers' Association held on November 5, 1913, aortic disease in relation to life insurance was discussed. Dr. F. de Haviland Hall thought that the essence of the matter was as to whether the case was one of of rheumatic origin or not. He pointed out that a case of aortic disease of rheumatic origin was very different from that due to some degenerative change. Whether one was justified in recommending a man with aortic regurgitation for life insurance was a difficult point. It certainly should not be done if the regurgitation came on after the age of 40. If due to rheumatic fever, and ten or fifteen years had elapsed since the onset of the attack, then he thought the case might possibly be accepted with a considerable addition. Dr. Hector Mackenzie said that he had always followed the rule of rejecting cases of aortic regurgitation.

Book Reviews.

LE LABORATOIRE DU PRATICIEN. Analyse Clinique, Méthodes et Procédés. Par PAUL GASTOU, Chef du Laboratoire Central et de Radiologie de l'Hôpital Saint Louis. Avec 18 planches contenant 319 figures en noir et couleurs par LOUIS NICLET, Dessinateur Photographe du Laboratoire Central de l'Hôpital Saint Louis. Price, 4 francs. Paris: A. Poinat, 1914.

THIS is the third portion of Gastou's work on laboratory diagnostic methods, the previous sections of which have already been noticed in these columns. It is devoted to the study of the urine, the feces, and the other secretions and excretions, the preparation and examination of sections of tissues, and the serodiagnostic methods. The use of darkfield illumination in the investigation of urinary sediments and other body fluids with the microscope is described at much greater length than is usual, and many of the drawings are of objects viewed by this method. The text is necessarily very condensed owing to the limitations of space which the author has imposed on himself, so that the work can never be regarded as more than supplementary to the larger books on the subject, but it does contain much that is of value and will be found of interest by those who do a great deal of laboratory work.

A TREATISE ON CLINICAL MEDICINE. By WILLIAM HANNA THOMSON, M.D., LL.D., Physician to the Roosevelt Hospital; Consulting Physician to the New York State Manhattan Hospitals for the Insane, and to the New York Red Cross Hospitals; formerly Professor of the Practice of Medicine and of Diseases of the Nervous System in the New York University Medical College; Ex-President of the New York Academy of Medicine, etc. Price, $5.00. Philadelphia and London: W. B. Saunders Company, 1914.

THE striking feature of this work is its originality. The author presents the results of observations gained in an extensive private and hospital practice. There are certain subjects about which his writings are now well known. Of these subjects, to which ample attention is given in this volume, may be mentioned the following: The mechanism of surface chill or "catching cold," infections by the *Bacillus coli*, and exophthalmic goiter. A special chapter is devoted to a consideration of common but important symptoms such as pain, emaciation, cough, dyspnea, edema, and vomiting. In the treatment of bronchitis the author extols the value of an emulsion of linseed oil made up in an elaborate formula with demulcents and aromatic oils. A most interesting and valuable account is given of mucous colitis in which in addition to topical remedies the author has demonstrated the value of small alterative doses of castor oil. In discussing this subject the author shows that he is no apostle of therapeutic nihilism even in the presence of a condition which is usually intractable and often incurable. Throughout this volume the same attitude is maintained. The mature judgment of a clinician of rich experience is recorded for the benefit of those whose opportunities have been more limited. For this reason the present volume stands as one of the most signal contributions to medical literature within recent years.

RADIUM AND RADIUMTHERAPY. Radium, Thorium, and other Radio-Active Elements in Medicine and Surgery. By WILLIAM S. NEWCOMET, M.D., professor of Röentgenology and radiology, Temple University, Medical Department; physician to the American Oncologic Hospital; fellow of the College of Physicians, Philadelphia. Illustrated with 71 engravings. Price, $2 25. Philadelphia and New York: Lea and Febiger, 1914.

THE writer of this volume has compiled a work which contains a good deal of value though there is much in it which will not interest the physician. Elaborate pictures of apparatus are given, without sufficient description to enable one who is not a physicist to understand the method of employing them. The ideas expressed concerning the use of screens are rather antiquated, and several of the photomicrographs intended to show sections from malignant tumors are not at all convincing. Much of the clinical material is quoted from the work of others without sufficient criticism and some of the cases thus included from the literature are distinctly misleading. As it is becoming more and more evident that radium has but a narrow range of action and is not applicable, in the quantities and methods now available, for the treatment of any but relatively benign carcinomata, positive reports of cures must rest on a scientific basis and can not be accepted unless the diagnosis has been confirmed by the microscope and the patient has been under observation for at least three years. Despite its defects the volume forms a useful compend of current English and American literature; unfortunately the recent German work has been neglected.

GEBURTSHILFLICH-GYNÄKOLOGISCHE PROPÄDEUTIK. Eine theoretische und praktische Einführung in die Klinik und in die Untersuchungskurse. Von Prof. Dr. OSCAR POLANO, Oberarzt an der königlichen Universitäts-Frauenklinik Würzburg. (A Manual of Gynecological and Obstetrical Methods of Examination). Mit 78 meist farbigen Abbildungen. Würzburg: Curt Kabitzsch, 1914.

THIS exceedingly well written manual by the well-known Bavarian obstetrician, Polano, is unfortunately supplied with a title, the meaning of which very few will recognize. It comprises a theoretical and practical introduction to clinical methods of examination in gynecology and obstetrics, based entirely on normal conditions; for as the author truly claims, it is only by an exact knowledge of the normal that pathological changes may be recognized. In the first part of the work the anatomy and biology of the female genitals are discussed and in the second or practical portion, the general methods of examination for obstetrical and gynecological purposes are described. The author refers to all the well-known and even more recent methods of examination and a number of clear and satisfactory illustrations are employed to illustrate the text. The book constitutes an excellent manual for the student and is worthy of the attention of the profession.

MENTAL DEFICIENCY (Amentia). By A. F. TREDGOLD, L.R.C.P., Lond., M.R C.S., Eng. Consulting physician to the National Association for the Feeble-Minded, and to the Littleton Home for Defective Children; Lecturer at the Medical Graduates College, London; formerly Medical Expert to the Royal Commission on the Feeble-Minded; Research Scholar in Insanity and Neuropathology of the London County Council and Assistant in the Claybury Pathological Laboratory; late Resident Clinical Assistant in the Northumberland Asylum, etc. Second Edition Revised and Enlarged Price, $4.25. New York: William Wood & Co., 1914.

THIS second edition of the work has been thoroughly revised, many chapters have been entirely rewritten, and a new one added dealing with the mental tests and case taking. The chief plan and purpose of the book are the same as in the first edition. It regards the incidents, causation, pathology, mental and physical characteristics, social relationship, diagnosis, prognosis, and treatment of persons suffering from mental deficiency. Numerous case histories illustrate the points in the text. There is an extremely interesting list of eighteen tables, chiefly of comparative values. Twenty-nine illustrations portraying patients belonging to the defective class enhance the value of the description.

FIRST AID DENTISTRY. By E. P. R. RYAN, First Lieutenant, Dental Surgeon, U. S. Army. With eighty illustrations. Price, $1.25. Philadelphia: P. Blakiston's Son & Co., 1914.

As set forth in the preface, "this book has been designed for medical and dental practitioners and students; for nurses; and especially for hospital corps men of the military and naval service and for all who are called upon to administer relief from dental pain, where the services of a dental surgeon cannot be obtained" The subject matter is dealt with under the following headings: septic conditions of the mouth; salivary deposits; inflammation of the mucous membrane of the mouth; syphilis in the mouth; brief dental anatomy; dental pain; the treatment of pulpitis; the treatment of putrescent pulp and non-septic pericementitis; the treatment of abscesses; neuralgia; pyorrhea alveolaris; fractures and dislocations of the jaws and their treatment; dental extractions; postoperative conditions; and diseases of the maxillary sinus. There are a large number of excellent illustrations and many useful formulas. As an aid to the general practitioner who may be called upon at times to render first aid dental work this book supplies a distinct want.

How to Diagnose Smallpox. A Guide for General Practitioners, Post-Graduate Students, and Others. By W. McC. Wanklyn, Assistant Medical Officer of the London County Council, and Formerly Medical Superintendent of the River Ambulance Service (Smallpox) of the Metropolitan Asylums Board. With Illustrations. Price, $1.50 net. New York: Paul B. Hoeber, 1914.

The importance of the subject matter of this book cannot be exaggerated. In 1902, of the 7,842 cases which were certified in London as smallpox and sent to the Receiving Stations 607 were found not to be smallpox and included such cases as scarlet fever, syphilis, typhoid fever, erysipelas, meningitis, pyemia, purpura, psoriasis, scabies, acne, furunculosis, etc. Of the incorrect diagnoses one-third were diagnosed as chickenpox. An extensive experience dealing with the care of smallpox cases over a period of twenty years enables the author to furnish a lucid account of the difficulties with which the diagnosis of smallpox is beset. He believes that the data for the correct diagnosis are available in nearly every case of smallpox. The subject matter of this volume is as follows: the effect of unrecognized cases in spreading smallpox; methods of clinical examination; a description of typical cases of smallpox, with special reference to the arrangement of the rash upon the skin; an explanation of the principle underlying that arrangement; other diagnostic features of smallpox; the initial rashes; the differential diagnosis of chickenpox, measles, and other exanthems. There are four full page plates illustrating the typical eruption in smallpox and two plates showing the characteristics of chickenpox. There are also a number of diagrams showing the petechial initial rash of smallpox, and one diagram illustrating dusky erythema and hemorrhagic smallpox. The book is handsomely printed and should prove of distinct service to the student and practitioner.

Transactions of the American Pediatric Society, Twenty-Fifth Session. Held at the New Willard Hotel, Washington, D. C., May 5, 6 and 7, 1913. Edited by Linnaeus Edford La Fetra, M.D. Volume XXV.

As in the case of the preceding volumes of transactions of the American Pediatric Society the present volume reflects the progress of pediatrics in this country. This is clearly shown by an enumeration of some of the articles as follows: whooping-cough: a plea for more efficient public regulations relative to the control of this most serious and fatal disease, by J. L. Morse, the diagnosis and treatment of pyelitis in infancy, by R. G. Freeman; cases of pancreatic insufficiency in children, by L. Porter; a new and rapid method for the estimation of total fats in infants' stools, by D. M. Cowie and W. S. Hubbard; is diphtheria frequently a bacteremia? by M. Nicoll, Jr., and H. L. Wilcox; the ammonical diaper and its correction, by T. S. Southworth; duodenal ulcers in infancy, by L. E. Holt; casein in infant feeding—experiments in exact percentages, by H. I. Bowditch and A. W. Bosworth; acute infectious jaundice in children, by C. Herrman; the relation of the physcian to social service, by J. C. Gittings; a case of bilateral hydroureter—chronic pyocyaneous infection, by H. Heiman; cases of edema in infants, by H. D. Chapin; three types of occlusion of the esophagus in early life, by T. M. Rotch; parotitis complicated with meningitis, by G. N. Acker; tumor of the cerebellum, by S. S. Adams; studies in cardiac stimulants, by W. P. Lucas; studies on the incubation period, No. 1, serum disease, by D. M. Cowie; acid intoxication in children, by I. A. Abt, and acute lymphatic leucemia, by I. M. Snow.

Geburten-Rückgang und Geburten-Regelung. Im Lichte der individuellen und der socialen Hygiene. Von Professor Dr. Med. A. Grotjahn, Privatdozent fur Hygiene an der Universität zu Berlin. Price 6 marks. Berlin: Louis Marcus Verlagsbuchhandlung, 1914.

The diminishing birth rate and the regulation of births in the light of individual and social hygiene is the title of this volume. The subject is one that has been discussed a good deal within recent years. After a brief historical introduction the author presents an analysis of the causes of the diminishing birth rate, attributing this largely to the use of contraceptives. The second section of this work deals with the justification of neomalthusiasm from the individual and social viewpoints. In the third section the dangers of the diminishing birth rate are set forth and the manner in which this diminution has affected various races. The fourth section discusses the outlook with reference to the regulation of the number of births. The statutory and moral aspects are fully dealt with. The author has handled this subject in a masterly manner.

Gelandebehandlung herzkranker Kinder im Mittelgebirge. Klinische und experimentelle Untersuchungen an herzkranken Kindern bei einem Kuraufenthalte im Thüringer Wald. Von Dr. H. Roeder, Spezialarzt für Kinderheilkunde, Städtischer Schularzt in Berlin. Unter Mitarbeit von Dr. C. Bieling leitender Arzt des Waldsanatoriums "Tannenhof"; Dr. W. Spinak Assictenzarzt in Friedrichchroda; E. Wienecker, Städtischer Schulrektor in Berlin. Mit einer Einführung von Dr. Adolf Bickel, Professor an der Universität Berlin, Vorsteher der experimentell-biologischen Abteilung des Königlichen pathologischen Instituts. Mit 1 Tafel, 3 Figuren und Tabellen im Text. Price, $3.60. Berlin: Verlage von August Hirschwald, 1914.

The treatment of children affected with heart disease by sending them into the country for a brief period has been made the subject of an investigation by the authors of this monograph. For this purpose twelve school children affected with heart disease were taken on one of the summer excursions, of which a great number are provided for the poor children of the city of Berlin. They were taken to a moderate mountain elevation in the Thüringian forests and were studied with the aid of the modern methods that are applied to the study of heart disease. Thus orthodiagraphic and electrocardiographic studies were made. Blood pressure, pulse, and changes in the blood and the urine, were carefully studied; and psychological observations were made. These are all set forth in an interesting manner by the author. The results of this treatment, which comprised essentially short walks in the woods was to improve materially the work of the heart and also the general condition of the child.

Black's Medical Dictionary. By John D. Comrie, M.A., B.Sc., M.D., F.R.C.P., Edinburgh; Lecturer on History of Medicine, University of Edinburgh; Lecturer on Clinical Medicine, University of Edinburgh; Assistant Physician, Royal Infirmary, Edinburgh; Assistant Physician, Deaconess Hospital, Edinburgh; Editor "Edinburgh Medical Series." Fifth Edition, completing 30,000, containing 431 illustrations in the text, etc., and 12 plates in color. Price $2.50. New York: The Macmillan Company; London: Adam and Charles Black, 1914.

Black's Medical Dictionary, first published in 1904, has now reached its fifth edition—a sufficient evidence of its popularity. The object of its editor has been to produce a work which, while describing and suggesting treatment for the common domestic ailments, should serve at the same time as a medical dictionary for the laity. The information given is in simple language, and the present volume appears to be thoroughly abreast of the most recent medical theory and practice. The illustrations are good and varied, and the work is a vade mecum of medical knowledge and treatment of considerable value for the lay reader.

Pharmaceutical Botany. By Heber W. Youngken, Ph.G., A.M., Assistant Professor of Botany and Pharmacognosy at the Medico-Chirurgical College; Member of the American Pharmaceutical Association, American Association for the Advancement of Science, etc. Edited by F. E. Stewart, M.D., Ph.G., Professor of Materia Medica, Department of Pharmacy and Chemistry, Medico-Chirurgical College; Author of the "Compend of Pharmacy." Illustrated. Price $1.00. Philadelphia: P. Blakiston's Son & Co., 1914.

This book includes mainly the structural and systematic aspects of pharmaceutical botany. The author has introduced in this volume the important subject matter of his lectures given to the first year students, but has omitted laboratory directions. The work is in two parts. The first part deals with the gross and minute morphology and to a less extent the physiology of the angiosperms. Part two deals with the taxonomy of plants, mainly but not wholly of medicinal value together with the parts used and the names of the official and non-official drugs obtained from these. A bibliography is appended.

Health Through Diet. A Practical Guide to the Uric-Acid Free Diet. Founded on Eighteen Years' Personal Experience. By Kenneth G. Haig, L.R.C.P. (London), M.R.C.S. (England). With the advice and assistance of Alexander Haig, M.A., M.D. (Oxon). Price $1.25 net. Philadelphia: J. B. Lippincott Company, 1914.

Dr. Alexander Haig has long been known as an uncompromising opponent of diet containing uric acid and has propounded his views ably and earnestly, if not always in a convincing manner. His son, the author of the book now being noticed, is as enthusiastic in the same direction, and, moreover, draws from his personal experiences to clinch his arguments. The theory of the Haigs has a good deal to be said in its favor, but is perhaps pushed somewhat too much to the extreme. However, Dr. Kenneth G. Haig's book will well repay perusal, and if he is successful in inculcating the precept "moderation in all things" his work will not have been in vain.

Diseases of the Heart. By John Cowan, D.Sc., M.D., F.R.F.P.S.; Professor of Medicine, Anderson's College, Medical School; Physician Royal Infirmary; Lecturer in Clinical Medicine in the University, Glasgow; Examiner in Medicine, Royal Army Medical College. With chapters on the Electrocardiograph. By W. T. Ritchie, M.D., F.R.C.P.; Physician, Deaconess Hospital; Assistant Physician, Royal Infirmary, Edinburgh, and the Ocular Manifestations in Arteriosclerosis. By Arthur J. Ballantyne, M.D., F.R.F.P.S.; Surgeon, Eye Infirmary, Glasgow. Price $4 net. Philadelphia and New York: Lea & Febiger, 1914.

In no branch of medical knowledge has more progress been made within recent years than in the diseases of the heart and arteries. To Dr. James Mackenzie a great deal of the credit for elucidating the subject of heart and arterial disease is due, while the invention of new instruments of precision, together with the electrocardiograph and the röntgen rays, have rendered it possible for the clinician to solve many problems which without such aid would have been impossible of solution. Dr. Cowan has reviewed the whole subject from the most recent standpoint and from his personal experience has pointed out to the practitioner their bearing upon the practical work of diagnosis, prognosis, and treatment. The result is an extremely useful addition to the literature on heart disease. Dr. Ballantyne writes instructively of the ocular manifestations in arteriosclerosis, and W. T. Ritchie discusses the manner in which the electrocardiograph shows abnormalities of the heart's action. The work throughout is excellently illustrated and may be recommended as an able and lucid description of heart and arterial disease regarded from the latest point of view.

Blood Pressure in Medicine and Surgery. A Guide for Students and Practitioners. By Edward H. Goodman, M.D.; Associate in Medicine in the University of Pennsylvania. Illustrated; price $1.50 Philadelphia and New York: Lea & Febiger, 1914.

The significance of blood pressure is now thoroughly appreciated and the consequence is that literature on the subject is continually increasing in volume. Dr. Goodman has written a handy book, in which he shows how great assistance the study of blood pressure affords in the diagnosis, prognosis, and treatment of disease. The author has a very high opinion of the value of the sphygmomanometer in determining blood pressure and classes this instrument with the clinical thermometer and stethoscope, and points out that its routine employment should be familiar to the physician. The book is a useful addition to the literature dealing with blood pressure.

Die Homosexualität des Mannes und des Weibes. Von Dr. med. Magnus Hirschfeld, Arzt. für nervöse und psychische Leiden in Berlin. Mit einem Namen-, Länder-, Orts-, und Sachregister. Price 12 marks. Berlin: Louis Marcus, Verlagsbuchhandlung, 1914.

The amount of literature on this subject which has appeared in the past twenty years is already enormous. The author of this volume has brought it together and added considerable original matter obtained from an observation and study of many thousands of cases. Indeed, it is sickening to read of the extent of this form of degeneracy in all classes of society, in both sexes, and in all the countries of the world. In every part of the world, the homosexual, as the author states, form a little world by themselves. The United States does not escape, though the number of cases is fewer than in the older countries. The plan of the book is as follows: There are two parts, with thirty-nine chapters. The first part deals with the homosexual man and the homosexual woman from a biological standpoint, and describes their peculiar characteristics. The diagnosis, differential diagnosis, prognosis, and treatment are also fully considered. The second part of the book takes up the sociological aspect of the entire question. Statistics as to the number of cases observed by various writers in the different classes of society in various parts of the world are given. The symbiosis of the homosexual forms an interesting series of chapters. The book is really an excellent encyclopedia of the entire subject. In the chapter on treatment, the methods of Freud are outlined and criticised. On the whole, however, all writers on the subject are treated with broad consideration. The index of writers quoted, at the end of the book, is very extensive. There is also an excellent index of countries and places where homosexuality has been studied, and statistics of more or less value made; also, an index of subject-matter. The book is valuable chiefly to the medical man, and an undesirable addition, perhaps, to a general library.

A History of Laryngology and Rhinology. By Jonathan Wright, M.D., Director of the Department of Laboratories, New York Post-graduate Medical School and Hospital. Second Edition. Revised and Enlarged. Price $4.00. Philadelphia and New York: Lea and Febiger, 1914.

An attempt has been made to link together the story of the records of the nose and throat in medicine with the general drift of medical history. The notes have been taken chiefly from original sources. This work will appeal to the physician for its literary and historical value rather than for its practical usefulness in his every day professional life. It affords pleasure and recreation and much of value for the daily routine. Beginning with Egyptian medicine and continuing down through the other ancient civilizations until the advent of modern procedures, Dr. Wright has given the reader a story full of entertainment and historic interest.

Asthma and Its Radical Treatment. By James Adam, M.A., M.D., F.R.F.P.S., Hamilton Dispensary Aural Surgeon, Glasgow Royal Infirmary. With Four Illustrations. Price $1.50. New York: Paul B. Hoeber, 1913.

The points brought out in this book are founded largely on personal observation. The chief contention is that asthma is due chiefly to a toxemia and in a lesser degree to a nasal and respiratory factor. This conception shifts the treatment from a merely symptomatic one to one placed on a causal basis. The toxemia arises from the bowel and the tissues, due chiefly to an error in nitrogenous metabolism, the result of imperfect oxidation or enzyme action. The poison therefore arises from proteid food or proteid tissue. There is also an associated excess of carbohydrate metabolism. The toxemia shows itself first by catarrh, later by spasms, in the respiratory tract. The conditions allied to asthma are discussed. Many case histories are given.

The Ready Reference Hand-Book of Diseases of the Skin. By George Thomas Jackson, M.D.; Late Professor of Dermatology, College of Physicians and Surgeons, New York; Consulting Dermatologist to the New York Infirmary for Women and Children; Member of the American Dermatological Association and New York Dermatological Society, etc. With 115 illustrations and 6 plates. Seventh Edition, Thoroughly Revised. Price, $3.00 net. Lea and Febiger, New York and Philadelphia, 1914.

It is pointed out in the preface of this book that the growth of dermatology is reflected in the increase in size of this work from its first edition in 1902 and its 502 pages discussing 164 diseases to the present edition with its 726 pages describing 257 diseases. As an example of the accretions to this work may be mentioned the new section on acarodermatitis urticariodes, cutis verticis gyrata, eczema marginatum, eczematoid dermatitis, erythema figuratum perstans, gangosa, granuloma coccidioides, ground itch, hemisporosis, keratodermia gonorrhoica, leucemia cutis, lichenification, lichen nittidus, lichen planus sclerosus et atrophicus, and trypanosomiasis. Like its predecessors this book is eminently practical, containing a large number of illustrations and many prescriptions. Part one consists of sections on the anatomy and physiology of the skin, diagnosis, therapeutic notes, classification, and nomenclature. Part two takes up the diseases of the skin arranged in their alphabetical order. This is an excellent feature for quick references. The appendix contains a list of useful prescriptions.

Society Reports.

AMERICAN DERMATOLOGICAL ASSOCIATION.

Thirty-eighth Annual Meeting, Held in Chicago, May 14, 15 and 16, 1914.

DR. JAMES M. WINFIELD OF BROOKLYN, N. Y., PRESIDENT.

President's Address.—Dr. JAMES MACFARLANE WINFIELD of Brooklyn, N. Y., said that it was no longer necessary to go to Europe to get the necessary clinical experience in dermatology, because the clinical material in America was now equal to that which can be found in any city of the Old World. The impression still held by many that dermatology is but the illegitimate partner of genitourinary surgery was acquired by the fact that formerly the dermatological teaching was conducted by men who made genitourinary diseases a specialty, and diseases of the skin a side issue. A man cannot serve two masters, especially when one is as exacting as the science of dermatology, and either dermatology or genitourinary surgery was enough to absorb all of a man's intellect and ability. The time had come when the leaders of dermatological thought and teaching should make an effort to improve and unify the teaching of skin diseases. Everything possible should be done to correct the custom still prevailing in many medical schools of having syphilis taught by the chair of genitourinary diseases. Granting that syphilis is a constitutional systemic disease, the cutaneous specialist was the one best trained to recognize its varied manifestations. Was it not logical that he would also be better able to teach it than anyone else? We might look still farther beyond and begin to advocate the establishment of a special department and chair of syphilology in all medical schools and hospitals, where the subject could be taught and treated systematically, by men specially trained. To make the study and specialty of dermatology more attractive, dermatologists might boldly enter upon the domains of surgery and rightfully take their own, cutaneous surgery, cosmetic surgery. All would agree that the skin specialist should be able to and does get better cosmetic results than the general surgeon when the operated calling for surgical repair is purely cutaneous. Witness the beautiful and lasting results obtained from the use of the *x*-ray, radium, and dermatological surgery. Dermatology had made great strides along the lines of clinical bacteriological and pathological diagnosis, but in spite of these great achievements our medical brothers claimed that our therapeutic skill was sadly wanting. This criticism was, perhaps, justified. Had dermatologists given the treatment and cure of skin diseases as much attention as they should? Owing to the influx of people from those countries where leprosy was endemic, we were beginning to have an increasing number of lepers in the United States, and the care of these unfortunates should engage the earnest attention of every American dermatologist, and it would seem that this Association should join hands with other medical bodies, in urging upon the United States Government the necessity for a national law and the establishment of a national home or homes for lepers. Dr. Winfield therefore suggested that a committee of this Association be created, to draft a memorial, to be presented to the President of the United States, Senate and House of Representatives, setting forth the dangers of the leper at large, and urging the need of his detention in a place, under national control, where he could receive the proper care, and the scientific investigations could be carried on with a view to the relief of the unfortunate himself, prevention of further spread of the disease, and the eventual eradication of it from the world.

In accordance with these suggestions the Association appointed the following permanent committee: Dr. M. F. Engman, St. Louis; chairman; Dr. Charles J. White, Boston, and Dr. James M. Winfield, Brooklyn, N. Y. The following resolution was adopted: RESOLVED, That it is the sense of the American Dermatological Association, now convened at its thirty-eighth annual meeting, that the care of the leper should be under national control, and that the government of the United States should be respectfully urged to establish a national leper home or homes, where these unjustly persecuted unfortunates could be properly cared for, and where systematic research can be carried on by the distinguished corps of the Marine Hospital Service.

Paronychia: Etiology and Treatment.—Drs. HOWARD MORROW and A. W. LEE of San Francisco, Cal., limited the discussion of this subject to an inflammation of the nail bed and nail fold due to organisms apart from those considered to be the etiological factors in lues, tuberculosis, tinea, blastomycosis, etc. It was the unsatisfactory method of routine treatment of this type of paronychia which stimulated them to a consideration of the subject. Of 16 cases studied, 2 were acute and 14 of long standing, and all had been caused, culturally speaking, but the *Staphylococcus pyogenes albus*. Of these cases 12 were females and 4 males. The former ranged in age from 10 to 60; the latter from 30 to 50. Definite conclusions could not be drawn from such a limited number of cases as to whether age, sex, or occupation bore any relationship to the pathological condition. Thirteen of the cases remained as an uncomplicated paronychia, while three progressed to onychia with exfoliation of the nail. In only one case did the pathological condition involve the feet, and here all of the toes were affected. Of the hand cases all the nails were involved only in two instances, and the remainder varied from one to six diseased nails. The question was raised, Was paronychia primary or secondary? In 14 of the cases studied the condition started about the nails and remained confined to that location until cured. In two cases the disease was secondary to pyogenic dermatitis on other portions of the body. They were unable to determine just what the predisposing cause was in this type of paronychia, but in each case it was possible to obtain from the lesions a pure culture of the *Staphylococcus pyogenes albus*, and, singularly enough, no other organisms grew upon the culture media employed, namely, blood serum and agar. Notwithstanding this experience, it is probable that the *Staphylococcus pyogenes aureus* is responsible for a certain percentage of the cases. For some years treatment by ointments, compresses, powders and in recent years by vaccines had been instituted. A large percentage of the cases treated by these measures have given unsatisfactory results, probably owing to the fact that aside from vaccines these applications do not penetrate into the affected areas. Vaccine therapy did not give them the same satisfactory results as the following prepared of a saturated solution of chrysarobin in chloroform. Chloroform was used because of its high tissue penetrating index; chrysarobin, because of its high staphylococcic bactericidal influence. The plica unguium should be raised from the nail and the affected area swabbed with the preparation. This should be done once daily until there was no longer pus formation. However, it should be remembered that chrysarobin occasionally caused an intense dermatitis, even after one application, and in such cases this treatment should be pursued with caution. All of the authors' patients were cured by this method of treatment in from one to three weeks.

Dr. CHARLES J. WHITE of Boston said that paronychia was not a particularly common infection in the Massachusetts General Hospital, but when it was seen it was very apt to be in the Jewish housewife, and the explanation for this apparently was that they were not allowed to use soap in washing their dishes, for fear that there might be some pig fat in the composition of the soap.

Dr. A. RAVOGLI of Cincinnati had seen a great many cases of eczema of the nail bed, which he would not exactly call paronychia, because there was not suppuration, but only a little oozing, with swelling and formation of a crust around the nail bed. He had found these cases exceedingly stubborn to treatment. The nail had very seldom been affected in the cases seen by him. He had also had some cases of true paronychia, with a great deal of suppuration, and also raising up of the nail, but in these cases incision and removal of the pus gave good results. To correct the eczematous condition referred to, he had found the application of tincture of iodine, going inside the nail bed, in the fold of epidermis, a very good measure.

Dr. D. W. MONTGOMERY of San Francisco thought a great number of these cases were due to the streptococcus.

Dr. GEORGE H. FOX of New York City referred to the relation of the manicurist to the etiology of paronychia. Recently the newspapers in New York City had had a number of special articles on the question

of forcing manicurists to obtain licenses on account of the bad results from their work.

Dr. Morrow, in closing, said that applications of tincture of iodine were very efficacious, as referred to by Dr. Ravogli, and also those of nitrate of silver.

Epithelioma of the Hand Following Traumatism Resembling a Granuloma.—Dr. Howard Fox of New York City said that his interest in the subject of cancer of the extremities, and of the hand in particular, was aroused by the opportunity to observe a case which presented a number of unusual features. The patient was a man of 48, whose previous history showed only an attack of measles when a child, and an attack of "blood poisoning" in the left wrist, for which incision was made, and which healed at the end of sixteen weeks. Syphilis denied. During the summer of 1911 he was bitten on the back of the right hand by a horse, which injury caused an open wound at the junction of the fifth metacarpal bone, which healed in the course of two weeks. Five or six weeks later an open sore again appeared on the back of the right hand, which gradually extended in area and became red and swollen, discharging and crusted. When first seen by me the skin of the right hand showed the characteristic symptoms of ordinary senile skin. The entire dorsal surface was swollen, edematous, and tender, the swelling extending to the wrist and first phalanges. On this area were serpiginous, rather sharply bordered ulcerating and crusted lesions, extending from the knuckles to the proximal ends of the metacarpal bones. The central portion was covered with epidermis, but was swollen, boggy and tender. By pressing on almost any portion of the back of the hand a considerable amount of thick yellowish pus could be expressed. The clinical picture was that of a granuloma due to tuberculosis, blastomycosis, actinomycosis, or possibly syphilis, complicated by an extensive suppurating cellulitis. Wassermann reaction was negative. A biopsy was then made, which showed the presence of a most typical squamous-celled epithelioma. Patient refused operation, and six *x*-ray exposures were given. He was also treated by wet dressings of permanganate of potash. Examination of the chest showed some coarse râles, slight dullness and diminished breathing. A radiogram of the chest was made, which indicated an extensive involvement from the level of the fifth dorsal down to the lower border of the ninth, the irregularity of the shadow indicating carcinoma. The patient lost weight and became cachectic. Dysphagia steadily increased, and after gastroenterostomy for its relief the patient died. Epithelioma of the hand was a comparatively rare condition, and in the vast majority of the cases occurred upon the dorsal surface. In spite of being histologically, as a rule, a malignant type of cancer, it ran a slow and relatively benign course, seldom invading the lymphatic glands. The majority of cases developed upon a basis of chronic inflammatory tissue; very few arose after a single tranmatism.

Dr. Alfred Schalek of Omaha had had a case very much like the one reported, but in his case the growth occupied the whole dorsum of the hand. He suspected malignant disease at first. He did not think of epithelioma for the reason that he had never seen a case of epithelioma in the hand. The case was very interesting on account of the extreme pain. The growth was excised, and later a skin graft used, which was followed by recurrence. The patient was referred to a surgeon, who amputated the arm, and after that nothing more was heard from him, but in this case the process certainly was not very benign, and looked to the speaker to be very malignant.

Dr. W. A. Pusey of Chicago had seen a considerable number of epitheliomas of the hand, on the back of the hand. His experience in general corresponded with Dr. Fox's, that epitheliomas on the back of the hand were relatively not very dangerous, but this had set him to thinking of one thing during the last few years, namely, why epitheliomas on the back of the hand occurring in *x*-ray skins were so excessively dangerous. He thought it was a general fact that those cases of epitheliomas in *x*-ray hands were very liable to metastasis, and he would like to know what was the possible reason for these lesions being dangerous, while the ordinary ones were not so. He had seen only one epithelioma on the palm, and that was an exceedingly interesting case.

Dr. M. B. Hartzell of Philadelphia spoke just a word about the sequence of epithelioma and acute traumatism. He had seen three or four patients in whom epithelioma had followed immediately upon a slight injury. One of these occurred upon the end of the nose of a woman between fifty and sixty years of age, following a scratch, which never healed, and was followed within a few weeks by a typical epithelioma. In another case the epithelioma occurred on the inner surface of the lip, following a traumatism inflicted by a dentist. He could also recall two cases of carbuncles on the back of the neck, which were followed immediately by epitheliomas; that is, the wound left by the carbuncle never healed, and epithelioma developed on that site. Perhaps his experience had been unusual.

Dr. Martin F. Engman of St. Louis said the case of Dr. Fox was extremely interesting on account of the epithelioma occurring so quickly after the trauma. It seemed to illustrate the theory of Ribbert uniquely, in which the normal epithelium through an ulcerating surface was misplaced and separated from its kindred, and thus underwent a typical physiological functionating, and rather quickly developed into an epithelioma. Quite a number of cases of epitheliomas of the back of the hand were seen, but they usually originated from a keratosis. He had seen several cases of epithelioma of the hand following *x*-rays, and one case, he thought, was fatal. This seemed to be due to the poor regenerative qualities of the connective tissue, possibly, and the poor condition of the vessels. In a large proportion of these cases the epithelioma was preceded by secondary degeneration of the connective tissue, as found by White upon investigation.

Dr. G. W. Wende of Buffalo had had a case of epithelioma on the palmar surface of the hand, following an injury. It developed soon after the traumatism, and grew very rapidly. The course, from beginning to end, was less than a year and a half in length.

Dr. Udo J. Wile of Ann Arbor, Mich., thought attention might be drawn to the one notable exception, at least to the relatively benign nature of epithelioma of the extremities, in that following the ingestion of arsenic preparations. A number of cases had been reported. A few years ago, in looking up the literature, he was struck by the large number of arsenical growths, all of which were fatal.

Dr. Sigmund Pollitzer of New York City thought the class of cases the subject of Dr. Fox's paper might well be brought under that group of epitheliomas which were the result of misplacement of the epithelial cells, caused by the trauma. In this respect this class of cases did not differ materially from another class of epitheliomas that occurred commonly as the result of a nevus, with cellular proliferation. He wanted to say a word about a practice which was quite common among dermatologists of treating nevi which depend upon cellular inclusions, as moles and pigmented moles, by cauterization by one method or another. He had seen several cases of nevi that had been treated in that way, and he thought it was a bad practice. A cellular included nevus should be treated like an epithelioma, or let alone. He wanted to lay particular emphasis upon that point. Ninety-nine times out of a hundred nothing happened, but in the last case, if a few cells were left behind, they were subjected to terrific irritation from the treatment, and were very apt to degenerate into a malignant process.

Dr. Henry H. Hazen of Washington, D. C., had had the opportunity of going over one thousand cases of epithelioma of the skin with Dr. Bloodgood, at Johns Hopkins Hospital. In that series forty or fifty originated in the limbs. In from two to ten years absolutely every case of prickle-celled epithelioma in which the glands were not taken out developed metastases. One or two developed metastases as late as ten years after. These cases were all proved malignant by microscopical examination. When we have a prickle-celled epithelioma, we should always excise the draining glands, in addition to taking out the epithelioma itself. In addition, we ought to be very careful about our method of doing biopsies on prickle-celled tissues. We left both the lymphatics and blood vessels open, and there was a very good chance for any cancer cells to escape into those cells. We should use a dull knife, and if we could not do that the wound should be immediately cauterized as soon as the tissue was removed.

Dr. W. T. Coriett of Cleveland said his experience might have been unique, but next to the epithelioma of the face, he had encountered epithelioma of the back of the hand most frequently, and in these cases of epithelioma of the back of the hand he had been impressed with the frequency with which metastases had occurred. He had attributed that to the fact that

epithelioma on the face was usually a conspicuous lesion and relief was sought at an early time, whereas an epithelioma occurring on the hand was usually less conspicuous, and therefore was liable to be neglected.

Dr. W. A. PUSEY of Chicago questioned the accuracy of any statistics that said that every case of epithelioma of the back of the hand had metastases. He thought he could produce cases from his experience that would prove that it was certainly extraordinary and not usual. He also challenged the statement of the physician who said that every epithelioma of the back of the hand should be followed by extirpation of the lymphatics. He did not think it was common sense, good or necessary surgery.

Dr. HAZEN said that he had found prickle-celled epitheliomas, and about 80 per cent. were of this kind.

Dr. FOX, in closing, said Dr. Engman had referred to the short time between the traumatism and the development of the epithelioma. He did not think six months was such a very short time. However, he just mentioned the traumatism as a suggestion; he thought it would be impossible to prove that that traumatism with the resulting scar was the actual cause of the epithelioma. In one of the cases reported in the discussion the epithelioma appeared in the scar resulting from the bite of an animal ten years afterwards. From what he had been able to read in the literature, he had found that epithelioma occurred on the sole of the foot a good deal more often than on the palm of the hand, and he thought some of these cases had started in perforating ulcers. Certainly, the majority of cases of epithelioma of the extremities arose on a basis of some chronic inflammatory process, a lupus or a fistula, in connection with an osteomyelitis or a chronic dermatitis or a chronic ulcer of some sort, and a relatively small number arose on apparently normal skin. In regard to the malignancy of the cases occurring after *x*-ray work, according to the statistics of Brunn and Volkmann the most malignant type of epithelioma was that which developed upon weals and moles, congenital or those which appear later in life.

Purpura Annularis Telangiectodes.—Dr. GEORGE M. MACKEE of New York City said this affection attacked young male adults, although two cases had been noted in infants. The eruption was always situated on the anterior and lateral surfaces of the lower limbs, below the knees, with occasional lesions above the knees and on the arms, and very rarely on other portions of the body. The appearance of the eruption was nearly always preceded by rheumatic pains. Otherwise there were no subjective symptoms. The disease was divided into three fairly well defined stages: First, telangiectatic; second, purpuric and pigmentary, and, third, atrophic. Regarding the differential diagnosis and etiology, many cases gave a positive tuberculin reaction, but at the same time many did not. Inoculation experiments had been negative. These facts, together with the clinical and histological pictures, would seemingly rule out the possibility of tuberculosis. Occasionally, in syphilis, an annular purpuric rash was present, which was due either to the syphilis or possibly to the mercury. This eruption was usually limited to one small area, was evanescent in character and disappeared without atrophy and with temporary pigmentation. The etiology of the disease was unknown, but was thought to be either a neurosis or a reaction to some toxic substance. It could be differentiated from any known dermatosis, and was undoubtedly an entity.

Dr. A. SCHALEK of Omaha said whatever this skin disease might be, he certainly did not think that the name purpura was a good one. It did not agree with any of the characteristics of purpura as he knew them.

Dr. A. RAVOGLI of Cincinnati said it was a beautiful thing to place new names, and to try to designate diseases of rare quality by these new names, but we should remember that we had acne necrotica and tuberculides, but whether they had just the same pustule formation, with resulting scar, as that described by Dr. MacKee, he did not know.

Dr. W. H. MOOK of St. Louis had seen four or five of these cases in the last seven years, and placed them under the classification of atrophic dermatosis of unknown origin. One of the cases had quite an ulceration, about the size of a dime, that had existed for something like two years, and under all sorts of treatment had refused to heal.

Dr. MARTIN F. ENGMAN of St. Louis said his attention was first called to this condition several years ago by Dr. Mook, and since then he had seen several cases, and had called them "Mook's disease." Then, in looking over the literature about six months ago, he came across some articles about this disease. Most of these cases reported in the literature occurred in railroad men, and those who were on their feet a great deal.

The Abderhalden Technique as Applied to the Diagnosis of Syphilis.—Dr. H. R. VARNEY of Detroit, Mich., said that Vaughan's work and suggestions on the parenteral injection of proteins gave the new trend to our conceptions of immunity. As we were becoming more and more aware, immunity was a simple matter of parenteral digestion by ferments elaborated by the body cells. These ferments might be retained within the cells or discharged into the blood, or might be shown in both the blood current and certain groups of cells coincidentally. Abderhalden had applied the principle of parenteral digestion *in vitro* by subjecting the foreign protein to the ferment present in the blood serum, showing that the protein was broken down into simpler dialyzable bodies which might be detected in a dialysate by determining their aminoacid groups with triketohydrinhydrenate. The technique consisted in mixing the immune blood with the thoroughly coagulated, washed, antigenic protein in a dialyzing thimble and hanging the thimble in a capsule of distilled water. The capsule was incubated for twelve hours or longer, and finally the dialysate was tested for aminoacid groups with ninhydrin. The possibilities of Abderhalden's work were numerous, having been applied already to many conditions from psychiatry to infectious diseases and to derangements of the internal secretory apparatus. Theoretically the enzyme test as applied to syphilis had great advantages. In the first place it should be specific; second, the technical procedure was simple in principle and the materials required small in number and amount. The technique consisted in syphilitic tissue plus suspected blood in a dialyzing thimble, incubation, and subsequent testing for aminoacids by the biuret reaction or ninhydrin. However, in applying this test we were confronted with certain technical difficulties. First, the blood must be drawn in such a way that no hemolysis would take place. The technique of withdrawal and subsequent handling must be reasonably aseptic, since bacterial decomposition split proteins of all sorts and gave us amino groups in our dialysate. The quantity of blood sshould be sufficient to obtain three or four c.c. of serum. The serum must be reasonably fresh inasmuch as the ferment disappeared probably inside of twelve hours. Because of the difficulty in maintaining an absolutely aseptic condition of the ingredients it was necessary to use toluol to prevent bacterial growth. Of seventy-five cases examined experimentally the following conclusions were drawn: (1) That the specificity of the Abderhalden technique applies to syphilis. (2) That syphilitics have in their blood serum enzymes which react with the protein of the organism. (3) That tissue derived from active human lesions is more specific than syphilitic tissue of the rabbit. (4) That mixed infection in the human lesion gives rise to error in mixed infections, as shown in our cases of sinus disease, furunculosis, and so forth. (5) That further work will be required to determine whether all syphilitics have the power of developing ferment, and at what stages of the disease the test is present or absent. (6) We believe that polyvalent antigens prepared from several stains of pure culture of the spirochete offer the best hope for further success with this technique. (7) That the degree of success with the test varies in proportion to the care and precision exercised in its execution.

A Study of the Spinal Fluid with Reference to Involvement of the Nervous System in Secondary Syphilis.—Dr. UDO J. WILE and Dr. JOHN HINCHMAN STOKES, Ann Arbor, Mich., said: The view that the central nervous system was attacked late in the incidence of syphilis, and that the various forms of cerebrospinal syphilis were manifestations of the tertiary nature of the disease was no longer tenable. That there existed in the nervous system a peculiar tendency to latency and to slow, insidious development of the disease process was undeniably a fact. The fate of every syphilitic, however, with regard to the incidence of cerebrospinal lues, whether this occurred early or late in the course of the disease, was in all probability determined in the first months of the infection. The infection of nerve tissue by the spirocheta pallida was undoubtedly dependent upon several factors, namely, individual susceptibility, neuropathic heredity, alcoholism and trauma. Also the strain of the organism, hypothetically

at least, might also be a determining factor in the localization of the disease process to the nervous system. The explanation of the selective action of this organism upon certain systems would in time be discovered through the unraveling of its life history and its separation into definite strains. Ravaut, Widal, and Sicard, even before the Wassermann reaction was applied to their findings, described marked chemical and cellular changes in the cerebrospinal fluid of syphilitics, both early and late. Ravaut believed the nervous system to be affected in from 60 to 70 per cent. of all cases during the secondary stage. Engman, Gorham, Buhman, and Davis, in 1913, concluded that the nervous system was attacked during the first two years of infection in less than 10 per cent. of the cases. In none of their cases in which there was an early involvement were any active cutaneous symptoms present. There seemed to the authors no reason why one should not expect to find the nervous system involved or at least invaded by the spirocheta early in the course of the disease. If we recognized that early in the disease dissemination of the syphilitic infection was hematogenous it was hard to see just how the nervous system could escape. We must remember that a negative finding at a particular time must be carefully scrutinized from two standpoints: (1) That the involvement was not yet present; (2) that it might not be sufficiently extensive to cause a meningeal reaction which would be manifested by a practical test. The report was based on a study consisting of a total of thirty-six cases representing all types of secondary syphilitic manifestations, including several late recurrences and precocious malignant forms of the disease. In all the cases a positive objective diagnosis could be made from the lesions, and the Wassermann reaction on the blood was employed only for confirmation and comparison with the spinal fluid findings. The reaction in the blood was strongly positive in thirty-four cases, no record having been preserved of the other two. In each spinal puncture about 5 c.c. of fluid were drawn and this divided into three parts, the first being used for the cell count, the second for the Wassermann reaction, and the third for the determination of the albumin and globulin content. In the course of the investigations it became evident that a study of the cranial nerves might contribute facts of importance relative to the extent and character of central nervous involvement, and accordingly routine examinations of the fundus of the eye were made in twenty-six out of thirty-six cases. To this examination they felt that special importance might be attached, since the anatomical relations and character of the optic nerve and the retina, as portions of the central rather than the peripheral nervous system, made ophthalmoscopic study of these structures a near approach to objective examination of the brain itself. Of the thirty-six cases examined twenty-four showed involvement of the central nervous system as gauged by the cerebrospinal fluid findings. This represented 66.6 per cent. of the total. It was shown that of efficiently treated cases only 25 per cent. showed cerebrospinal involvement, while of inefficiently treated and untreated cases 70.8 per cent. showed such involvement. However, it was well to bear in mind the possibility that the well treated cases might have shown an evanescent reaction earlier in the course of the disease. But in spite of this the figures seemed at least suggestive. Regarding general health and cerebrospinal involvement, classifying severe and moderate disturbances together, and slight and none together, the proportion of involvements in severe disturbances was as three to one, while in mild disturbances it was roughly as two to one. It was apparent in the series that there was an appreciably higher proportion of involvement of the nervous system in patients presenting severe constitutional symptoms than in those presenting mild symptoms.

Conclusions.—1. A large proportion of all patients in the secondary period of syphilis, in the series 63 per cent., showed evidences in the spinal fluid of the involvement of the central nervous system. 2. From the special examinations made we must conclude that this does not represent the whole number who will at some time show or who have not already shown a reaction on the part of the central nervous system. 3. The absence of findings indicative of meningeal reaction in a single examination cannot be taken as conclusive evidence of freedom from central nervous involvement. 4. Any of the findings, lymphocytosis, increased albumin and globulin content and positive complement fixation test may be present alone or in varying combinations, and each indicates involvement of the central nervous system. 5. Comparing this high ratio of early involvement with the relatively low ratio of later involvement as compared with the total number of syphilitics we must conclude that the early involvement is for the most part a transitory manifestation. 6. The central nervous system is particularly likely to show involvement in cases in which the eruption is papular or follicular in type. 7. Marked subjective symptoms, such as headache, insomnia, and nervous irritability, were for the most part accompanied by positive findings in the fluid in our series. 8. In a general way, cases in which there had been little or no treatment showed a higher percentage of involvement than those in which vigorous treatment had been inaugurated. 9. Involvement of the central nervous system was found in a relatively high percentage of those cases in which the general health was considerably affected. 10. The commonest findings indicative of meningeal reaction was the increased globulin and albumin content, the positive Wassermann ranking next, and lymphocytosis last. 11. As an aid to diagnosis and as a possible guide to prognosis, the value of the spinal puncture in cases of secondary syphilis can scarcely be overestimated.

Dr. J. A. Fordyce, of New York City, had for a long time been convinced that there were various strains of the spirochetes and that there was a strain that had a special predilection for the nervous system. Dr. Nichols, of the Army Medical School of Washington, had recently published a very suggestive article on a strain of spirochete that had a given infective power. Regarding the percentage of cases of syphilis showing involvement of the nervous system the majority of neurologists claimed that there were not more than from 5 to 10 per cent. of syphilitics who showed such involvement. If a larger percentage than that showed involvement in the early stage of the disease it must, as Dr. Wile had said, be a passing infection, a hyperemia of the meninges, which passed on. He had been making a study of the spinal fluid in late syphilis, in tabes, paresis, and various forms of cerebrospinal syphilis for the past two years, but only in the last three or four months had taken up the question of the frequency of involvement of the nervous system in secondary syphilis. He had examined the spinal fluid in about thirty cases in various stages of the secondary period of the disease during the last three months, both for the globulin content and lymphocytosis, as well as the Wassermann reaction. He started out firmly convinced that he would find from 40 to 50 per cent. of involvement of the nervous system, but to his surprise he had found it considerably smaller than that. Repeated punctures should be made in the same case, as the fluid might be negative this week and positive a month later. We should make the examination in the later period of the secondary stage, and especially after treatment with salvarsan. One, two, or three injections of salvarsan were apt to develop a latent reaction in the fluid, and you are more apt to get changes after the patient had been under treatment for some time.

Dr. J. F. Schamberg of Philadelphia said we were coming to recognize that syphilis was not a cutaneous or a nervous disease, but a constitutional disease, in which every tissue and organ might at some period be involved, and Dr. Wile's studies showed us with what frequency the nervous system was involved, often at a very early stage of the infection. It was necessary not only to study the blood in these cases, but also the cerebrospinal fluid in order to prevent later disastrous results affecting the nervous system.

Dr. Sigmund Pollitzer of New York thought we were just on the threshold of our knowledge of this subject of the involvement of the central nervous system in syphilis. When we reflected for a moment on the pathological process of syphilis, the mode of infection, and the spread of the organism it seemed likely to him that not 15, 25 or 68 per cent. of the cases would show early in their course involvement of the central nervous system, but probably, when we know more about the disease, we would find that 100 per cent. of the cases showed such involvement at some stage early in the disease. The spirochetæ got into the blood and were carried everywhere, which, of course, included the central nervous system. That we did not get manifestations of syphilis in every tissue of the body must be due to the fact that the spirochetæ were destroyed by the natural forces of defence of the organism. This, of course, was purely theoretical, but was based on what

we know of pathogenic organisms in general. The practical lesson that we should draw from these studies and those that will follow was the necessity of early and most energetic treatment. Specialists should impress this fact on the general practitioner, who saw 100 of these cases to one that the specialist saw, and in whose hands the future course of syphilis depended. It was a grave responsibility that rested on specialists in the matter of proper teaching of the subject of syphilis.

Dr. WILE, in closing, said that Dr. Pollitzer had said exactly what he would have liked to have said, namely, that probably not 68 per cent. of all cases showed involvement of the central nervous system, but probably 100 per cent. At least in 100 per cent. of the cases there must be an infection of the central nervous system. The difference between Dr. Fordyce's statistics and the speaker's might be accounted for by the fact that all the cases examined in his series had active manifestations present.

Dr. FORDYCE said that most of his cases had active lesions.

Dr. WILE thought, as mentioned by Dr. Fordyce, that most of the nervous conditions were transitory phenomena, and for the most part energetic treatment directed to the general syphilis served to clear up the syphilis of the central nervous system. Just how many of these cases in which the cerebrospinal system was involved early became the late cases of tabes and paresis it was impossible to say, or as to whether they fell into this group or not. It was highly probable that of this number 5 per cent. were drawn from these cases of early involvement.

The Use of Calcium Lactate in the Treatment of Certain Dermatoses.—Dr. CHARLES J. WHITE of Boston said that about the time Sir Almroth Wright first wrote about the opsonic treatment of disease, one of his pupils, Dr. Ross of Toronto gave a talk to the staff of the Massachusetts General Hospital on the use which Wright was making of calcium salts in the treatment of urticaria, purpura, and sick headache. Ross gave the following prescription: Tr. capsic., m. viii; calcium lactat., gr. clx; aq. chloroform, Oi; two tablespoonfuls in water before meals. Since that time—about seven years ago—the author has tried this remedy in many and various skin diseases in a more or less desultory way, but about a year and a half ago, believing that calcium had shown decided curative powers in certain instances, he decided to make a thorough therapeutic trial of the drug. His belief in at least the theory of the method had been strengthened by several articles which had appeared from time to time in the medical press. He had prescribed calcium in many different conditions, but by elimination of the unsatisfactory tests the final trials had been limited to the following diseases and conditions: Hyperidrosis, pernio, herpes simplex, erythema multiforme, urticaria, livedo, purpura, and angioneurotic edema. In addition to the calcium salts, patients had been asked to partake as freely as possible of food rich in calcium, and had been urged to avoid raw fruits and all acid foods, for it had seemed to him that many people suffering from the suspected diseases had been large consumers of these articles of diet. External treatment had been prescribed in all cases, a factor which vitiated the scientific value of the whole work, but it must be borne in mind that most of these patients were referred to the writer by general practitioners who had been unsuccessful in the previous treatment of these individuals, and, furthermore, that these men and women were mostly wage-earners who deserved as speedy restoration to health as was possible. Also the work was necessarily hampered by the fact that all these patients were ambulants, who obeyed or broke laws as the spirit moved them. The cases of urticaria had done well; statistics showed twelve with great improvement; two some improvement, and nine others, not reported, none whatever. Cold figures were not always our only means of judgment in medicine, but from personal contact with these patients it had seemed that the ingestion of calcium had been followed by improvement in the majority. In the cases of erythemia multiforme, seven of the group showed decided improvement and six exhibited what one might call the normal, although perhaps quickened, evolution of the disease following the ingestion of the calcium. The pernio group showed that six patients were practically cured in a short space of time; three were decidedly benefited, while three only were not helped at all. This seems a good showing, considering the frequent intractability of the disease. In hyperidrosis cases four patients to all intents and purposes were cured, and one decidedly benefited—which seemed very satisfactory considering the frequent obstinacy of the condition, and in this particular group several of the patients had suffered for a number of years very severely. The cases of purpura rheumatica, livedo, sick headache, and erythema toxicum were too small in number to be of any scientific value, and yet the degree of success attending their treatment was striking and worthy of remembrance in the future. In summing up his experiments Dr. White thought it seemed fair to state that calcium was certainly not a specific for any of the diseases in any sense of the word, but it was a drug which might render distinct and most welcome service in any one of them, and a drug which should always be tried in obstinate examples of the conditions above cited.

Dr. W. A. PUSEY of Chicago was very much interested in Dr. White's work. He had used calcium salts in intractable cases of urticaria, erythema multiforme and intractable eczema, but had to confess to having had practically no evidence of its value. He had first used calcium chloride and later calcium lactate, but had not been able to convince himself of its value to any extent whatever. However, if Dr. White, who was such a careful observer, had found calcium lactate useful in such an intractable a condition as hyperidrosis, he was going to try it again.

Dr. M. B. HARTZELL of Philadelphia had tried calcium salts very extensively, and had not yet seen a single instance in which he thought the patient had been benefited in the remotest degree. Still, he would try it again.

Dr. D. W. MONTGOMERY of San Francisco had given calcium lactate in a very interesting case of erythema multiforme, which was proven to be due to the *Bacillus coli communis*, and got no appreciable amelioration of the symptoms.

Dr. DAVID KING-SMITH of Toronto said that calcium lactate had been tried in various conditions in the hospital with which he was connected, and he thought its use had been rather disappointing.

Dr. WHITE, in closing, said he had tried to make his paper as conservative as possible. He had also met with a good many failures in the use of this drug. He did not think the giving of the calcium lactate was the whole thing. Acids and foods that contained calcium should be eliminated, and, above all, the use of magnesium at the same time should be stopped. The two drugs are opposed in their results; they neutralize each other, and no effect is obtained. There were perhaps as many failures as successes, but he thought it was a drug which should be held in mind when treating these very obstinate and distressing conditions of the skin.

External Vaccine Therapy.—Dr. HARVEY P. TOWLE of Boston said the results of the tentative experiments with external vaccine therapy were so encouraging in the Massachusetts General Hospital in 1912 that the method had been used with constantly increasing frequency. His paper was based on the personal observation of more than 150 private cases where vaccine was used externally. These cases might be roughly divided into three groups: (1) Those in which the results bore most on the question of practicability; (2) upon the form of the vehicle and mode of administration; (3) upon the therapeutic indications, the dosage and effects. No fixed formula had been followed, both composition and proportion having been varied as the varying conditions of the case seemed to indicate. The indications were that external vaccine therapy was most efficient in the treatment of the acute inflammation of infectious disease, whose seat was superficial and therefore easily reached from without. Of all infectious processes, the staphylococcic was the most easily influenced by external vaccine therapy, and in this the resemblance to the internal method was exact. Vaccine injections were never more efficient than in the treatment of furunculosis, but had also been used successfully in cases of acne, sycosis, and with seeming success in psoriasis, and also in oily seborrhea of the scalp. The results on the superficially seated lesions of impetigo contagiosa were usually excellent. Tuberculin was also used externally in several cases of lupus vulgaris, with good effect.

Dr. JOSEPH GRINDON of St. Louis about three weeks ago was called to see a case of lupus which had existed for twenty-five years. Various treatments had failed to give more than fair temporary improvement. It occurred to him that if it was true that the antibodies were put out very largely in the immediate environs of the invading organism, that that would be a good

place to which to apply the vaccine. Of course, one might say that just at that point the invading organism was already at work, and that it did not seem rational to put in more of the dead bodies of that organism. But thinking, again, how very few bacilli there were in lupus, he thought that perhaps an additional rubbing in of the organism might produce a large output of the antibodies. So he took the Moro ointment, just undiluted, and twice a week rubbed it in for five minutes at a time. There was quite a decided improvement, which continued for several weeks. After a month, however, the lesions flared up again, and he then lost track of the patient.

Dr. Joseph Zeisler of Chicago said many cases of impetigo contagiosa had cleared up under his observation with simple treatment in five days. He remembered a case of lupus erythematosus in which he performed scarification, and applied a little carbolic acid, and in a week the patient was cured. There were so many different factors entering into the cure of our cases that it was very difficult to draw any conclusions at all. The mechanical element of rubbing grease into a scaly eruption might help some. He admired Dr. Towle's enthusiasm, and did not wish to criticise him.

Dr. Towle, in closing, speaking of lupus vulgaris, said he had come to the conclusion that the reason this treatment did not work in the indurated forms so well as in some of the others was an anatomical one, due to the disease process itself. Many of these cases were soft on top. Just how much this method was worthy of further investigation, he would not attempt to say. He drew no conclusions.

A Case of Generalized Congenital Keratodermia.—Dr. Frederick S. Burns of Boston reported a case in which the patient was sixteen years of age. The dermatosis was generalized, showing special preference for the flexures of the hands, knees and feet, and the face. The type of lesion was that of an abnormal cornification varying from spine-like elements to marked keratotic thickening. Exfoliation was slight. The process extended on to the lips, buccal and nasal mucous membrane, presenting on these surfaces a rather dry superficial thickening that closely resembled leukoplakia. The corneæ were thickened and uneven, and surrounded by enlarged blood vessels, which also infiltrated the cornea. The intrinsic tissues of the eyes were unaffected. Deafness was total. The Wassermann was negative. The mucous membrane lesions were unusual, and those of the eyes and ears extremely rare.

Dr. Joseph Grindon of St. Louis was very glad Dr. Burns had once more called attention to the distinction between hyperkeratosis congenita and ichthyosis. So far as he was acquainted with the conditions, there was no such thing as congenital ichthyosis; that is, it was never present at birth, although developing in the first and second years of life.

Dr. D. W. Montgomery of San Francisco asked the essayist if the usual clinical picture did not show that the palms of the hands were old and smooth?

Dr. S. Pollitzer of New York asked Dr. Burns to differentiate this process from the possibility of an atypical acanthosis.

Dr. A. Ravogli of Cincinnati said it was difficult for him to understand the difference in these cases between pityriasis rubra pilaris and ichthyosis. In the latter condition the affection was present on the surface of the epidermis, but the effect did not go into the follicles. In the case of Dr. Burns, according to the pictures exhibited, the openings of the hair follicles were all studied with epidermis, and the speaker had always found this condition in pityriasis rubra pilaris. In ichthyosis the palms, soles and nails were very seldom affected in the way described by Dr. Burns in his case, and this also suggested pityriasis rubra pilaris to Dr. Ravogli.

Dr. Burns in closing, in answer to Dr. Montgomery's question as to the involvement of the palms and soles, said that the process, as seen at the time when the photographs were taken, did not show the aggravated condition present a year ago. At that time it presented the appearance of pityriasis rubra pilaris or keratosis follicularis. It had been his impression from reading textbooks and various papers, and looking over the literature, that there had seemed to be a consensus of opinion, although an artificial one, that the palms, soles, face and scalp were not usually affected in ichthyosis vulgaris. He did not emphasize that point, because he realized that it was a clinical and artificial distinction. However, the existence of a greater degree of inflammatory infiltration in the papillary layer of the skin in cases of ichthyosis vulgaris was very common. In his case such changes were entirely absent. There was, however, a slight hypervascularity, which might help to explain the underlying erythemia, and that might be a part of the acanthosis hyperkeratosis having to do with the deformity of the skin. Regarding Dr. Pollitzer's question, with reference to acanthosis, the clinical symptoms presented no pigmentation. He wished to lay special emphasis on the unusual involvement of the mucous membranes and the organs of special sense, because there seemed little doubt, after consultation with the various specialists who concerned themselves with the examination of the eyes and ears, that the condition of the skin was contiguous with any part of the process having to do with the epidermatosis.

An Instance of Asymmetrical Raynaud's Disease.—Dr. Douglas W. Montgomery of San Francisco reported the case of a woman, 47 years of age, who came to the speaker with a swelling of the fingers of the left hand, and because of severe pain which did not yield to ordinary treatment. Motion increased the pain. The fingers of the left hand were swollen and stiff; the skin over them was stretched, obliterating the joint folds, and presenting a smooth, glistening, red surface. The volar surfaces of the terminal phalanges, including the tips, were grayish-white, and looked as if blistered. The thumb was the least affected. The nail beds were cyanosed. The hand was swollen and red, with a tint of blue. There was no mottling of the arm, nor of the general cutaneous surface. Besides intense pain, there was also burning and itching in the fingers, and the whole arm ached. The terminal phalanges, excepting that of the thumb, were analgesic to superficial pin-prick. Deep pin-prick caused pain similar to that roduced by pressure. The terminal phalanx of the thumb was hypersensitive to needle prick. Blood pressure was 10 millimeters of mercury less on the affected left upper extremity than on the right. Four years previously the patient had been operated on for gallstones, and four months after the operation the left thumb became a dead white, followed by redness, coldness of the hand and swelling of all of the other fingers, with tingling sensations around the base of the nails and itching of the tips. A year ago she had a similar attack, and off and on since then has had like disturbances, but not so severe as the last attack. Her general condition was not good. She was gastroptotic; had dizzy spells; was pale and the left radial artery felt uneven to the finger, and more rigid than the right. There was a blowing systolic murmur, best heard in the aortic area. The Wassermann was negative. She had not taken ergot, nor had she used any bandage on the arm, hand or fingers. She had not used carbolic acid. No cervical rib was present. Cold was not an etiological factor. Alcoholism, asthma, rheumatism, were all excluded as possible causes. Within a week the little finger became blue-black, and a few days later the tip of the middle finger also became blue-black. The other finger-tips had approached more nearly a normal color. The two gangrenous finger-tips were not shed. The other fingers became practically normal. About six months afterwards, during a cold spell, the index and ring fingers became blue; the thumb remained normal; the two gangrenous finger-tips were unaffected.

Report of a Case of Colloid Degeneration of the Skin.—Dr. Milton B. Hartzell of Philadelphia was convinced, from a study of one typical case occurring in a man, 43 years of age, that colloid degeneration of the skin of the type represented by the so-called colloid milium was not a disease of the elastic tissue alone, but affected the collagen and elastin in equal degree. The cells of the epidermis might share in the degeneration, although this was probably infrequent.

Dr. G. F. Fox of New York City referring to the cases which he reported many years ago as colloid milium, was convinced at that time that they were not true cases of colloid degeneration, but similar to a number of cases that had been described. In his cases the tumors looked firm, but were soft, and when dug out of the skin were found to be cystic and removal was followed by an extreme amount of hemorrhage. There was scarcely any cicatrix left after healing.

Dr. Charles J. White of Boston said the case reported some years ago by him was very different clinically, in that it had very few lesions, and decidedly larger ones. Histologically, Dr. Hartzell's patient and his were extraordinarily identical. His case, however, was much farther advanced.

Dr. HARTZELL, in closing, said it seemed to him to be folly to give different names to this one condition. Why not call it degenerative elastin?

Urticaria Pigmentosa: Particularly in Regard to Its Pathology.—Dr. FRANK CROZER KNOWLES of Philadelphia had seen five cases of this disease. It should be disassociated from urticaria, as the course, symptoms and the histologic mast cell picture were entirely distinctive. A congenital abnormality of the skin had apparently been proven in urticaria pigmentosa by finding abundant mast cells in the clinically normal skin of these patients. A congenitally abnormal skin was more easily acted on. Some toxin apparently was the cause of this affection, and it probably did not act on normal skin. Its nature and mode of action were unknown.

Personal Observations on Two Thousand Cases of Skin Disease in the Negro.—Dr. HENRY H. HAZEN of Washington, D. C., said that the skin diseases more prevalent among negroes than whites were dermatitis papillaris capillitti, keloids, dry seborrhea, syphillis, tinea tonsorans, urticaria and vitiligo. Alopecia areata, cancer, eczema, erythema, furuncles and boils, angiomata and nevi, pediculus capitis and psoriasis were less prevalent among negroes than among whites.

Diffuse Erythematous Lupus Treated with Tuberculin.—Dr. AUGUST RAVOGLI of Cincinnati reported the case of a female, aged twenty-four, who exhibited a typical clinical picture of this disease, with a positive Moro and a negative Wassermann. Local treatment proving ineffective, he resorted to the use of tuberculin T.R, injecting 1/100 of a milligram into the back. The following day the patient's fever was 104°, pulse 108, respiration 34. Her face was red and edematous; the eyes closed. In many places of eruption blisters had formed, leaving extended excoriations discharging serum. Fever continued, ranging from 101° to 105°, with low delirium, and less than two weeks after the injection the patient died. The clinical diagnosis was acute miliary tuberculosis. A necropsy was refused. He believed that for diagnostic purposes, used locally, tuberculin was safe, but for injection it was dangerous. He was sure that in his case it aroused into acuity a dormant tuberculosis, the patient dying from a tubercular septicemia. Tuberculin for treatment, even in the smallest dose, was a dangerous remedy.

Dr. W. A. PUSEY of Chicago said that, of course, we could only surmise to a certain extent as to the process which caused the patient's death, but it seemed to him that we could reasonably conclude that it was one in which the patient was in a condition of excessive hypersensitiveness to tuberculous toxins. She showed an excessive reaction, giving evidences of acute poisoning within twenty-four hours after the injection. That would exclude the reaction from contaminating infection, and so far as he could judge, the case was one of those inevitable misfortunes that sometimes happen from a condition of excessive anaphylaxis to various poisonous substances.

Dr. D. W. MONTGOMERY of San Francisco said it occurred to him that this patient might have been tuberculous, and that this process was causing the lupus erythematosus. Therefore, the tuberculin might have excited this toxin into greater activity, and thus caused death. That would be one explanation.

Dr. S. POLLITZER of New York City thought it would be a misfortune if, on the basis of this experience and a few others reported, we were to give up so valuable a remedy as tuberculin injections. The present tendency in the use of tuberculin was to give much smaller doses than 1/100 milligram as an initial dose, and if 1/1000 or 1/10,000 were given, we possibly would avoid accidents. So far nothing had happened from the use of 1/10,000 of a milligram of tuberculin. If the patient bore that well, further injections could be given.

Dr. PUSEY thought, before passing over this discussion, the point ought to be made that in a given patient, in a condition of anaphylaxis, an incredibly small amount of an anaphylactic substnce produced reaction, and that we were open to these anaphylactic actions in spite of the most excessive precaution and the greatest skill.

Xeroderma Pigmentosum Attributed to Excessive Sun Exposure.—Dr. THOMAS CORLETT of Cleveland, Ooio, had had two cases of this disease. One, a boy of five months old, had whooping cough, and the nurse was instructed to keep him out of doors. The baby became thoroughly tanned. But one day the nurse allowed the strong sunshine to strike the left side of the face of the child while it was asleep, producing a severe sunburn. About three months later freckles appeared on this area and gradually extended over the entire face to a less extent, to the neck, forearms, and back of the hands. The skin became rough and slightly scaly, and three or four excrescences appeared, one on the left eyelid, preventing the child from opening the eyelid, and one on the left temple, the size of a small pigeon's egg, and one on the forehead, to the left of the median line. The eyelid tumor degenerated in the course of about a year into a well-defined malignant epithelial growth. This was confirmed by histological examination. The child was now three years of age; the disease had gradually progressed, and it was not believed the child would survive many months. The second patient was a male, aged 70, resident in Mexico. He had enjoyed good health except that his skin was easily inflamed on exposure to the sun and was covered with freckles. The disease affected the tips of the elbows and knees, other parts of the extremities, the face, and to a slight degree the trunk. The appearance of the lesion suggested parapsoriasis. He had undergone treatment from time to time, but had obtained the best results from some hot sulphur springs. There was now on the index finger of the left hand an ulcerating lesion, which the author thought to be an epithelioma. There was also one near the base of the nose. The patient had a light skin, which did not tan, but freckled when exposed to the sun. The first case was classic of xeroderma pigmentosum, followed by fungoid tumors, which developed into epitheliomata. In the second case the skin showed nutritive disturbances resulting in a condition like that seen in the first case.

Officers Elected.—The following officers were elected for the ensuing year: *President*, Dr. S. Pollitzer, New York City; *Vice-President*, Dr. Martin F. Engman, St. Louis; *Secretary-Treasurer*, Dr. Oliver S. Ormsby, Chicago.

New York City was selected as the next place of meeting.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held May 7, 1914.

THE PRESIDENT, DR. WILLIAM M. POLK, IN THE CHAIR.

THIS meeting was held under the auspices of the Section on Orthopedic Surgery.

Intraarticular Silk Reinforcement of Flail Joints in Poliomyelitis Paralysis.—Dr. BERNARD BARTOW of Buffalo, N. Y., read this paper. He stated that the procedure which he wished to describe was based on other operative procedures in which paraffined silk tendons were used in the treatment of paralysis of poliomyelitis. Briefly outlined, the technique in applying the procedure to any of the large joints was as follows: (1) The silk strands were inserted in the bones in localities where their tension would furnish mechanical resistance for control of motion and posture. (2) Tunnels were drilled through parts of the bones entering into the formation of the joint, the drill in its progress passing through the joint; tunnels were made under the soft tissues close to the bones, the drill in this instance also penetrating capsular tissues in its path. The general design in their construction being one tunnel through the bones and joint, and another parallel and close to the bones under the soft tissues, passing through the joint whenever practicable. (3) Short incisions, three-fourths of an inch long, were made at points over the bones, where the drills entered and emerged, each pair of tunnels having incisions in common. (4) Before withdrawing the drill a loop of bronze wire was threaded into its eye and pulled through each tunnel, the free ends and loop protruding from the incisions. (5) A prepared silk thread was placed doubled in the wire loop and pulled through the bone tunnel, the other being drawn through the tunnel in the soft tissues in the same manner. The ends of each strand were defined, then the leg or arm to be "limited" was held in the desired position, and the strands tied separately to avoid large knots. After this had been done, *e.g.*, in the knee, the leg remained in nearly full extension if there had been a drop knee; and in slight flexion if there had been a genu recurvatum; in the shoulder, the head of the humerus was held close to the glenoid cavity, obliterating the depression beneath the acromion; in the foot the posture was one of the over-corrections of efficiency or weight bearing. Incisions were sutured and dressed, and the joint immobilized by a plaster cast. This procedure had been employed

in all forms of paralytic talipes. It had been used alone and in combination with tendon transposition and remodeling of bones. In paralytic talipes combination was more effective than either procedure when used alone, except in mild forms of paralysis and also when this operative plan was employed comparatively early after the initial disease; in the latter event silk reinforcement alone was sufficient for maintaining posture when tendon transposition would have been admissible. For flail conditions in the knee, of both long and short duration, and all degrees of severity, it had been adapted to incompetencies in both the anterior and the posterior groups of muscles. Dependence could be placed on silk reinforcement in the knee to control postures helpful to recovering function, and afforded higher muscles an opportunity to act. The same might be said concerning the intraarticular suspension of the humerus from the acromion, in the deltoid form of paralysis. As yet the flail hip joint had not been reinforced in this manner, mainly because the depth of the joint was regarded as too great an obstacle. This plan promised the following advantages which other procedures did not: The reinforcement took place within the joint, partly by mechanical fastening due to the silk insertion, and partly by organized exudates resulting from surgical reaction, *plus* the presence of silk. Experience with procedures intended to nullify motion in joints removed apprehension that ankylosis would follow by this plan. There were good reasons for the belief that only limiting processes would occur that would supply resistance for sustaining body weight; that these could be controlled in extent and effect by post-operative protection of the joint, and, finally, that recovery in impaired muscle groups in so far as that was probable, would not be obstructed. Hitherto there had been no operative treatment that had been adapted to the period between the sixth and twenty-fourth month after the initial disease. The author had departed from the established custom by employing this method as early as the sixth month after the onset in a few cases, and between that time and the twelfth month in a large number of instances, with marked advantage in the rate and character of the improvement as compared with results obtained by routine non-operative methods. The simplicity of the operative technique also rendered it practical in very young patients, debarred from operation on account of age and possible interference with reestablishment of function. Neither mutilation of the joint or alteration in its articular surfaces occurred by this plan. The drills used were of special construction, a number being necessary, because of the different curves given to the lines of direction in the tunnels. Post-operative reaction was not severe or productive of much pain if care was taken to immobilize the joint. This should include the pelvis when the knee was the site of the operation. After nine months of controlled posture the whole weight might be allowed to fall on the unprotected foot. Secondary reinforcement had not been frequently required by this plan, but because of its simplicity one might be tempted to err on the side of diminished protection. Usually light brace support might be employed after three months weight bearing with this assistance being unattended by much discomfort. There had been no instances of infection attending implantation of silk in any of their operations. In two instances small serous cysts had formed on the malleoli due to pressure from the knots. The procedure had been without mortality in their hands. His paper was illustrated by means of lantern slides.

Obstetrical Paralyses.—Dr. T. Turner Thomas of Philadelphia, Pa., read this paper. He called attention to his publications on this subject and said that he had little new to offer since the last paper which appeared in the February number of the Annals of Surgery. However, he was glad of this opportunity to bring the subject up again, as he was concerned, lest the very radical views which he had expressed might not receive the serious consideration of the more conservative members of the profession. Every one of the shoulder conditions which he had discussed involved a problem which still remained unsolved. It had been his purpose to show that these conditions were closely related to each other etiologically, and that the varying clinical signs could be traced to an essentially common anatomical basis. Füstner, in 1889, suggested that the mild cases of obstetrical palsy in which the paralysis disappeared in a few days, might have been due to blood extravasions, the pressure of which paralyzed the nerves. Further symptoms, he said, depended on nerve pressure by a diaphyseal fragment in an epiphyseal separation. He believed that in most cases they were not dealing with paralyses, but with undiagnosed epiphyseal separations. In addition to this the author cited von Bramann to show that injuries to the brachial plexus had not been universally accepted as accounting for obstetrical palsies, and that injuries to the skeleton in the shoulder region had long been considered as a cause of this condition. The author regarded as a fact and opposed to prevailing theory that they frequently had palsies of the upper extremity which were not due to actual nerve injury and which might be very severe. Restore the normal motion to the shoulder joint and the paralysis would disappear in the great majority of cases. He expressed the conviction that the usually overlooked posterior and incomplete dislocations of the shoulder would prove to be the key to the solution of the problem in connection with the obscure obstetrical palsies. He was not excluding ruptures of the brachial plexus in obstetrical palsy, but merely maintaining that it probably did not occur in any of his thirteen cases and that it probably was responsible for most of the cases. In six of his nine cases with subluxation the treatment was directed toward restoring normal motion, the first principle of which consisted in restoring the normal relations. In two incomplete reductions of the dislocation much improvement in motion and power was accomplished by the bending down of the acromion anteriorly, which prevented complete reduction and was not recognized at that time. In three others the reduction was complete or practically complete, but the return of motion and power was not yet as good as in the two cases incompletely reduced. In all three of these cases the progress was encouraging. In another case nearly normal motion in the shoulder had been established by exercises without any attempt at reduction of the subluxation which was so mild that it was overlooked when treatment was begun. The theory of shoulder joint origin for most cases could only gain favor by showing better results from treatment. F. La Lange, the German orthopedic surgeon, had adopted the view of the shoulder joint origin for most of these cases of birth paralysis, although the author's paper appeared a year and a half before. The evidence was growing that posterior subluxations of the shoulder were frequently overlooked in these cases. If the dislocation occurred at birth it could not be due to paralysis. If a dislocation of the shoulder in an adult without injury to the nerves could produce a brachial paralysis, which, in the writer's opinion, had been clearly shown to be possible, then a dislocation of the shoulder in the newborn ought to produce a more serious palsy because of the more delicate nature of the nerves and muscles. The occurrence of the dislocation at the time of birth was greatly strengthened by the finding of a bending downward of the anterior portion of the acromion which could only be due to a pressure and could not be accounted for by an injury to the brachial plexus. The same pressure which bent the acromion down pushed the humeral head backwards and downwards. Lange believed that they could not have a subluxation of the shoulder joint, which, in the writer's opinion, was true of adult cases. In them the head of the humerus could not remain resting on the glenoid margin, but must pass far enough over the margin to lock in the dislocated position when the arm came to the side or slipped back into the socket. But in the newborn the causative direct pressure pushed the head back and bent the acromion down in front of it so that this portion of the acromion held it back, resting on the posterior glenoid margin and prevented it from slipping forward into the socket as it would have done had there been no such obstruction. The greatest need now was examination of these shoulders immediately after birth, and this they would now have since attention had been directed to them.

This paper was illustrated by lantern slides.

Arthroplasty with Special Reference to the Use of Animal Membrane.—Dr. William S. Baer of Baltimore, Md., presented this paper in which he first reviewed the various methods that had been employed with the purpose of producing mobility in ankylosed joints. These were *brisement forcé*, arthrolysis, pseudoarthrosis in the neighborhood of the ankylosis, resection, and transplantation of the entire joint. He then reviewed the history of arthroplasty. The results of his work for the past six years which he presented were based on the findings in 52 cases in which chromicized pig's bladder had been used as the transplanted medium, and these cases had been carefully watched from a period

of six months to six years. The advantages which an absorbable membrane had over a muscle flap, a fascia flap, a fascial and fatty flap, and non-absorbable inorganic plates was as follows: (1) The joint would remain as near its normal size and shape as possible owing to the thinness of the material inserted and the minimum amount of resection of bony surfaces that had to be made. The fact that it was perfectly free allowed it to be handled with greater ease, so that their bony modeling could be reduced to a minimum. (2) Simplicity of the operation. The bulk of the material transplanted being very small, the size of the operation was necessarily reduced. Having no pedicle attached, the dissection around the joint was done away with. (3) Stability of the joint. The stability of the joint was not necessarily destroyed, as must be the case in all flap operations where the caput was used as the interposed medium or where its integrity was interfered with by the fascial operation. (4) Infection. There was far less chance of infection owing to the lessened handling of the parts, to the simplicity of the operation and to the fact that the blood supply was less interfered with. (5) The after treatment was less painful. In flap operations, as the formation of a joint was said to be due to the production of hygroma, constant motion must be instituted soon after the operation, which was extremely painful. In a membrane operation absolute rest of the part should be continued for at least three weeks, else the membrane might be torn or displaced, and the new joint formation fail in the making. (6) A normal joint was the result. As the membrane after a period of from sixty to one hundred days was entirely absorbed, there was no foreign substance left continuously in the joint. The membrane to be serviceable for orthoplastic purposes must be thin and flexible. It must be thin enough to necessitate the least possible resection of the joint surfaces and when moist so pliable that it conformed accurately to the configuration of the modeled bones. It must be tenacious enough to withstand disintegration for a period of from sixty to one hundred days, giving time for the fibrous covering to be formed upon the surfaces of the new joint. It must be durable enough to withstand the traumatisms and insults which were forced upon it by the pressure of the ends of the bones. It must be prepared in such a manner as to be absolutely aseptic. The mucosa of the pig's bladder had been found to fulfill the conditions. The writer described the operative technique in arthroplasties of the temporomaxillary articulation, the hip joint, and the knee. The series of cases upon which he employed this procedure numbered 52. The joints operated on were as follows: Four temporomaxillary, 23 hip, 19 knee, 3 phalangeal articulations, 1 ankle, 1 elbow, and 1 radioulnar articulation. If the cases were considered together, irrespective of the joints involved, he had obtained voluntary motion, and painless and useful joint in 71 per cent. of the cases. In the hip and knee he had assumed that if a patient had less than 25 degrees of voluntary painless motion the case should be recorded as a failure. After reviewing in detail the various groups of cases embraced in his series, the writer said that there were certain lessons to be learned from their experience. In tuberculous cases, owing to the nature of the ankylosis, being generally fibrous in character, there was not the necessity of much remodeling of bones. And owing to the fact that the periarticular tissues were generally less affected than in more septic processes tuberculous cases in general gave the best results. Care, however, must be taken that the tuberculous condition had ceased, otherwise a tuberculous condition might be relighted. Generally speaking, tuberculous joints of children should not be operated upon. If bony modeling was undertaken, one interfered with the epiphyseal line, and hence hindered future growth. It was wise, therefore, to delay operation until epiphyseal ossification had taken place. In cases of more acute inflammatory conditions, as those due to gonococcus, it was well to wait some time before operating. His experience indicated waiting one year after the acute onset of the disease before performing orthoplasty. Chronic diseases, as arthritis deformans, which were still active, though subacute, should be avoided. In a former communication early passive motion was advised; this he now believed was a mistake, and was accountable, in a measure, for some of the poor results in the early cases. After the plaster had been removed passive motions should be instituted, followed in a week by active use. Massage, hydrotherapy, and mechanotherapy should then be instituted. The after treatment required patience, skill, and pertinacity, and this should be explained to the patient before operation. In properly selected cases good, serviceable, painless motion could be obtained by membrane arthroplasty in most joints, particularly in the jaw and the hip joint. In the knee joints, fibrous ankylosis of the entire joint, of bony ankylosis of the femoral-patella articulation, with fibrous ankylosis of the femoral-articulation, gave excellent results by this mode of arthroplasty. In true bony ankylosis of the femoral-tibial joints the results were still unsatisfactory, but gave hope of something better with a more extended consideration of the difficulties involved. This paper was illustrated with lantern slides.

Dr. Lewis A. Stimson said he would limit himself to a discussion of only one of the papers read. The subject that Dr. Thomas had discussed was one in which he had been much interested. He had long since learned to recognize the patience, thoroughness, accurate observation, and judicial temperament which Dr. Thomas brought to his work, and that his conclusions must be received with respect and differed from with caution. Certain definite facts about obstetric dislocations occurring in infancy and been acquired, but, alas, some important ones were lacking; any conclusion that was reached must have been reached with the expectation of a possible change in them when those lacking facts shall have been ascertained. Among the ascertained facts concerning the etiology were these: It was known that a great many children were born with paralysis of an upper extremity at birth. It was known that in some of those cases the labor was not always difficult, but that it commonly was. It was known that in some of those cases an injury had been recognized at the time, at the side of the neck, as evidenced by a swelling that was palpable. It was known that in a certain number of cases that point when exposed by an incision showed a definite lesion at the junction of the fifth and sixth cervical cords. In some of these obstetrical paralyses recovery was entire and no evil results were left. On a certain other number, however, more or less extensive results in the form of group paralyses, the Duchenne-Erb paralyses, those of the deltoid, biceps, brachialis anticus, supinator longus, etc., remained. In these latter, according to some observers, notably Fairbanks, there would be found, after a longer or shorter interval, a posterior dislocation. Fairbanks had seen these dislocations in all grades. That was the line of argument that favored the theory that the dislocation was the result of the paralysis, but there were certain gaps in this theory. First, no one had observed such a case continuously from birth. The obstetrician did not notice them, and the cases did not come to the attention of the surgeon, until after a certain length of time. There were a few cases in which it had been alleged that the dislocation originated at birth, but the definite positive observation was lacking. Another difficulty in this theory was that it was extremely difficult or impossible to recognize the mechanical forces producing dislocation in a case of such paralysis. Fairbanks attributed it to the unopposed action of the subscapularis, but there was reason to believe that that muscle also was paralyzed, and even if it was not, it was difficult to see how its contraction would produce the dislocation, for the pull of the muscle was at right angles to the direction in which the head of the humerus must move to reach the position of posterior dislocation. But still one must bear in mind that the ability to detect a causative factor was not proof that it did not exist. So much for the theory of the paralytic origin. He then considered the arguments for a traumatic origin. Here again certain essential facts were lacking. Dr. Thomas had instanced cases of paralysis in adults, due to injuries to nerves in the immediate neighborhood of the joint caused by a dislocation, and he attributed the obstetrical paralyses to the same cause. He argued that the observed condition in the neck, the hematoma about the cervical cords, might be an extension of the lesion in the axilla. But there were no observations to prove such an extension, and it was a very difficult one to accept, especially in the face of observed lacerations of the fifth and sixth cervical cords at the high level. Dr. Stimson said he had great difficulty in understanding any lesion in the axilla so severe as to manifest itself by the appearance of a hematoma in the neck, etc., without evidencing at the same time injury in the axilla. The traumatic theory Dr. Thomas had quoted him as holding, and he had acknowledged that he did hold it, he had put forward many years ago, but only tentatively. When he learned that Dr. Thomas

was coming to speak before the Academy he had hastened to let him know that his opinion had been shaken. They knew that no cases were on record, or cases that had been learned about by inquiry, where displacements had been observed at birth, or, even earlier than the fifth week after birth. That did not mean that such cases had not existed. But it is extremely difficult to believe that a dislocation which was produced by violence received upon the shoulder, a driving force directed backward and depressing the acromonion, it was almost impossible to believe that such a force should not be so marked in its results as certainly to attract the attenion of anyone. Another argument used by Dr. Thomas in favor of the traumatic origin was the frequently observed change in the shape of the acromion and the coracoid, a change claimed to be the effect of the violence which drove the bone back. Dr. Thomas had found the acromion enlarged and depressed and others had found the coracoid lengthened and curved. It seemed to him that there was a more plausible explanation of these changes in the pathological law well established, that the removal of normal pressure from a growing bone was followed by its exaggerated growth and a consequent change in its shape. Dr. Stimson quoted two cases to illustrate that it was the removal of pressure which led to the lengthening of a bone, and he believed that this pathological fact was a far more plausible explanation of the observed change in the acromion and coracoid than violence at birth. In a number of cases the more or less complete reduction of the dislocation had been followed by great functional improvement in the use of the limb, and Dr. Thomas had used this to support his theory, but it might equally well be maintained that the functional improvement was a simple mechanical consequence of the change in the attitude of the limb, a change which gave the forearm a wider range of motion unimpeded by the fact that in one case a similar functional improvement had been obtained by osteotomy at the middle of the shaft of the humerus and outward rotation of the lower segment for about 90 degrees.

Dr. Alfred S. Taylor said that the examination of the shoulders in fifteen new-born babies showed the coracoid and acromion small, rudimentary, and not bendable. The head of the humerus prominent anteriorly, one-half inch in front, so that it could not be pressed back by them. Direct, firm, backward pressure of the head of the humerus when the child was relaxed would cause posterior subluxation, but spontaneous reduction occurred as soon as the pressure was released. With the same pressure, when the child was resisting, no displacement occurred even when considerable force was used. Dissection of the new-born infant's shoulder showed that when the muscles were removed the capsule was so loose as to allow luxation in any direction. Exposure of the glenoid showed it to be a small cartilaginous surface looking forward and outward at an angle of about 45 degrees. It was about 2.5 cm. by 0.6 cm. convex from side to side with a very hollow dimple at its center. This was very different from the adult shape of the glenoid fossa, and would certainly favor dislocation. The head of the humerus was a globular elastic piece of cartilaginous material. The deduction from these facts was that as far as the bones and capsule were concerned the shoulder would tend to dislocate easily in almost any direction, and that the normal relations of the joint were maintained entirely by the balanced action of the muscles surrounding it. Dissection of the shoulders of an infant dead within five days of birth showed that with the skin and deltoid removed and with exposure of the spinatipectoralis major, subscapularis, and latissimus dorsi insertions, direct pressure backward on the head of the humerus caused only slight subluxation, and spontaneous reduction immediately followed cessation of pressure. The spinati could be seen and felt to resist backward displacement. With section of the insertion of the supra and infra-spinatus muscles, internal rotation of the humerus and rather slight backward pressure caused well-marked posterior luxation of the shoulder, which persisted after the pressure was removed. With the spinati divided, pulling the pectoralis major to simulate contraction, caused internal rotation, but no backward displacement of the head of the humerus. Pulling the subscapularis caused internal rotation with slight posterior subluxation. Pulling the latissimus dorsi caused its internal rotation and marked posterior displacement. While the dissection of one set of shoulders could not be conclusive it strongly suggested that the luxation under discussion was brought about by interference with the balance of the muscular activity about the joint and aggravated by the contracture of the unresisted antagonists of the paralyzed muscles. If this were so the luxation should appear somewhat tardily and should become more pronounced with the passage of time. Fairbanks, who had observed a considerable number of cases in England, said that such was the case and this entirely agreed with the results of his observations. He had never seen one of these posterior dislocations under two months of age. Moreover, there were many of these birth palsies which never showed any dislocation at all. Within the last month the speaker had seen four cases varying from four weeks to eighteen months in which there was absolutely no displacement of the shoulder. Concerning the relation of nerve injury to the paralyses and dislocations, it might be interesting to refer to the results of experiments carried out on the cadavers of twenty new-born infants. It was demonstrated that the one important factor in causing the Erb type of birth palsy was forcible separation of the head from the shoulder. This caused stretching of the nerves, and, if the force was sufficient, tearing of the deep cervical fascia, the nerve sheaths with their vessels, and, finally, the nerves themselves. In the living subject these traumatized tissues, infiltrated with blood clots, cicatrized and formed a barrier impassable to the nerve impulses. In vertex presentations with the head delivered and the shoulder caught under the symphysis any attempt to deliver the shoulder by manipulating the head and neck would put the nerves on the stretch and a certain proportion of them would tear. Likewise in breech cases the attempt to deliver the aftercoming head by traction with the fingers hooked over the child's shoulders put the nerves on the stretch. In these palsy cases the muscles paralyzed fell into groups which corresponded very accurately with the motor supply running through the root or roots which had been damaged. It would be strange if an effusion from the torn capsule of the shoulder joint should infiltrate the nerve trunks in the axilla in such fashion as to produce such an effective effect. In a series of 49 operative cases at least forty-five of them showed a cicatricial lesion of the nerves above the clavicle, and this cicatrix did not extend down to the level of the shoulder joint. He had seen a number of cases in which one or more nerves were torn off close to the spine and dislocated an inch or more away and adherent to the neighboring muscle. In almost every case the cicatricial lesion of the nerves could be easily demonstrated. In the few cases in which the lesion could not be found there was evidence that the roots had been pulled from the spinal cord itself and so no extraspinal lesion was present. It might be pertinent to ask what mechanism would cause dislocation of the shoulder in breech cases which furnished nearly half the cases of birth palsy. The paralysis came on at once at its maximum intensity, as should be the case in nerve injury. If the paralysis were due to injury to the shoulder capsule and infiltration of the axilla, the paralysis would appear somewhat tardily and would be progressive as the cicatrix proceeded. Also in this case the muscle groups paralyzed would represent mixed nerve trunks rather than pure root lesions, as was the rule. For these reasons, and especially as the nerve lesion was found in practically every case investigated, whereas the luxation of the shoulder was present in only a portion of the cases, and even then appeared some time after birth, it seemed fair to conclude that the nerve lesion was the essential feature of these cases, while the luxation of the shoulder was secondary and purely incidental.

Dr. T. Turner Thomas of Philadelphia said he knew that he would have to support his position in New York because of the interest in the subject manifested by New York surgeons and the varying positions they had taken. He wished to say that he had always had the greatest respect for Dr. Stimson and his work, and that he had not undertaken to publish anything on dislocations without first consulting his book on fractures and dislocations. In the preparation of his first paper, which discussed these obstetrical palsies, he did not consult him because he did not then appreciate the importance of congenital dislocations of the shoulder in relation to this subject, but he did consult him for his recent paper. He wanted very much to see one of these dislocations at birth before saying that he believed they developed at birth, but he gave up all hope of such an opportunity and concluded to attack the problem from other directions. The general practitioner who attended most confinements had not been taught to suspect the

shoulder joint, where the lesion was very obscure, but to accuse the brachial plexus and to expect that the great majority of cases recover spontaneously, both of which teachings, in his opinion, were decidedly wrong. The physician was not likely, therefore, to call in help immediately, and when he did was likely to bring in a neurologist. Dr. Thomas had no reason to hope that he would ever be called in such a case, so that he had given up waiting. Dr. Taylor and he were extremists on this subject. There was a wide variation even among the supporters of the plexus theory, in the degree of faith placed in a plexus injury. It was shown clearly here in New York. Dr. Whitman, for instance, accepted the theory, but did not apply it in practice. He let the plexus alone and treated only the shoulder joint condition. He reported and demonstrated excellent results here ten or more years ago. In Dr. Thomas' opinion they deserved much more attention than they received. Dr. Taylor went to the other extreme and proved his faith by his operation on the plexus. The only criticism Dr. Thomas offered to his operations was that he ignored the absence of sensory disturbances, although the roots of the plexus were all mixed motor and sensory nerves. He seemed to be the chief successor of Kennedy, who introduced the operation, but who seemed to have dropped out of the discussion. He reported a group of cases, operated on (*Brit. Med. Jour.*) in 1903, but seems not to have published a second paper. It would be interesting to have a second report on his cases. Dr. Thomas appealed for a fair trial of the theory of a shoulder joint origin of these cases. In all his cases in which the arm was permanently crippled he found a posterior subluxation of the shoulder. In those without a dislocation the arm recovered its function completely or almost completely. The shoulder should always be examined carefully at birth and any displacement corrected. It was usually of mild grade and difficult to detect. The best sign was the absence of the normal prominence of the upper end of the humerus in front of the acromion and a slight prominence under the posterior margin of the acromion, where there was normally a slight depression. He referred to a case in which the physician in attendance at birth urged an operation on the plexus at that time. The remarkable improvement which resulted in the next six months without operation caused the father to forbid any other physician to examine the child. Dr. Thomas did examine it when about eight months of age, when the arm was still much crippled, but was far from a completely paralyzed arm, as immediately after birth. He overlooked then a mild posterior displacement which he recognized later. He had the same experience with another of his earliest cases, showing that if, with his keen interest in the dislocations he overlooked them, those not so interested should be much more likely to do so. These cases should be examined by a competent surgeon who was familiar with the normal contour of the shoulder. The frequency with which these dislocations had been overlooked indicates that such familiarity was not very common. Surely the prospects of complete recovery offered by the theory of a shoulder origin for most cases should obtain for it a thorough and fair trial.

Multiple Lupus Vulgaris Involving Skin and Mucous Membranes.—G. Pernet reports the case of a boy, aged 15, with a history of two years' duration. There were numerous patches and foci of lupus vulgaris scattered about the face and limbs, especially the legs. The disease had started on the right arm. The palate and nasopharynx were also involved. The boy was treated with the *x*-rays, and, in addition, tuberculin injections were given, owing to the involvement of the mucous membranes. The multiple lupus vulgaris lesions did not follow measles or other acute exanthem.—*Proceedings of the Royal Society of Medicine.*

Hereditary Blue Sclerotics and Brittle Bones.—E. A. Cockayne reports the case of a female aged one year and ten months who had never walked and who had deep blue sclerotics. A skiagram showed an opacity of the bones less than normal. The infant's father had blue sclerotics and broke both legs at the age of sixteen. Recently he broke his femur and several ribs by falling from his bicycle. His sister had blue sclerotics and broke her ankle by slipping off the bottom step of a staircase. These two were smaller than any of their brothers or sisters. The grandfather was a very small man, had blue sclerotics and had frequently broken his bones.—*Proceedings of the Royal Society of Medicine.*

Miscellany.

The Physician and His Business Expenses.—Sir John Collie enumerates the following as the more important of the usual business expenses of the practitioner in England: Fees for pathological examinations. Drugs. Surgical instruments and medical books. Subscriptions to medical societies. Salaries or fees of assistants. Postage and telephone rental and calls. Accountancy fees. Wages, including board, of any extra domestic servants rendered necessary by the practice. Workmen's compensation and national health insurances. All carriage and motor expenses, including repairs, renewals (which are not capital additions), licenses and insurances of car and man, also depreciation of car. If the physician has an office separate from his home the whole cost of the former must be deducted before his profits can be arrived at. If the physician carries on his profession wholly or in part at his residence, a proportion of the rent (not exceeding two-thirds) rates, taxes, lighting, heating, and repairs must be debited. The proportion of rent deducted will of course correspond to the value of the portion of the house set aside for professional purposes. Bad debts should be estimated and deducted, and also a percentage for depreciation of furniture, etc., of the office and waiting room. Life insurance premiums may be deducted, provided they do not exceed one-sixth of the income. All of these items, with the exception of the depreciation of the car, are proper deductions to make when preparing one's income tax returns, at any rate in England.—*British Medical Journal.*

The Acquisition of Capital.—Sir John Collie points out that it is the duty of every man, even from the time when he commences to practise, to endeavor to save something each year, and as the practice increases this sum, of course, should be larger. Most prudent men who wish to earn an honorable competence and a solid reputation do this. The author strongly urges the physician to go a step further, a step which will make all the difference between that honorable independence which we all hope for, and a hard, unprovided-for old age, which we all dread. The physician should never spend capital. He should never spend the interest of capital. There is no excuse for doing so. It is the provision which he has earmarked, which he is saving for his dependents in the event of his death, and for himself when past work. Assuming his income has not declined, he obviously should not require last year's savings or the interest on these savings, for this year's expenses. He saved last year because he more than met the expenses of that year, for he had a surplus. What he then saved is now capital, and the author wants him to look upon all capital and the interest it brings as a thing apart from his ordinary income and expenditure. In this way only can professional men with small incomes and no pension provide for their dependents and for their declining years. Oliver Wendell Holmes said: "Put not your trust in money, but put your money in trust," and a greater than the poet physician said, with arresting impressiveness, "Whatsoever a man soweth that shall he also reap," which is as true in the conduct of business as it is in ethics. To save money in general practice is, of course, difficult, but it can be done. The essential success is "a clear and steadfast view of the end."—*British Medical Journal.*

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Original Articles.

THE PRESENT ESTIMATE OF THE VALUE OF RADIUM IN SURGERY.*

BY ROBERT ABBE, M.D.,

NEW YORK,

SENIOR SURGEON TO ST. LUKE'S HOSPITAL.

GENTLEMEN:—I feel deeply the honor as well as the responsibility of addressing you to-day. Your invitation asks me to speak of the present estimate of the efficiency of radium to the medical world, and it would be audacious in me to venture on so serious a subject had I not formed a somewhat definite picture in my own mind of its worth. It is fitting that I should speak to you this year because it is just ten years since I yielded to a request of the Yale Alumni in New Haven after I had one year of experience with this new and almost unknown agent. Certainly after ten years some good result must have been achieved. If not, its usefulness may well be discounted.

In view of the enormously exaggerated newspaper claims of its power to destroy disease, which have justly filled your minds with doubt and disbelief and which it is not in your power to controvert, your committee has asked me to speak the truth on this engrossing theme. Truth is revealed slowly in science—as words spell themselves out letter by letter. The *whole* truth about radium will be written years hence, for we are in the first decade and its importance still grows. Ten years ago Professor Rutherford, who is easily the first authority to-day on the subject, said to me that the physicist then knew about all that was likely to be known about radium and it was the work of the medical profession to see what it would do in their hands. Since then he has issued a new edition of his great work every year or so, old ideas being obsolete, and still finds that it is the newest wonder in science. Is it any marvel that its usefulness cannot be estimated by our present knowledge of its ability to cure? The only regret is that the profession and public have been expecting too much. People who expect too much are *never* happy when they get less than they expect.

We are dealing with a wonder-working mineral unlike any other agent in our hands. While it resembles the energy of the Roentgen ray, it is unlike it in many ways. The output of a small bit of radium powder is a composite force largely electrical, but unlike electricity in any form heretofore known to professional work, it is associated with the extraordinary discharge of infinitely numerous streams of particles each bearing its charge of electricity, some positive, some negative, resulting from the explosions of atoms with a force driving them into tissues with the speed of light. Into Nature's rocks, by the most artful exhibition of scientific detective work, Madame Curie pursued this unknown substance and dragged it forth, a little giant in power, to reveal the hidden mysteries of physical force and touch human interests in the control of some diseases. In itself radium illustrates in concentrated form the universal process of change and decay of matter. Its enormous energy is like incorporated life and its electrons like imprisoned life released.

The first surprise we all felt at seeing a photograph by the Roentgen ray through an opaque body is eclipsed by the photograph made with the same marvellous penetrating power of a tiny pinch of radium confined in a glass tube, photographing through the human body, or a granite bowlder, or some several inches of steel. As it penetrates stone or steel, it moves in undeviating lines. Nothing can deflect its direct movement, or resist the destructive power of its impact. Yet it carries into the tissues also a material force not *destructive*, but a subtle power to help—a *constructive* force—which the keenest study has not yet analyzed or harnessed. This is a *stimulating* force, recognized first in its effect on plant life, and later brought into use to explain some of the phenomena of its influence on tumors.

At this point all argument has to give way to observation. Until we know why cells grow, what innate power resides in living tissue which compels growth and orderly change in living cells, and until we know why the disorderly and exaggerated overgrowth of cells forms life-destroying tumors, we will not be likely to know what the influence is, which is shot into the cells by the atoms of radium which reduces them to orderly growth. One observer may theorize about the known bactericidal power of some rays from radium being responsible for the alteration of tumors; another, that the chemical changes brought about in the delicate protoplasm may alter their growth: another may advance an hypothesis that the even course of cell growth may be due to a balance between a positive and a negative electric charge in each cell which controls its acts, for they seem to respond to electrical affinities, and that the loss of one might permit an unbalanced and inordinate overgrowth, which a due supply of beta rays of radium each carrying a negative charge of electricity might correct. In any case the sophism of Huxley that "theories help us to bear our ignorance of facts" reminds us that one must revert to the habit of observation for the most part if one would make well grounded advances. So let us now drop all blinding sense of wonderment or misleading or distracting theories and argue on facts alone.

Many have lost sight of the first uncontroverted claims of the action of radium in retarding seed growth, or in repressing animal life, as shown by

*An address by request before the Ohio State Medical Association at Columbus, Ohio, May 7, 1914.

the prolongation of the worm stage of radiumized worms while the unradiumized brother and sister worms passed into the chrysalis and succeeding beetle stage completing the cycle by laying eggs which become worms again, while the radiumized worm remain unchanged—a sort of Methuselah; or, again, the irritative spinal meningitis in mice exposed to radium; or, the disappearance of superficial epitheliomas of the face under radium. Were that all that could be claimed it would be a small contribution indeed. Each year, however, has added something to the credit of its utility. Of this it may well be said that, considering the small amount in existence and the few observers, it is amazing that so much can already be claimed. It is as if a hundred scalpels only were in existence in the world instead of a million for ingenious and experienced men to use.

It is not yet known how best to use radium, whether in strong form or dilute, whether in naked form on a varnished surface or confined behind thin or thick metal filters, to hold back some classes of rays, or in the form of emanations. In view then of the confusion of method and the long time needed to attain permanent results by the few cautious observers, it is no wonder that slow progress is being made. Its evolution is not unlike that of the flying machine, only just now beginning to be practically useful.

Perhaps the first unqualified proof of its conquest of disease was in its dissipating the epithelial cancers of the face. Grant that it followed the same efficient action of Roentgen rays demonstrated to the credit of that marvel; grant that surgery had for generations been able to treat successfully these same small growths by cutting them out or burning them out by cautery or chemicals! By these means we have formerly cured the patient—and we still do so—but we never cured the disease—we only removed it. Now comes a new and subtle power which cures the disease, drives back into orderly life the disorderly cells constituting a tumor. We hold our breath in surprise—and rightly so!

A natural question now arises. Is there here a specific action? Is there a selective action against the component cells of a tumor discriminating in favor of those of healthy growth? We answer, yes, and offer proof by several facts. First, consider myeloid sarcomas. A myeloid sarcoma is an overgrowth of the myeloblasts of the bone marrow. As they increase enormously they destroy the calcific bone by pressure or absorption, until all semblance of the bone is gone and is replaced by a pultaceous mass of soft tumor. In the near future the life of the patient may be sacrificed. During the growth of the tumor a correct dose of radium is given, and the cells not only cease growing but retrograde, and permit a reformation of the bone with its original structure and form. We have to assume that the enormous production of marrow cells has been reduced by atrophy and absorption during the cure, or that out of the riotous overgrowth of new weak cells the primitive cells have reassembled and returned to their normal life work. That certainly seems like a selective action against weak cells. Why has the vicious growing tumor halted and begun to retrograde immediately upon the application of a shower of radium rays? All that has been done has been to use beta rays, of which we know little except that each atom carries a charge of negative electricity, and gamma rays with no electrical charge, but a wave stimulation exceeding the speed of light. The effect is not transient but lasting.

The first startling case I had was of a patient part of whose lower jaw was destroyed by a pure myeloid tumor in which the teeth were set as if in jelly. Radium rapidly reduced the mass until gritty bone began to form and the entire jaw was re-established in shape and structure, with teeth solidly embedded, and this has remained as perfect as a normal jaw for ten years. This type of destructive tumor seems to be uniformly and quickly cured by radium. Ten cases have demonstrated this in my hands, some in the upper or lower jaw, others in the long bones. This I would call a specific act of a certain influence discriminating against disordered cell growth, and sparing healthy cells scattered throughout the tumor tissue.

Scores of similar effects could be quoted, but I will speak of only three others. The first was of a man on whose lower eyelid grew a tumor which in a year occupied more than half its breadth, pushed the lid from the eyeball and grew upward from the lid and downward on the cheek, a large purple tumor pronounced sarcoma by microscopic study. It was given expert Roentgen ray treatment twenty times with no benefit. After four hours of radium from a small tube laid upon it, it melted away day by day and was gone in eight weeks. From year to year for eight years I asked many medical men to say on which lid the growth had been. The eyelid had been entirely ungulfed by the disease, but out of the mass there were reassembled the original cells of the skin, of the sharp edges of the lid, of the hair bulbs and follicles, so that hairs grew again on the restored lid. Repeated examination of the microscope slides has led to dispute as to whether to class it epithelioma or sarcoma. Clinically it did not resemble epithelioma. In either case the radium acted as a specific cure.

Again, I ask you to consider a case of the type of round-celled sarcoma of the parietal bone of the skull. During one year the bone had been eaten away and replaced by a tumor of the area of one's palm, resting on the dura and lifting the scalp two inches from it. A section removed for examination showed a round-celled sarcoma. A silver tube with one hundred milligramms of radium was inserted through it in two places and left eight hours in each. The tumor melted away until in three months it was gone, all but the thickness of blotting paper which shows a remnant of the same cells, entirely inert, in the fibrous stroma.

Finally, as showing a definite specific and selective action, one sees a papilloma in any part of the body disappear uniformly after thirty minutes of radium influence. This I have verified more than a hundred times. But the special point I would emphasize is the fact that where, as in the larynx, the vocal cords are buried in masses of papilloma filling the laryngeal space, the tumors disappear and leave normal glistening white vocal cords—the speaking and even fine singing power return. This proves, even more than gross appearance, that the delicate original tissue on which the tumor was built up, and from which it sprang, is not affected by the radium rays which caused the tumor to disappear. A dozen such cases in my hands have shown its infallible action.

One may also assert its specific action in all basal-celled epitheliomas. One may perhaps choose to call it a repressive action which causes every such tumor to retrograde immediately and permanently, in so far as a ten year "cure" may be called permanent.

There is now accumulating also a series of cases

of myoma, uterine fibroids, in which one or two irradiations of the tumor from the uterine cavity have been followed by progressive shrinkage year after year, until the growth was almost wholly gone, as if the disturbed cell reproduction had been corrected, quite like the types just mentioned.

It becomes us now to speak of some contrasting failures in a different type, the sarcoma which are composed of spindle cells sometimes mixed with a few large free cells, springing from and destroying bone very much like the myeloids, but not composed of or containing true myeloplaques. I have vainly endeavored to bring about a retrograde change in these tumors for many years but have made no favorable impression on them, thus far, by radium. Beginning with a spindle-celled tumor of the temporal bone ten years ago, I have failed in this type, in several fair attempts in similar ones of the tibia, femur, and radius, and of some in the soft tissues, as in the popliteal space. I cannot even claim to have retarded or altered their growth; nor has the microscopic or gross appearance of the radiumized areas shown the specific effects of radium work. This is true also of some types of epithelioma of the skin, the squamous-celled type. Indeed, I have come to regard a resisting epithelial cancer as probably of that type before microscopic corroboration is given. The squamous-celled type are prone to invade the nearest lymphatic gland which the basal-celled tumor does not. By this the surgeon will be warned to resort quickly to thorough use of his keenest dissecting skill. Fortunately this type is relatively infrequent. It is evident then that discrimination in using radium is essential, most of all in the choice of cases, if we would bring this efficient agent into repute for its true value.

Yet there is a greater field of work, that of cancer, which must now be approached with all the skill and judgment of ripe experience, which has baffled surgeons of all times and which is only now being touched by the new agents. With the preliminary facts which I have gone over, we are prepared to take the next step forward. First, I ask, has science revealed the nature of cancer in the virulent form which the public and all practitioners know it? It has not. We only know its gross and its microscopic appearance, its course, and its statistics. It has always been classed among malignant diseases, malignant in the sense that it is a life-destroying growth, composed of cells which in the beginning are a part of the normal cells of our body. In the judgment of pathologists a cancer of the uterine cervix begins as an epithelioma of the cervical mucous membrane; that of the stomach as an epithelioma of the follicles of the lining membrane; that of the breast as an epithelioma of the duct follicles; cancer of the rectum originates in the epithelial mucous gland structures.

If we could radiate the disease in its early groups, we could end it. Such facts exist. I have one patient whose cervix curettings showed early invasion of the submucous structure by proliferating epithelium, a typical early cancer in which radium treatment alone has given a cure of nine years. In only one other form of beginning cancer, that of the breast, where it begins as an epithelioma of the nipple, for which surgeons would always advise mammary amputation, have we an opportunity to test the value of radium in the early stage. In six such cases I have caused prompt disappearance of the growth and maintained subsequent health for several years.

During the years of trial I have necessarily tested radium in many of the massive and inoperable types of cancer, hard scirrhus breasts, encephaloid tumors, large fungating rectal cancers, and tongue cancers of all stages. It was right and just to the subject that these should be carefully subjected to test. I may also say that many terrible cases, from a surgical point of view wholly inoperable, have been offered to me by my surgical friends as a challenge which I have rarely refused. So that out of the mass of the history of ten years I can speak in general terms with some precision.

It is no small tribute to radium to say that in one-tenth of these active cancers a retardation can be seen and one-third in time added to the expectation of life. The method of action of radium in cancer does not seem to me to be specific in the sense that it is in the diseases narrated earlier. Ten years ago I satisfied myself that radium kills the cancer cells in the groups nearby it, but within a limited radius, perhaps a quarter of an inch, and that to destroy large masses many tubes must be placed throughout the tumor. In such cases there was always tissue necrosis with more or less toxemia which always passed away safely. In the earliest days of its extreme use I occasionally observed a temperature of 103° to 105°, never serious for more than one to two days. This was followed by excellent repair. Perhaps I have never sufficiently followed up such cases by further attacks on the neighboring tissues, because they have been associated with pre-existing lymphatic disease, which made the task too hopeless. This method of attack is quite like that of Krönig, Bumm, Voight, and others who have given massive doses in uterine cancer to radiumize the gross mass and have felt that far better results were attained than by excision. Experimental work in this field is still being conducted, not without hope.

One practical, and demonstrated gain to surgery is seen in the principle enunciated by Wickham that if all the massive cancer cannot be removed, radium can be successfully applied to the thin shell of disease necessarily left, with the certainty that it will be destroyed. In one patient I was obliged to leave a thin layer of cancer grown to the wall of the carotid artery at its origin which, however, I radiumized *in situ*. Five years of perfect health have gone by with no recurrence. This principle of killing and safely leaving a small remnant of malignant tumor is of the greatest importance to surgery. It applies to every part of the body. Hence the postoperative use of radium promises to be a material advance.

But the most definitely good effect of radium work in these several cancers seems to follow the blocking of all the vessels nourishing the growth by a process of endarteritis. This irritation is of inestimable value in all radium work where high vascularity and active cell growth are present. Nothing so efficient in treating nevi, either capillary or angiomatous, is known to surgery. It effects a delicate blockading of vessels by endarteritis. Nor is this second to the beautiful results of radium in keloids. The true or the false keloid which no surgeon dares to touch with a knife, yields uniformly to the irradiation by radium which induces a soft fibrosis in the regular and active cellular structure, from which the accompanying itching and burning speedily vanish.

Not the least important rôle played by radium is in its special influence in causing retrograde meta-

morphoses in hypertrophic glandular structures like thyroids, lymph adenomas, lymphosarcomas, parotids, etc. This widens the important field of usefulness. I have treated half a hundred goiters of all varieties by radium alone, and have seen complete disappearance in a few and checked the growth in many. The ideal treatment for most troublesome cases is thyroidectomy. Nevertheless there is a large proportion of goiter patients either not greatly annoyed, or unfit for surgery, where radium is applicable.

Every physician feels the sense of helplessness when confronted by advanced cancer of the tongue. Even with thorough surgical extirpation early return of the disease is well-nigh certain. I have been impressed by the temporary improvement in many bad cases after using radium alone and have now adopted the combined extirpation followed by radium with a degree of hope, because of some cases of long freedom where the half tongue was first removed. Several years will be necessary to speak of cures.

It is difficult to know where to draw the pathalogical lines on tumors affected favorably by radium. It would almost seem as if all aberrant cell growths ought to be controlled, if some are, but certainly at present it seems that the myeloid and round-celled sarcomas and all tumors of lymphoid type yield wholly or in part and that basal-celled, but not squamous-celled growths are consistently curable. Tonsil sarcomas, some gliomas, pharyngeal neoplasms all yield some cases to the credit of radium. It is far too early to classify the types.

It is fair to say in conclusion that, stripped of all extravagant claims, radium is an asset of permanent value to surgery in the treatment of those diseases some of them justly called malignant which I have heretofore defined. In the graver form of cancer, which has so long baffled us all, some definite progress has been made as described, but hard research work must yet be done before someone puts his finger on the weak spot in its method of use.

Finally, let me add that one must pardon the occasional outburst of enthusiasm from those who are beginning the use of radium and are startled by its revelations. These are more than offset by the occasional tirades against it either by those who have never used it, or by those who have some other method to exploit. Both these are natural as they are negligible. They do not affect the real truth that as an agent for the relief of human suffering radium has proved to be a weapon of unique value in the surgeon's hands.

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TRICHINOSIS, WITH A REPORT OF CASES.

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The *Trichina spiralis* was accidentally discovered in 1860, by Frederick Zenker, in making a routine examination for degenerated muscle fibers in a case of typhoid fever. In man the infection comes from the hog, which in turn has eaten infected offal, trichina-bearing rats, mice, or trichina-bearing meat. The source of contamination is the encapsulated larva, which exists in the muscles of the animal. The infection arises if ham, bologna, pork, sausage, etc., are eaten either uncooked, or cooked insufficiently to destroy the larvæ. About 6 per cent. of pork is infected. Valin observed that boiling ham for 3 hours did not destroy the larvæ in the center of it. H. Williams of Buffalo found trichina in 5.1 per cent. of 505 indiscriminate examinations.

Life History.—After an individual eats infected meat the larvæ are freed by dissolution of their capsules in the gastric secretions, and escape to the duodenum and jejunum where they develop to adult life in about two days, and where impregnation of the female occurs; the females are viviperous, and in turn burrow into the lymphatics of the intestinal wall and reproduce, about 1,500 per female. The embryos wander with the lymph or blood stream to different parts of the body, preferably the striated muscles, and there become encysted larvæ again; this takes about ten days from the time of infection.

Pathology.—Acute intestinal catarrh and mesenteric glandular swelling, and sometimes ulceration of the mucosa are present. Askanazy's experiments with rabbits showed that the embryos are developed in the lymph spaces of the intestinal villi; from there they pass to the mesenteric lymph nodes and thoracic duct, and to the superior vena cava and the heart; embryos have been found in clots in those situations by Staubli, Virchow, and Zenker. In the capillaries they have been seen by Graham. During the growth of the embryo in the muscles (which takes about ten weeks) degenerative changes occur; inflammatory foci form which persist until the eighth week; these foci consist of round cell infiltration, eosinophile cells, and sometimes hyaline degeneration; after a time some of these cells are absorbed and the rest are converted into connective tissue. The encapsulated larvæ may live in the muscles for many years; in the hog they have been observed as long as twenty years, and in man for twelve years. Ordinarily, calcification of the capsules sets in after about a year, and in time they disappear altogether. Frothingham has demonstrated the embryos in the blood stream, and claims that they can break out of the vessels in the liver, pancreas, and brain, and cause local destruction of tissue. Lamb reports five cases in the Presbyterian Hospital, New York, in which parasites were recovered from the blood, and quotes four more from the recent literature of the subject. Parenchymatous degeneration of the liver, myocardium, and kidneys may occur with embolism. Staubli says they never occur in heart muscle, but an autopsy at the Boston City Hospital discovered them in the myocardium, in the liver, and in the cerebrum.

Opie's experiments proved interesting; he found that during the second and third weeks eosinophiles gathered in the mesenteric glands in such numbers as to resemble abscesses. Where eosinophiles form as much as 15 per cent. of the leucocytes, the marrow presents a characteristic appearance, the fat being replaced by myeloid cells, chiefly those having myeloid granulations. In the lung the capillaries are much distended and red cells escape into the alveoli; sometimes fibrin also collects with polymorphonuclear leucocytes, eosinophiles, and epithelium; and sometimes new tissue is formed; eosinophiles are so closely packed that the specimen takes a homogeneous eosin stain. Askanazy showed small hemorrhagic foci in the lungs of rabbits and demonstrated the parasite in the lesion.

Bovaird's two autopsies showed pulmonary infarcts produced by embolism or thrombosis of the pulmonary artery. In the third week trichinæ are easily found in the voluntary muscles. Flury reports a loss of glycogen in the muscles and liver, and says all symptoms are due to poisoning.

Ingestion is in most cases difficult to determine, as it is only by close scrutiny that the parasites can be seen as small white dots resembling miliary tubercles; when ham or pork eating is much indulged in, the people give it but slight attention, and it is often by a number of a family becoming infected that we learn the exact time of infection.

Incubation begins shortly after the ingestion of the parasite, as the latter requires but about two days for its full development after escaping from the capsule.

This period of *invasion* is usually marked by prostration, nausea, vomiting, severe cramp-like abdominal pains in the epigastric and umbilical regions, headache, diarrhea, chilly sensations and a febrile rise. The severity of these symptoms depends on the severity of the infection, that is the number of trichinæ eaten. In some of the cases enumerated later, the invasion was mild, in others the symptoms of invasion continued until the time of admission, which was usually ten days or two weeks after the onset; this is also the period required for the immature parasite to attain maturity, reproduce in the intestine, and for the embryos to reach the muscles of the host. Many times this entire group of symptoms does not exist, consequently the differential diagnosis in the beginning is often difficult. In two of my cases the onset occurred after an exposure to inclement weather, so that chilly sensations, fever, muscular pains, would not be of diagnostic importance except for the time of appearance of pains, which from exposure would be early, while from trichinosis it would be later. An accurate history is often difficult to get. The invasion with headache, high fever, diarrhea, mild abdominal pain, and splenic tumor, closely simulates that of typhoid fever, and it may be several days before we can exclude the latter disease by the appearance of muscle pain, facial edema, eosinophilia, together with an absence of the Widal reaction and the positive blood culture; the onset of trichinosis is, however, usually more acute than that of typhoid fever.

Symptoms in Detail.—There was one case where the onset simulated that of malaria. Simple gastro-enteritis is sometimes the diagnosis, from the severity of the pain, vomiting, and diarrhea. Fever is one of the early symptoms, and is ushered in by chilly sensations sometimes repeated and accompanied by sweating; in many of our hospital cases the fever has existed from ten to fourteen days before admission so that the whole febrile course may be from three to five weeks or even longer. All of our cases showed daily remissions of from two to four degrees, and these remissions were apt to be accompanied by sweating; none of these cases showed the high continuous fever that Bovaird reports. The temperature subsides by lysis. The fever curve is sometimes confused with that of typhoid fever, especially that of the third and fourth weeks, when remissions occur. One case of this series had been treated for typhoid fever for three weeks before admission to the hospital. Zenker, MacCrea, and Fisher have each reported cases of combined trichinosis and typhoid fever.

Vomiting occurs early; it is usually transient, but may be protracted for several days; it is accompanied by abdominal pain, sometimes severe and sometimes, though not very often, by diarrhea; in one case diarrhea and constipation alternated. No parasites were found in any specimen, although looked for conscientiously and repeated examinations were made. Edema usually appears rather early; it is situated in the eyelids, across the bridge of the nose, in the conjunctivæ, and in no way differs from the edema of nephritis; it occurred in ten of the fourteen cases and may have been present in another who had been sick three weeks before admission. MacKenty reports three interesting cases of edema of the glottis, pharynx, and tongue. Thompson reports cases having edema of the ankles and swelling around the knees and elbows. Eye tenderness, photophobia, diplopia, and pain upon motion, were present in one case; conjunctival edema is common. Subjunctival hemorrhages have been frequently seen by W. Gilman Thompson; these hemorrhages lie external to the iris, are apt to be triangular in shape with their bases inward next the iris. W. Gilman Thompson and F. Parker each report a case with edema of the retina and optic neuritis. Kratz observed subcorneal hemorrhage in eight cases during an epidemic of 264 cases occurring in Hedersleben.

Muscular tenderness, stiffness, and pain upon and after motion are supposed to occur in practically all the cases, and are often the complaints for which patients seek relief, in consequence of which they usually apply ten to fourteen days after infection (or after an average of ten days in the present cases). Muscular weakness and prostration are early symptoms. In a number of cases the onset of the pain cannot be elicited; eight of the fourteen cases complained of no pain at all, nor was there any tenderness throughout the course of the disease; two more gave no history of pain, but were tender upon examination; seven had both pain and tenderness. On the other hand tenderness is sometimes very acute. In the case of J. R. H., an intelligent man, muscular pains, tenderness, and edema, developed on the third day and were present upon admission the following day. The localities chosen seem to be the calves, thighs, biceps, and neck, in the order of frequency. Thompson has seen cases with tenderness over the diaphragm and with dyspnea, signifying a probable invasion of that structure by embryos. MacKenty in operating for tuberculous glands of the neck saw minute white spots in the trapezius muscle resembling tubercles; on microscopic examination they proved to be encysted larvæ.

The most characteristic thing in the blood picture is the eosinophilia; it usually begins early and increases rapidly; thus in one of the cases presented it was 5 per cent. on the day of admission, 9 per cent. on the following day, increasing rapidly to 23 per cent. It evidently remains for a considerable time, most of the cases having a high count upon discharge from the hospital. Bartlett, Howard, DaCosta and Schleipp report cases without eosinophilia, while Brown and Bovaird had cases where it was slight during the first month but reached its height during the second month when convalescence was established: Thompson also had cases among his 53 where the maximum was reached after the temperature struck normal. Kerr and Brooks had cases with counts as high as 80 per cent.; the counts sometimes vary considerably from day to day. High eosinophilia (normal being 3 per cent) is

found in other forms of intestinal parasites, notably ankylostoma; also in bronchial asthma, and in various skin diseases. There is usually a moderate leucocytosis; my cases ranged from 14,000 to 21,000 per cubic millimeter, with four cases having no increase. The proportion of eosinophiles does not seem to have any relation to the total number of leucocytes, as one of my cases showed 34 per cent. eosinophiles with a total of 8,000 leucocytes. There is usually a mild secondary anemia.

An eruption resembling that of typhoid occurred in two cases, and Bovaird reported several such cases in his series; the spots cannot be differentiated from enteric spots and only obscure the diagnosis. Erythematous and urticarcial rashes do occur, but I have not seen them; furuncles also occur from which trichinæ may be emptied.

There were no deaths in the present series, but death sometimes does occur, either from exhaustion and inanition, or from pulmonary infarct and pneumonia.

Case I.—H. W., 21 years. Bartender. Frequently ate sandwiches of raw ham and beef; the present is his first attack. Six days before admission he was seized with cramp-like abdominal pains lasting about thirty minutes and relieved by vomiting; following the onset he had considerable headache; two days later pain developed in both calves and he noticed that his face was puffy. Physical examination showed puffiness of the eyelids, stiffness of the muscles of the arms, and tenderness of the muscles of both legs; there was nose bleed on admission. Temperature on admission was 105°; pulse, 112; the temperature followed daily remissions from 3° to 4°, reaching normal after eight days. There was no splenic enlargement. Leucocytes were 20,000, of which 58 per cent. were polymorphonuclears and 35 per cent. were eosinophiles; hemoglobin, 35 per cent.; red cells, 4,300,000. After the first week in hospital, improvement began; pain and soreness decreased, nausea subsided, and puffiness disappeared. Eosinophiles at discharge were 58 per cent.; muscle section, peripheral blood and blood from basilic vein all failed to show trichinæ.

Case II.—J. LeN., 24 years. Domestic. Two weeks before admission she began to have headache, fever, epigastric pain, vomiting, constipation, and weakness; she was accustomed to eat raw ham. Physical examination showed a pale girl, puffy under the eyes, with rapid breathing, rose spots on the abdomen resembling enteric spots, no splenic enlargement; muscles of limbs were tender, and painful upon motion. Temperature 104°, pulse 110, respiration 40. White blood cells, 8,000; polymorphonuclears, 50 per cent.; eosinophiles, 34 per cent., hemoglobin, 80 per cent. Urine had a trace of albumin and a moderate number of hyaline and granular casts. The abdominal pain and vomiting continued for three days; temperature showed daily remissions of 2° or 3° and reached normal on the ninth day in the hospital, or 24 days after onset. Upon discharge, eosinophiles were 60 per cent.

Case III.—J. K., 26 years. Laborer. For two weeks sharp pains in legs upon motion but relieved by rest; pains later in shoulders and back and arms; one week after onset was obliged to go to bed; he had photophobia and edema of the eyelids. Physical examination showed facial edema, subconjunctival hemorrhage on the outer side of each iris, muscular tenderness over the thighs, calves, and biceps, no spleen; urine negative. Leucocytes, 6,300, polymorphonuclears, 74 per cent.; eosinophiles, 10 per cent. Temperature rose gradually to 105°, patient was apathetic, and speech was dull, spleen readily palpable; eosinophiles, 30 per cent. After ten days, in which the temperature ran from 101° to 104° daily, it remained at 101°, and fell in four days more to normal, accompanied by general improvement (three weeks after admission, or five weeks after onset). Eosinophiles on discharge were 27 per cent.

Case IV.—M. G., 24 years. Laborer. Italian. No history obtained. Physical examination; eyelids were edematous, there was no muscular pain nor tenderness. Temperature 101°, fell in three days. Eosinophiles, 19 per cent., rose to 30 per cent. at time of discharge.

Case V.—A. T., 28 years. Butcher. Ate raw beef and pork every day. For three weeks before admission he had nausea and anorexia, but no vomiting or pain. Physical examination showed puffiness of the eyes and face; muscular tenderness over both forearms and in the back of the neck. Temperature 104°, pulse 88, respiration, 24. Eosinophiles, 46 per cent. Temperature fell gradually and reached normal after ten days.

Case VI.—M. R., 24 years. No history of raw meat eating but frequently ate pork. Attack began three weeks before admission with chilly sensations and fever; headache, pains in thighs and arms, diarrhæa, and colicky pains in abdomen. He was treated for typhoid fever and kept on a fluid diet. Physical examination showed loss of nutrition, no spots, no muscular tenderness. Temperature on admission 101° but fell in three days. Eosinophiles, 10 per cent. Urine contained a trace of albumin and a few hyaline and granular casts. Discharged on the sixth day.

Case VII.—J.R.H., 29 years. Four days before admission he suffered from rather severe abdominal pain and cramps, with diarrhea lasting two days, consisting of eight or ten stools a day. After two days his eyes became painful on motion, tender to pressure, and edematous; photophobia and diplopia were present; headache, chilliness, nausea, followed with muscular tenderness in thighs, calves, and back of the neck; muscles were stiff and painful on and after motion. Physical examination; face and eyelids were swollen; muscles were tender upon deep palpation and motion was painful. Urine normal. Temperature varied between 100 and 102°, and reached normal after ten days. Leucocytes, 21,000; polymorphonuclears, 80 per cent.; eosinophiles, 1 per cent.; rose in two days to 33 per cent. Hemoglobin, 80 per cent.; red cells, 5,000,000. Still had muscular pain upon discharge; feces showed no parasites. Two months after discharge eosinophiles were 14 per cent.

Case VIII.—C. K., 28 years. Began two weeks before admission with nausea and vomiting, constipation; frequent doses of castor oil were followed by bloody stools. There was headache, vague pains in the joints and the back, eyes normal. Temperature on admission was 103°, daily remissions followed of 4°, gradually reaching normal after ten days from time of admission or twenty-four days after onset. Blood. Leucocytes, 17,500; eosinophiles, 1 per cent.; and three days after were 17 per cent.; on discharge they were 21 per cent. Muscle section showed trichinæ; stools showed no parasites.

Case IX.—J. R., 23 years. For ten days sharp pains in the left side, moderate cough, fever and chilliness. Physical examination showed pulmonary tuberculosis only, no muscle tenderness; urine contained much indican. Leucocytes, 13,000; eosinophiles, 8 per cent.; no parasites found.

Case X.—H. S., 25 years, carpenter. For two weeks sharp attacks of pain in epigastrium continuing till time of admission; slight fever, headache, and cough; no vomiting, no diarrhea, no cough, no tenderness. For two days only, face and eyes were puffy. Physical examination showed facial edema, edema of conjunctivæ and double conjunctival hemorrhages; spleen doubtful. Skin showed rose spots resembling enteric spots. Temperature 105° normal on the tenth day. Leucocytes, 6,000; polymorphonuclears, 70 per cent.; eosinophiles, 11 per cent.; white cells rose to 19,000; eosinophiles to 13 per cent. No parasites in the stools.

Case XI.—M. G., Turk, 18 years. No history of rare meat. Began one week before admission with headache, pains in the calves and thighs. Physical examination revealed no edema. Spleen was felt, however. Muscular tenderness was present in calves, thighs, and biceps. Temperature 103°, normal in nine days. Muscle section negative.

Case XII.—J. B., ate sausage, sometimes raw. For two weeks before admission fever, abdominal pain, and diarrhea; vomited at outset; only tenderness was in his calves. Physical examination showed nothing but tenderness of the calves. Urine negative. Eosinophiles, 43 per cent. and 53 per cent. Temperature, 100° to 101° for seventeen days; discharged with temperature 100°.

Case XIII.—M. F. Was eating raw bacon. For three days headache and shaking chills; edema of face before admission. Temperature 105°, and remittent for fourteen days. Physical examination showed nothing; Widal reaction negative, no malarial organisms found. Urine negative; eosinophiles, 21 per cent. Muscle section showed only interstitial myositis.

Case XIV.—K. F. Began 13 days before admission; chilly, but no vomiting, no headache; edema of face

was present and constipation. On physical examination a systolic mitral murmur was found. Urine showed a few hyaline and granular casts. Eosinophiles, 48 per cent. Temperature fell second day.

Case XV.—F. B. For eight days headache, no other complaints. Urine negative; eosinophiles, 25 per cent. Temperature 103°, irregular for twelve days.

Recapitulation.—The disease occurs frequently enough to be borne in mind where unclassical symptoms of infection occur, and where the history is indefinite. Six cases occurred in six months in the Second Division of Bellevue Hospital. The embryos develop to adult life in the stomach and intestine in about two days, the larvæ reaching the muscles in ten days after infection; the presence of the parasite in the intestinal tract causes a gastroenteritis of greater or less violence, according to the number of larvæ ingested; the incubation period then is short and the invasion usually though not always is well marked. The temperature is remittent in character, varying from two to four degrees, and continues from one to five weeks, according to severity. These long continued temperatures are not infrequently taken for typhoid fever, though the distinct and marked remissions are not characteristic of the latter disease. A splenic tumor is sometimes present. Muscle pain and tenderness are usually present, though by no means always; facial edema is common, and subconjunctival ecchymosis is present at times; this conjunctival hemorrhage with facial edema makes quite a characteristic appearance. The eosinophiles are usually present in numbers ranging from 15 to 30 per cent., or often higher, but it must be remembered that during the active stage of the disease an increase may not yet have occurred, and it may come on during convalescence. It is difficult to find parasites in the stools, but embryos may be found in the blood stream and the larvæ may be found in muscle section; this, however, is not necessary where eosinophilia exists with a good clinical picture. There is often present a mild albuminuria.

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616 Madison Avenue.

REPORT OF A CASE OF PHLEBITIS OF THE PENIS, SIMULATING EDEMA INDURATUM, COMPLICATING ACUTE GONORRHEA.

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The following is the report of a very interesting and unusual case:

A. S., lawyer, referred to my office by Dr. Halpern of Brooklyn, gave a history of gonorrhea two years previously, complicated by seminal vesiculitis.

Present history (Feb. 1, 1913).—Acute gonorrhea of five days' duration. Incubation period two days. Gonococci demonstrated in the discharge. Received only internal medication. Seven days later, *i.e.* on the twelfth day of the disease, the patient began to complain of pain in the region of the corona of the penis. Within twenty-four hours he also developed pain in an area on the right thigh, several inches below the groin, and radiating downward for a considerable distance. In about six hours he noticed that both these painful areas had become swollen and tender to the touch, with a marked prominence of the veins. He said that the first involvement was high up on the thigh. This gradually subsided as the inflammation traveled downward along the anterior and finally upwards along the inner surface of the thigh.

Physical examination of the right thigh demonstrated an inflamed, reddened, and swollen area, about six inches long and three inches wide, beginning about two inches below Poupart's Ligament and extending downward in the mid line of the anterior surface of the thigh. On palpating this area one could feel a number of enlarged and dilated veins which were markedly tender.

Inspection of the penis revealed an almost similar condition, particularly well marked around the dorsal surface. The area of involvement extended backward from the corona, for about an inch and entirely circumvented the penis. There was absolutely no redness, but a markedly indurated swelling, very similar to the edema induratum which occasionally accompanies an initial lesion of syphilis; with this difference however, that on careful palpation, a number of tender veins could be felt in the infiltrated mass.

Treatment.—The patient went to bed for several days with an ice bag to the affected parts. Then returned to his professional duties, using the ice bag at night only. During the second and third week of the phlebitis he used tincture of iodine over the area on his thigh, with apparent benefit and made an uneventful recovery from his phlebitis in five weeks.

As for the diagnosis of gonorrheal phlebitis in this case, one can offer only presumptive evidence. As this patient improved quite rapidly under conservative treatment, and also because of known objection on the part of private patients to any needling of the penis, I could not obtain blood for a gonococcus culture. As no other etiological factor could be discovered to account for the phlebitis and as it appeared on the penis shortly after the onset of an acute attack of gonorrhea, in an otherwise healthy man, I feel that I am justified in believing his phlebitis was a complication of his urethritis of Neisser.

Conclusions.—This case is reported because of the rarity of phlebitis of the penis accompanying acute gonorrhea and to point out the existence of such a complication (I could not find a similar case reported in the literature) and the possibility of its simulating very closely edema induratum and to emphasize the differential points of diagnosis between the two conditions. To recapitulate: The differences are as follows: Gonorrheal phlebitis is exquisitely tender to palpation and quite painful when in contact with clothing, etc., while edema

induratum is usually painless. On careful palpation of the former enlarged veins can be felt. This is not possible with the latter. In the former no initial lesion or ulceration can be demonstrated. While in the latter, on careful search, such can be found somewhere in the folds of the edema. The former is not accompanied by hard glands; the latter after two or three weeks is usually accompanied by its satellite inguinal involvement. In the former no spirochete can be found; in the latter they usually are demonstrable. The former in this case accompanied by phlebitis elsewhere (*i.e.*, on the thigh) while in the latter the further course of the case would show the development of the secondaries of syphilis.

10 East Forty-first Street.

TONSILLECTOMY, ITS INDICATIONS AND CHOICE OF OPERATION.*

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I WILL merely touch briefly on the histology of the tonsil and adenoid. Their structure is lymphatic and of hypoblastic origin. The pharyngeal and the faucial tonsils, like other lymph glands, are a collection of lymph cells enmeshed in a delicate fibrous reticulum. Unlike other lymph glands they are peripheral in their distribution, or better described, they are exposed glands. The pharyngeal tonsil differs from the faucial in that it has no capsule, and is distributed in folds, perpendicularly, on the posterior pharyngeal wall, while the faucial tonsils are encapsulated, and contain many crypts, which run to, or nearly to, the capsule. Both are covered by mucous membrane on their exposed surfaces. Both of these bodies are normally present and have a definite function. They give trouble only when their resistance to invading bacteria has been overcome and they succumb to the unwelcome guests.

Wright, Goodale, and others, in their experiments have come to the conclusion that the bacteria attacking a healthy tonsil do not penetrate the epithelium. The hypothesis offered is that the destruction of the organism is accomplished through a biochemical action, the epithelium throwing out an antagonistic ferment which overcomes the organisms, and if the tone of the epithelium is normal, there is, as Ballenger puts it so aptly, "an equilibrium between immunity and infection. When the cellular tonicity is impaired, the equilibrium between immunity and infection is lost and infection occurs."

Diseases Attributable to the Tonsil and Adenoid.—Locally, we have rhinitis, adenitis, pharyngitis, retropharyngeal abscess, etc. With these there arise very often disturbances of the middle ear and tubular catarrh, due usually to the extension through the Eustachian tube; enlarged cervical glands, Riggs' disease, etc. Authorities are now of the opinion that the tonsil in its diseased state is the portal of entry for various systemic infections, such as rheumatism, endocarditis, tuberculosis, acute nephritis, and chorea. Many pains of obscure origin can undoubtedly be attributed to tonsillar infection. When many other remedies have failed, the removal of the tonsil has brought relief in so many cases that it leaves little doubt that the tonsil is remarkably apt in the distribution of its pernicious wares. Children with diseased tonsils who are unfortunate enough to develop diphtheria are known to have much more severe infections than children with previously healthy tonsils. And even after the subsidence of the clinical symptoms their throats often remain positive for very long periods and they become carriers. Personally I have not seen many cases of diphtheria, but I have asked men who have seen a great deal of it, and they tell me that as far as they can remember they have never seen a case of faucial diphtheria develop in a person who had had the tonsils removed. In a late number of the *Journal of the American Medical Association*, Clause of Berlin states that Alexander of Vienna has reported the significant fact that during a severe epidemic of scarlet fever and measles in Vienna the children whose tonsils had been removed were spared by the epidemic.

The occurence of acute nephritis either during or following an attack of tonsillitis is far from uncommon; in fact, its frequency would probably astound us if we made a careful laboratory and clinical examination of all cases. Bingham in the *Archives of Pediatrics*, December, 1910, reports a case of acute nephritis which followed acute follicular tonsillitis ten days after the beginning of convalescence. Other men have noted and commented upon this complication and it is of sufficient importance to warrant serious consideration. Cheadle of London designates the adenoids and tonsils as the "rheumatic cycle" as applied to children. He considers rheumatism, tonsillitis, chorea, endocarditis, etc., as stages in the cycle. A child with chorea in all probability has rheumatism or will develop it, and children with endocarditis are very likely to give a history of previous rheumatism or chorea, or if not, they very likely will develop one or both of these later on. Rürah says, "chronic heart lesions affecting the valves are nearly always of rheumatic origin." Endocarditis, rheumatism, and chorea in children are seen so often associated with or following one another, and so often a history of diseased tonsils is obtained, as to leave little doubt as to the guilt of the oft indicated tonsil.

The careful examination of children's throats and ears has been repeatedly urged, as a part of the general examination, by such pediatricians as Holt, Jacobi, Koplik, Hutchinson, and others, and undoubtedly many cases that present vague symptoms would be diagnosed positively were such careful examinations always made. Todd of Minneapolis, in the *Journal of the American Medical Association*, August 27, 1910, mentions the fact that neuralgias in the region of the tonsils, side of the head, neck, teeth, gums, or antrum of Highmore, may be and frequently are due to diseased tonsils. When we consider that the tonsil is the largest body in this vicious lymphatic circle of infection, and its frequent irritations, the abundance of infectious organisms that are always present, and its direct drainage into the general circulation, it seems a wonder that we do not all die young.

Indications for Operation.—Briefly we may say that the general indications for operation are as follows: Tonsils should be removed when found in a chronic state of inflammation and with a history

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of repeated attacks of tonsillitis or quinsy. The operation should never be done sooner than a week or ten days following the subsidence of an acute attack. Grosvenor in the *Journal-Lancet*, December 1, 1913, presents a number of illustrations of microscopic sections of removed tonsils, and notes the frequency with which infectious material is found in their substance. The ray fungus was present in 15 per cent. of the cases; the tubercle bacillus in 5 per cent.; and bone tissue and cartilage in three cases.

Nearly twenty years ago there was first forcibly brought to our attention the question of the relation of tonsillitis to articular rheumatism. The German specialists on military hygiene and sanitation were among the first to call attention to this matter, although it had been urged by men in this country prior to that time. Dr. Paul Schichold in February, 1910, reported seventy clinical cases of articular rheumatism, in 75 per cent. of which pus-pockets were found in the tonsils. Guerich, following this line of work not only demonstrated pus in the tonsils of his cases, but reported 25 per cent. permanent cures by "tonsillar treatment." What this treatment was I do not know, but, if it was local treatment or tonsillotomy, I can only say that had he done complete tonsillectomies on these cases he would no doubt have had a much larger percentage of cures to his credit. Schichold also mentions that even cardiac complications, if recent, are favorably influenced by removal of the tonsil. Adenoids should be removed when they are so large as to obstruct proper breathing, when there is a chronic adenitis, and in cases of middle ear disease with obstruction of the tubes.

One or two attacks do not necessarily impair the tonsil to such an extent as to necessitate its removal. But with repeated attacks there are changes in the tissue which impair its normal function. It is then that the tonsil becomes a menace to the general health and should be removed entirely within its capsule. A point that should be emphasized is the fact that a tonsil should not be removed merely on account of its large size; only if there is a history of tonsillitis. Some of the smallest tonsils are the most vicious. A tonsillectomy should always be considered a hospital operation particularly in adults. It is a mistake to view the operation lightly or to stimulate that impression in the laity. True, it is not often that complications arise, but when they do they can be exceedingly unpleasant.

Complications.—Severe hemorrhage does occur occasionally, though not as often as imagined by some. Pneumonia, often of streptococcic origin, is a rather remote complication, but does occur and may cause considerable apprehension on the part of all concerned. It seems rather remarkable to me that it does not occur oftener. Pulmonary infarct, cervical cellulitis, gangrene, and septicemia are some of the other hardly pleasant complications that do occur at times.

Methods of Operation.—The methods in vogue a few years ago of guillotining and punching out the tonsil, did not very generally accomplish the desired result. Many cases suffered with subsequent attacks of tonsillitis and the purpose of the operation was defeated by the proliferation of the remnants of tonsil tissue. It is pretty generally conceded by authorities that when it becomes necessary to remove a tonsil, it should be removed completely, within its capsule. When this is done there can be no return, but occasionally there is an extension of the lingual tonsil upward. These masses of tonsil tissue rarely give any trouble, as they are usually healthy tissue. The poor results from the old method and the ill-advised operations have done much to bring this operation into disrepute among the laity at various times. This is to be greatly deplored as there are few operations that give better results, in well selected cases, and conserve the general health more than this operation.

There are many methods of operation but I think they can be divided into three general classes, with minor modifications as to the instruments and technique adopted to meet the personal taste and physical requirements of the operator: (1) Instrumental dissection and removal, blunt and sharp; (2) instrumental and finger dissection; and (3) finger dissection. Of these three methods the combined finger and instrumental operation seems the most logical.

The armamentarium for this operation is reduced to a minimum and consists of a mouth gag, some form of tonsil knife (my preference being the Douglas), tongue depressor, tenaculum, snare, and a good, fairly long index finger. The technique is as follows, using continuous anesthesia: when the patient is well under, insert the gag, depress the tongue well, so as to put the anterior pillar on the stretch, then with the tonsil knife make the incision at the margin of the anterior pillar, where it leaves the tonsil to insert itself in the tongue. Carry this incision up to the superior commissure. The index finger is then inserted in the incision and the tonsil peeled away from its attachments. When the tonsil is well separated you will often find it hanging by its pedicle free in the throat. It is then grasped with the tenaculum and the snare engaged, and the tonsil removed, taking care not to remove a part of the uvula as well. Gauze may be packed into the fossa for a minute or so to control the venous ooze, and usually on removing the gauze you will find a dry muscular bed. At that time it is well to swab out the fossa with a 50 per cent. solution of iodine in glycerin. The epipharynx is then examined and the adenoids are removed if thought necessary.

I wish to mention here an instrument of merit for the removal of adenoids, namely the LaForce adenotome. With the Lowenberg and various other forceps, the Gottstein curette, and others, the procedure does not seem refined. The tissue frequently is swallowed, sometimes it gets into the larynx, and occasionally strips of mucous membrane are torn from the posterior pharyngeal wall. With the LaForce adenotome, if the mass is a median one, it nearly always can be removed in one bite. The Eustachian eminences are in no danger, and one may be sure that the mass is in the instrument. The blade cutting up and severing the mass at the end of the cut obviates the possibility of stripping the mucous membrane.

The point in favor of the finger in the dissection of the tonsil is this: the capsule has a distant feel, and one can tell immediately whether he is behind the capsule or in the tonsil tissue. A point of very great importance. With the instrumental dissection this is not always possible, for with the hemorrhage the sight is largely obscured, and it is not possible to distinguish the tissue by feeling with the intruments. The so-called friable or rotten tonsils so often spoken of I believe to be in a large percentage of cases tonsils that are broken into or cut

into by the operator at the start. When this occurs, it is almost impossible to get back of the capsule, and one must resort to the punch to remove the mass, and more than likely enough of the tissue is left to give subsequent trouble, particularly if it is in the supratonsillar space.

Post-operative pain in these cases, I believe, can be minimized by reducing the sponging as much as possible so as not to injure the mucous membrane on the posterior wall of the pharynx, and the uvula, which gets very edematous and causes considerable annoyance. As to the hemorrhage, the easiest place to control it is on the table while the patient is still under the anesthetic. The blood supply comes from many small vessels, branches of the facial and lingual; they are the tonsillar, ascending and descending palatine, ascending pharyngeal, and dorsalis linguæ. These vessels supply the tonsils, the tongue, the fauces, and the uvula. There is free anastomosis between them. Occasionally one will see a sharp hemorrhage from one of these vessels, usually a branch of the tonsillar. There are many methods of controlling these hemorrhages and many instruments have been devised for that purpose, but none are really satisfactory and most of them are complicated. The mouth is an exceedingly difficult place to work in and it is very trying to have to ligate a bleeding vessel, and often the ligature comes off when the patient begins to swallow or vomit. Probably the simplest and the most satisfactory way of controlling a bleeding point is to grasp the bleeding vessel, or point of bleeding in a curved clamp, and with a suture of number 2 catgut in a small full curved Kelly needle, whip a couple of sutures over and over the clamp, in the manner the gynecologist treats the stump of the broad ligament. These sutures will hold.

The after-treatment consists of liquids and simple cleansing mouth washes, catharsis, and swabbing of the fossa the day after the operation with an iodine mixture. Swallowing is pretty painful for a few days in adults; children seldom complain after the first day. The white membranous-looking lymph patches remain in the throat for about ten days or a week, at the end of which time the throat is usually well. Patients should stay quietly in bed for at least three days.

In regard to this operation upon adults, I can say with feeling that it is far from being a pleasurable event. Anyone who has done many tonsillectomies on adults must have noticed the extreme exhaustion, both mental and physical, which follows this operation. It is out of all proportion to the amount of trauma induced, and it is the writer's opinion that it is due to shock, both psychical and traumatic. Since Crile's theories have been advanced and substantiated, I have been wondering why his "anoci-association" operation could not be applied to these cases I speak of. I have done this on several cases with more than satisfactory results. If possible I send the patients into the hospital about two hours before I expect to operate. They receive a hypodermic injection of morphine about half an hour before they go to the operating room. The anesthetic is started with nitrous oxide and switched to ether when the patient is under. The pillars of the fauces are well infiltrated with a 1 per cent. solution of novocaine and 1/400 adrenalin, when I proceed in the usual way with the remainder of the operation. When the tonsils are removed and the fossæ are dry I inject a solution of quinine and urea hydrochloride in the strength of ¼ per cent. As a rule there has been little or no pain for two or three days and the general weakness which so often lasts for a week or ten days is materially reduced.

I have not had enough adult cases to arrive at a definite conclusion, but I am certainly satisfied that the patient's postoperative condition is much more comfortable under this procedure than it is without the use of these nerve-blocking solutions. It would be much more satisfactory if we were able to use nitrous oxide exclusively, but unfortunately I am afraid that it would not be satisfactory if possible, but I propose to try it at some subsequent time.

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BACILLUS COLI INFECTIONS IN INFANCY AND EARLY LIFE.*

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It is my purpose to discuss briefly some of the diseases of infancy and childhood which are caused by the *Bacillus coli*.

1. First in consideration are infections of the brain. Although many textbooks mention the *Bacillus coli* as an etiological factor in meningitis, yet there are few authentic cases reported. Smith of London has collected 32 cases, in only nine of which the colon bacillus was found in pure culture. Of these Holt reported two. To this list may be added one case which Dr. Nicoll has observed and one case which occurred in my service at the Nursery and Child's Hospital several years ago. Dr. Zinsser identified the organism obtained from the spinal fluid as a colon bacillus.

In these cases, which were mostly all young babies, the condition was secondary to inflammation of the intestinal tract, navel, or bladder, otitis media, or spina bifida. Smith concludes that it may be either serous or suppurative. The symptoms are the same as of other forms of meningitis; the prognosis is not invariably fatal.

2. In the respiratory tract the *Bacillus coli* is rarely the only cause of inflammatory processes. It has been found in pure culture in the sputum of patients suffering from pneumonia, according to a case reported by Meara and Niles. Pearson, in the *British Medical Journal* of 1909, reports a case of empyema following a pleurisy and bronchiectases in a boy of seven years. The *Bacillus coli* was found in pure culture in the discharge.

Schroter and Weinberger report several cases of bronchopneumonia caused by this organism.

At the Rockefeller Institute and at the Research Laboratory of the Board of Health there were no case records of pneumonia caused by the *Bacillus coli* alone.

3. In hemorrhagic septicemia of the new-born, or Winckel's disease, a generalized colon bacillus infection has been found. This disease is characterized by marked prostration, vomiting and diarrhea, cyanosis, intense general icterus. The urine, which is passed frequently, is small in amount, smoky in color, and contains hemoglobin. There is usually a fatal termination. In six cases reported by Wolcyznski the infection was supposed to have been conveyed by infected spring water used for cleansing the mouth.

*Read before the New York Academy of Medicine, May 25, 1914.

4. Dr. Anna Williams has reported several cases of acute catarrhal conjunctivitis in which a colon bacillus was found in nearly pure culture.

5. In diseases of the intestinal tract it seems useless to try to discriminate between the *Bacillus coli* and the many associated organisms of the colon group. It has not been proved that the colon bacillus, *per se*, is responsible for the many forms of intestinal disturbances. With the possible exception of that condition known as the intestinal infantilism of Herter and of a brief period in the new-born, the *Bacillus coli* is always present in the intestinal tract. If the body resistance be lowered or if there be an abrasion of the mucous membrane, this organism may prove a source of great danger to the individual.

Nuttall and Thierfelder, from their experiments upon guinea-pigs removed by cesarean section and fed upon sterile food, concluded that intestinal bacteria were not essential to normal nutrition. On the other hand, Schotelius found that chickens fed upon sterile food were retarded in development and showed normal growth only when given food containing bacteria. Leven found that some animals in the Arctic region have no bacteria in the intestinal tract. Herter says that these experiments and findings are, indeed, interesting, but fail to apply to the human organism. He believes that the importance of this class of bacteria lies in their capacity for checking the development of organisms capable of doing harm.

It is not within the province of this paper to discuss the many allied organisms of this group which are held accountable for the severe forms of dysentery found in infants and young children. As Zinsser says: "Whereas, the *Bacillus coli* may aggravate morbid processes by the formation of gas, in an excessive carbohydrate diet, they do not of themselves take part in actual putrefactive processes In most intestinal diseases they actually play but a secondary part."

6. Finally, there is a most interesting group of cases resulting from an infection of the urinary tract by the *Bacillus coli*.

In children this condition is most common during the first two years of life and the majority of cases are in girls. Thomson reports 79 per cent. in girls, Goffert 90 per cent., and Morse 60 per cent. This may be due to the anatomical fact that the short wide urethra of the female is only one-fifth as long as the male urethra and may easily become infected from soiled genitals.

The modes of infection are: (1) Descending by the blood through the kidneys; (2) ascending through the urethra; (3) transparietal, or by contiguity through some lesion of the intestinal mucous membrane. As Morse says: "The mode of infection is not always the same; in girls it may be ascending, in boys transparietal, while in both sexes occasionally it may be hematogenous."

Varieties. — Bacilluria. — Characterized by the presence of the *Bacillus coli* in a urine which is highly acid. There may be a lack of all constitutional symptoms. Sometimes there is enuresis and a marked anemia.

Pyelitis.—Involvement of the pelvis of the kidney, accompanied by marked constitutional symptoms, often associated with inflammations of the intestinal tract, large or small amounts of pus in an acid urine, high or low fever of the remittent type, protracted course.

Suppurative Pyelonephritis.—The most severe form of this infection, with multiple abscesses in the kidney, pus in the urine, more marked constitutional symptoms, chills and fever, recovery rare.

The mortality, exclusive of bacilluria, is about 10 per cent.

These conditions doubtless explain many cases of obscure high fever which formerly were associated with malaria or typhoid.

Treatment.—Mild cases recover with little or no medication. As a rule, however, the treatment must be continued a long time, as the condition has a tendency to recur. A diet suitable for increasing fluids should be given.

Potassium citrate may be given in increasing doses, 30 to 180 grains a day. Sodium phosphate is recommended as a laxative.

Hexamethylenamine, 6 to 60 grains a day, with sodium benzoate. For the liberation of formaldehyde the urine must be acid. For this purpose hydrochloric acid may also be used. The dosage must be very small at first, and the child watched carefully for any sign of kidney irritation, albumin or blood in the urine.

Concerning the utility of vaccines reports differ greatly. Thomson thinks that they may do good in acute but not in chronic cases. Morse believes that vaccines do not accomplish much. Freeman has found that vaccines in acute conditions affect the constitutional symptoms favorably, but do not inhibit the growth of bacteria. He has been as successful with commercial as with autogenous vaccines. Dosage 10 to 100 million at four or five-day intervals.

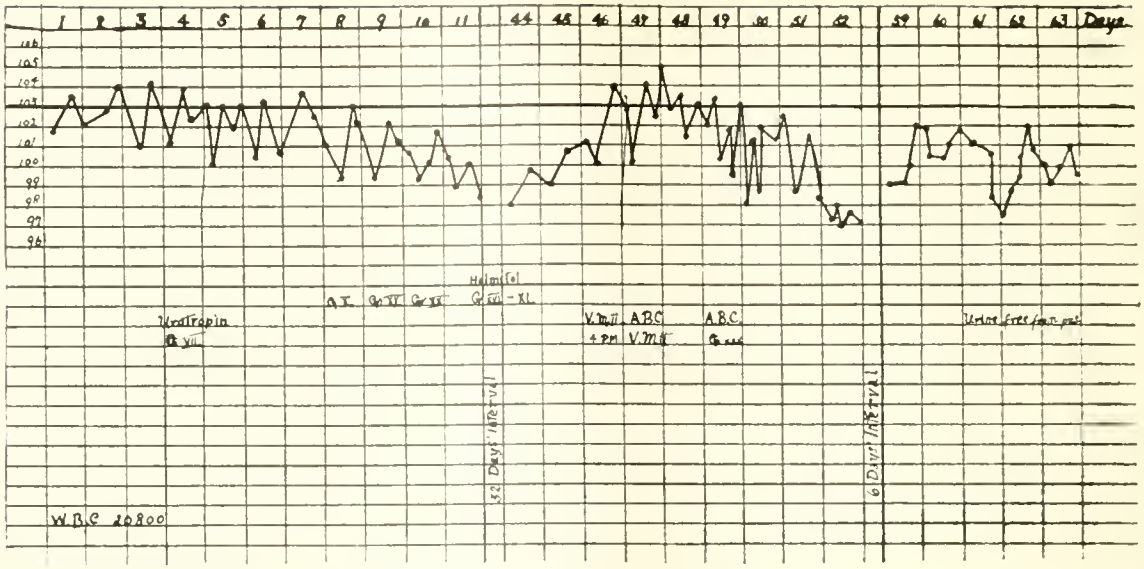
The accompanying charts illustrate (1) the protracted course of pyelitis, and (2) the unsatisfactory results of treatment:

Case I.—A. R., 20 months; female. Under observation 71 days. When seen with the attending physician the child had been ill for one week without marked constitutional symptoms. Temperature ranged from 101° in the morning to 104° in the afternoon. Physical examination was negative. Urinary examination was advised, and the urine was found to contain a large amount of pus. Blood examination showed a leucocytosis, 20,800. The patient was given urotropin in increasing doses, starting with 1 grain, which medication was continued for over a month, the daily dose amounting to 30 grains. At this time there were only a few pus cells found in the urine. During the next 32 days this treatment was alternated with the A. B. C. mixture in daily doses of 33 grains, the temperature ranging from normal to 99° and 100° in the afternoons. At the end of this period there was an exacerbation of the attack, temperature ranging from 100° to 104° in the afternoons. The specimens of urine contained a large amount of pus and bacteria. Vaccines in doses of 10,000,000 daily were used upon two occasions. Their use was followed by increased temperature and marked constitutional symptoms, so that they were discontinued.

The temperature fell to normal at the end of a week, and continued normal for six days, when there was a second exacerbation, which, however, lasted for only six days, the highest evening temperature being 102°. The amount of pus in the urine was small. In the meantime the child had gained over a pound in weight. The mother was advised to discontinue taking the temperature and to send the child to the country.

Case II.—J. H. Six months. Male. Under observation for over 100 days. Chief complaint upon admission was vomiting and diarrhea; duration eight days. Family history negative. Physical examination showed a poorly nourished child with marked signs of rachitis. There was a slight stiffness of the neck and a tendency to opisthotonos. Two weeks after admission a condition of tetany developed which continued for over two months. There was no Kernig sign and lumbar puncture was negative. The urine was found to contain a large amount of pus and bacteria.

Soon after admission the child was given potassium

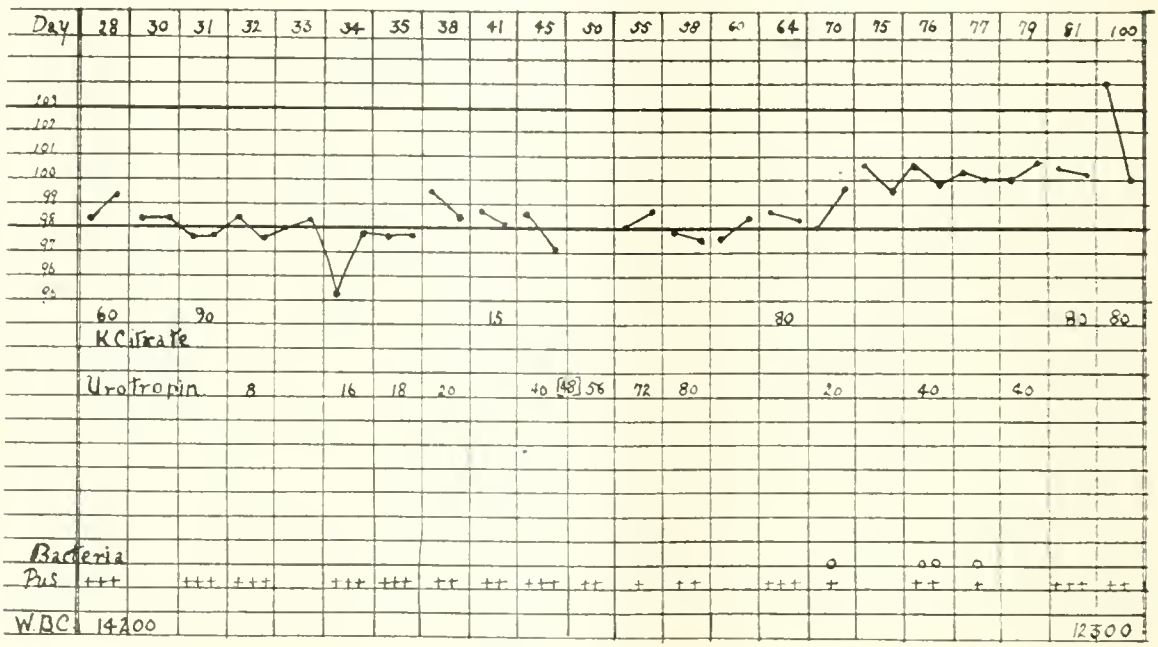


CASE. I.—PYELITIS TEMPERATURE CHART.

citrate, 60 grains a day. This was continued for eight days, and as there was no diminution of the amount of pus and bacteria in the urine the patient was then given urotropin with sodium benzoate, 1 grain of each, 8 grains a day. This was continued for three days, the temperature during this period being subnormal. The urotropin was increased to 16 grains a day and the next day was increased to 18 grains without any effect on the amount of pus or of bacteria. Three days later it was increased to 20 grains. As the pus in the urine had diminished somewhat, potassium citrate was again given, 15 grains p.d. This was discontinued after four days, and urotropin in 40-grain doses was given; increased to 80 grains a day during the following ten days. At this point the amount of pus diminished perceptibly and there was no bacteria in the urine. Four days later both the pus and the bacteria appeared in considerable amounts, and potassium citrate was again given in 80-grain doses. Six days later the urotropin was continued in 20-grain doses. This time there were no bacteria, and the urotropin was increased to 40-grain doses four days later. This was discontinued and potassium citrate was given. Three days later pus and bacteria again appeared in the urine. Potassium citrate was given in 40-grain doses. This was continued for four days. Ten days later, as there was a large amount of pus and bacteria, urotropin was given in 40-grain doses with dilute HCl. The amount of pus and bacteria diminished considerably, but unfortunately at this time the child developed a nasal diphtheria and was transferred to the Hospital for Contagious Diseases.

In conclusion the following observations should be emphasized:

1. In children the *Bacillus coli* may invade the nervous system, causing a meningitis indeterminable clinically from other forms.
2. It has been found in pure culture in diseases of the respiratory tract.
3. It may produce a septicemia, as is found in Winckle's disease and other reported conditions.
4. It has been found in acute catarrhal conjunctivitis in children.
5. It doubtless acts with other organisms of its group in diseases of the intestinal tract.
6. In the genitourinary tract the *Bacillus coli* may be the cause of enuresis, cystitis, pyelitis, and pyelonephritis, these conditions accounting for many of the previously unexplained high temperatures with severe constitutional symptoms.
7. As the course of a pyelitis is frequently protracted and as there are often exacerbations of



CASE II.—PYELITIS.

symptoms after apparent cure, the treatment must be persistent and should be continued until the urinary findings are normal.

8. The most satisfactory treatment appears to be in the use of alkalies or in the guarded use of hexamethylenamine in increasing doses.

9. The vaccine treatment of pyelitis should be considered especially in obstinate cases and when other methods are not successful.

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50 CENTRAL PARK WEST.

ULCUS CRURIS INVETERATUM.

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IN this wonderful day of triumphant serology, with its dazzling array of antibodies, antigens, amboceptors, complements, precipitins, agglutinins, sera, antisera, and vaccines, digging to the depths of the causes of things, and fighting in the very stream of life the microscopic agents of destruction, how pitifully sordid, dull, and commonplace will be the discussion of such a subject as chronic ulcer of the leg. It would appear that the last word must have been uttered on this tiresome topic ages ago. And yet it would also appear that the *right* word had not been uttered or appreciated, for like Tennyson's brook it may be said of this lesion "that men may come and men may go but I run on forever." It is fair to assert that every sort of expedient, rational, irrational, deductive, and empirical, medical and surgical, has been exhausted on this Gibraltar of pathological stubbornness, and yet as far as general results are concerned, we are just about where we started. Yet the subject, passé, ennuyant, and repellant as it may be, is of great importance to the general practitioner, because, as the late Lewis A. Sayre declared when I was a student, "more reputation has been won or lost by the young physician in treating ulcer of the leg than in any other way." Literally true or not, this opinion of a very able man illustrates the proper attitude to assume toward what is ordinarily considered a very thankless task. The condition is very common, very distressing, and very resistant. Here is a combination of incentives to arouse all our fighting blood, instead of a pusillanimous impulse to flee when we are confronted with the problem. There is hardly in the whole range of applied therapeutics an analogous situation. Other rebellious processes goad us to commensurate activity. We set our jaws and try on, and forever on. The severer the test the more determined is our response. And we are rewarded repeatedly for our grit and perseverence. But when we are brought face to face with an ulcus cruris, we are seized with an uncontrollable panic and turn tail and run in an utterly shameless manner. We are hopeless from the start and wish that the whirl of fortune had afflicted some rival with the unwelcome visitation. All our knowledge of pathology, of local circulatory disturbance, of secondary infection, of the laws of physics, seems to vanish in the wave of imbecility that sweeps over us when we are expected to apply it to the business in hand. There is nothing obscure about the cause or the condition in leg ulcer. They are appreciable to the primer class in pathology. There does not appear a single adequate reason why the so obviously simple should be so absurdly disconcerting. Yet a reason there must be, adequate or inadequate. This can be nothing else than the constant failure to effect a cure. And this can be due to nothing else than misdirected effort. This is not intended to be a sweeping criticism and condemnation of everything hitherto attempted. Far from it! Somewhere in the monument of monographs erected to this amazing anomaly, will be found imbedded the touchstone clarifying the whole situation. There is no doubt in the world that these rebellious lesions are occasionally cured. But so many clinicians have claimed results from methods subsequently shown to be unfruitful that we are beset by uncertainty and suspicion. We try and fail. We try again and fail. About the time that we begin to lose confidence in ourselves the patient has reached the same conclusion. The issue is inevitable.

It is conceded that no intelligent effort can be made without a correct diagnosis. In these days of the liberal dissemination of syphilis through all classes of the community this is not the easiest object to attain. There are many complicating and distracting factors, that either lead us utterly astray, or balk us of complete illumination. Ulcer of the leg due to other causes is to be differentiated from luetic ulcer. This is of commanding importance because one might treat a specific ulcer with misguided perseverance along the lines laid down for the non-specific sort, and would not get a result in a score of years. Nothing but the antiluetic remedies will touch it. How is the differentiation to be made? The Wassermann, if available, may determine it at once. But one must not forget that there is a possibility of error here, as shall be shown later on. If the Wassermann cannot be em-

ployed, the characters of the lesion must be depended on to guide our judgment. Certain features are said to be distinctive of luetic ulcerations. The sides are punched out, neither sloping nor undermined. The base is sloughy, and exudes an offensive discharge. There is very little surrounding inflammatory infiltration. The shape is round, nephroid, magnetoid, or serpiginous. The last term applies to that peculiar fluted edge caused by the intersection of several circles, the included lines being lost in the ulcerous excavation. Pain is remarkable by its absence. If a reliable history is procurable (a marvel notoriously rare), it will transpire that the first manifestations of the local disturbance was the formation of a doughy mass in the subcutaneous tissue. This gradually protruded under the strained and empurpling skin until there was a solution of continuity, whereupon the center sloughed out leaving a clean cut pit of even base and perpendicular sides with little encircling inflammation. In a general way the round lesion would resemble the hole made by an apple corer. It is indubitable that such a history and such a lesion would need no confirmation from the laboratory. But our course is not always as smooth as that. Histories are untrustworthy, and the local condition owing to duration, irritation, situation, and ill-directed medication, may lack all of the enumerated characteristics. There may be pain and quite pronounced pain at that if the patient be of the neurasthenic sort, or if the lesion be exposed to pressure or friction. Secondary infection may contribute to the same result as well as to the obliteration of another distinguishing sign, by the development of an inflammatory areola. To reduce this to concrete form, a lesion over a malleolus or on the posterior border of the os calcis may be accompanied by very severe pain because of the pressure of the shoe and the constant disturbance of the tissues in walking. Want of cleanliness, especially in the care of the feet, will often bring about the aggravation of mixed infection. It is further predicated of luetic ulcerations that they are prone to invade the upper half of the leg, leaving the lower half free to the ravages of the varicose variety. This is true in great measure, but is far from being invariably true. The proposition might be more satisfactorily stated another way, to wit, that ulcerations involving the upper half of the leg are most likely luetic. Those involving the lower half may be of either etiology. The configuration may be robbed of its identity by the circumstances already mentioned. If the fluted edge persists only one opinion is tenable. But if it is hewn away by the march of secondary infection, there may be some perplexity. The circular outline may be replaced by a perfect parallelogram. This is unusual but must be reckoned with because of its occasional occurrence. I saw a lesion extending from the os calcis several inches up the back of the leg and maintaining an even inch in width all the way. The angles were all right angles. The patient was elderly, and had varicose veins, and hence the original diagnosis had been varicose ulcer. This brings us to another consideration that is frequently overlooked. There is no reason why a syphilitic should not have varicose veins, and consequently a varicose ulcer. We are ready to ascribe every abnormality in such a person to his infection, while it is perfectly obvious that he may acquire diseases absolutely unconnected therewith. Therefore when the laboratory returns a plus Wassermann one must not always consider the incident closed. One may find that the indicated treatment (be it salvarsan, mercury, or iodide of potassium) will not bring the case to a satisfactory termination. Then it will be necessary to look to other possible factors in the causation, and eliminate or neutralize them. Epitheliomatous degeneration in the margin of an old luetic ulcer will prevent the full response to specific medication. This is not common, but it is commoner than we are apt to suspect. The rolled, pearly border indicative of epithelioma is not immediately in evidence. Gradually, however, the character of the border will undergo a change. It will become denser, firmer, and cordlike. It will give the impression that the activity of the process has been transferred to it. It will force itself on our observation as something distinctly individualized and apart from the included excavation. A biopsy at this point will disclose the peculiar pearls, cell-nests, or globes of cancerous degeneration. Operation if the lesion is not too extensive with intensive antiluetic treatment to control the underlying etiological element is the only course to follow. If ablation cannot be safely accomplished the limb should be amputated. In such a situation the complication has assumed dominant importance, and the original disease is subordinated as a complication. Temporizing and palliating are now entirely out of order. Free-hand surgery is the only agent worth a moment's consideration.

Epithelioma disposed of, let us reflect again that the mechanical difficulties producing venous stasis in the lower extremities are just as liable to occur in the man with a positive Wassermann as in the man without, and that after we have met the specific infection in the latest approved scientific manner, our disappointment will be keen unless we employ the measures indicated in the ordinary varicose condition. Tuberculous ulcerations interject another element of uncertainty into the differential diagnosis. These are rather uncommon on the lower limbs, and their occurrence is attributable to extreme degrees of erythema induratum. Ordinarily this tuberculoma manifests itself in the formation of several nodules in the calf of both legs, subsequently undergoing molecular disintegration with absorption, or superficial ulceration with gradual retrogression and cicatrization. If these ulcerations adhere to type and remain on the back of the limb there may be little difficulty in identifying them. But sometimes they appear on the tibial aspect, and are irritated by all-advised and meddlesome medication. Then they are obscured by the adventitious elements superadded. Pain is not a constant accompaniment of erythema induratum, but may exist, and when associated with a slowly spreading ulceration (or several of them) in an area of brawny infiltration the probability of confounding it with the lesions of a sagging venous plexus is markedly enhanced. Attention to the history may elicit illuminating evidence. Involvement of the lungs will be highly suggestive. But the caution administered in discussing luetic lesions will not be amiss in this connection. Every pathological condition in a tubercular subject is not necessarily tuberculous. There may be independent regional disturbances of circulation. Treatment of the general condition will not suffice for these. We will assume now that we have eliminated all possible sources of error and that we are dealing with a plain ordinary old varicose or parenchymatous ulcer of the leg. It has existed for several

years; perhaps for a generation. It presents a picture familiar to every physician who has made abortive attempts to cure it. The repulsive discoloration of the turgid tissues, black, brown, purple and coppery red, the yawning gap sunk deep in their midst, with rigid edges, sloping craggy sides, and base of gray resistant granulations, resembling some miniature valley of desolation, in a blighted lava zone; above the bloated convolutions of englutted veins; encircling all the puffy pasty bluish hue of collateral edema; this combination of unsightly features is difficult to parallel except in swift advancing mordant cancer. The amazing thing about such lesions is that they will persist year after year, with steadily encroaching border, steadily increasing pain and steadily augmenting disability, and yet never seem to threaten life save by the astonishingly remote contingency of secondary malignancy. There is rarely a complicating phlebitis, rarely a systemic infection. The same amount of irritation sustained by any other part of the body would almost positively cause a carcinoma. And still further confounding to our sense of fitness is the circumstance that varicose ulcers are commonest in patients within the cancer term. And as if to emphasize the remarkable exemption of these conditions from malignant degeneration, its occasional occurrence has created some excitement and the adoption of a new title to commemorate the discoverer.

The impression might be gathered from the tenor of this paper that varicose ulcer was well-nigh incurable. That would be a misconstruction of my meaning. It is not incurable under favoring circumstances and intelligent manipulation. Favoring circumstances are the willingness and the ability of the patient to obey instructions. Some patients have no resolution, and some are driven by poverty to damaging disobedience. Here is a favorable opportunity to advance another reason for the nonsuccess of so many practitioners in managing this stubborn affliction. It is a fact that most of the cases occur in poor people. This is in the very nature of things. People of means are not compelled to do the arduous work of their less fortunate brethren. If gravity congestions are imminent in the lower limbs precautionary measures can be taken to forestall them. Such people can rest, can easily obtain appropriate appliances and be guided by solicitous advisers. Neglect, such a potent factor in the ailments of the poor, is inoperative here. So it obtains that pretty nearly all the cases are in a class who can reimburse the physician very meagerly for his ministrations. It is human to fall short of an intense enthusiasm in approaching such a situation. The stimulation of adequate recompense is lacking to arouse the energy necessary for the successful prosecution of any important project, indifferent attention is the inevitable consequence, and indifferent results the inevitable issue. This may rub our pseudohumanitarianism on the raw, but it is absolutely true. We may be very much occupied with works of charity, but our efforts in its sweet service will not be attendant with such a concentration of purpose as when we are reaching out for the flesh pots of Egypt.

However, we may be able to interest the younger men in the relief of these unfortunates, with the assurance that much repute if few shekels will be the reward of perseverence. Of course this will not appeal to those lofty spirits who aspire to be specialists without the preliminary drudgery of being capable physicians. Conceding that some earnest men are ready to pursue the subject to the end how shall we determine adequate ways and means?

First and foremost, be it remembered that ulcus cruris is a dynamic condition caused by the pull of gravitation on an engorged venous system. In the prone position both causative factors cease to operate. The pull of gravitation is removed and the blood flows out of the distended vessels. Therefore, the two principles of rational treatment are to disgorge the veins and neutralize the force of gravity. The broken down tissue is not the disease. It is only the effect of it. This is too often lost sight of in empirical attempts to cure. If the circulatory derangement can be adjusted the sequelæ will disappear as a matter of course. Hence the utter and childish nonsense of trying to close up the hole by agents supposed to favor granulation and cicatrization. If by any chance we should work such a miracle it would promptly cave in again on the suspension of treatment. So it is that the long array of salves and powders and lotions that have been recommended for their prompt reconstructive action on the ulceration is *a priori* absolutely valueless. Experience sustains the correctness of this deduction. Scarlet red, ichthyol, thymol iodide, zinc oxide, ammoniated mercury, boric acid, trypsin, etc., are individually and collectively about as effective as so much distilled water. The partial results sometimes noted are attributable to the mechanical compression simultaneously employed.

This leads to the consideration of another senseless measure developed in the blind groping for a speedy cure of ulcus cruris. Some powerful intellect conceived the amazing idea that distilled water injected in trifling amounts anywhere under the skin had an undetermined but specific action on the hole in the leg. It was tried out in several hospital cases and made quite a stir—for a while. It did not transpire how the remedy acted. The author did not know himself. It acted; that was all. Eliminating the possibility of self-deception, there must have been contributory elements, because nobody else could duplicate the results. And when we pause to consider how 5 c.c. of distilled water could have any effect in restoring the valves to disorganized veins, or in suspending the action of the law of gravitation, we do not wonder at the coolness of the medical profession with regard to it. Another device that attracted some attention a little while back was packing the chasm with powdered zinc oxide level with the skin and applying a wet boric acid dressing. This had the same defect of ignoring the real etiology, and naturally it fell into disuse. One actual merit it did possess, and that was in acting as a deodorant. This effect was accidental and astonished the clinician quite as much as it delighted the patient. If our only purpose were to remove odor the method just described could not be too highly recommended.

Any method of treatment that leaves out of account the underlying circulatory stagnation may be put aside as worthless. The rational method is to determine, if possible, what is damming the blood back in the veins, remove this, if it is removable, or lend the vessels artificial support from without. The ulcer will take care of itself if the patency of the blood stream is restored. It is not always our good fortune to discover the primal cause of the venous obstruction. We may deduce certain conditions capable of acting in this capacity, but in

the individual case we may not be able to make a demonstration. And even if we are assisted by a fortuitous combination of circumstances in hitting on the cause, we may not be able to remove it, for instance, if it happen to be cirrhosis of the liver. Still it should always be sought for, as occasionally it may be accessible to the hand of the surgeon as in fibroma of the uterus; or to the ministrations of the internist as in chronic constipation. Anything making pressure within the abdomen may be the efficient agent of peripheral congestion. For the matter of that anything making pressure on the vessels anywhere above the site of the lesion may be similarly operative, for example, a truss worn for hernia, or a circular garter below or above the knee. The constriction of the abdomen in form-moulding corsets, causing a ptosis of all the abdominal viscera with the development of intestinal kinks, and stasis; and also the peculiar conditions incident to pregnancy offer a reasonable explanation of the preponderance of ulcus cruris in women. This is strengthened by the tendency of the multiparous to run to fat. If these factors are fortified by a liberal indulgence in alcohol the result is inevitable.

Occupations requiring constant standing predispose to venous sluggishness in the legs. It is noted that motormen are more often afflicted than conductors, and postal clerks than letter carriers, cooks and laundresses than chambermaids. Alcohol congests the portal system and aggravates every other agency, tending to the production of varicose veins. Cardiac disease with failing compensation, and nephritis with edema, will materially assist in the retardation of the ascending circulation. Emphysema circuitously effects the same result.

It may be said that anything lowering the vitality of the individual, and consequently the tonicity of his blood vessels, may be contributary causes. In general terms experience indicates a predominance of vascular atonicity in the intemperate, the obese, the overworked, the multiparous.

Behind the whole question of predisposition lurks that vast indefinite shadow of luetic infection which may be pernicious not only in the direct production of its own peculiar local ulcerations, but in its remote effects upon nutrition, and the intima of arteries—and veins. That explains why competent observers have advocated mixed treatment in all leg ulcers, on the off chance that the frankly varicose might have a possible, long-distance, luetic etiology.

Having accomplished what was feasible in the removal of obstructive factors how shall we handle the local pathological process in the leg? Nothing applied to the ulcer can avail in the least, save in removing foul secretions and deodorizing. The distended veins must be emptied and kept empty. Their valves having broken down they are beyond service unless their lost elasticity can be replaced by an artificial contrivance. Two modes of procedure are available, depending on a slightly different principle. One is that advocated by Lewis A. Sayre nearly thirty years ago, and affording splendid results in patients with a little courage. The swollen limb is immersed in a pail of hot water to the knee. After fifteen or twenty minutes it is removed and a sharp scalpel drawn through the edge and base of the ulcer in a dozen incisions. These involve the whole depth of the inflammatory tissue down to the normal stratum. The bleeding is profuse, because the heat previously applied has temporaliy increased the chronic congestion. This bleeding is allowed to continue for fifteen or twenty minutes and its direct and immediate effect is to deplete the veins that have been overloaded with blood for years. Gravity now aids instead of hampering us. When the flow has slackened, the ulcer is washed with a bland antiseptic like boric acid lotion, dressed with an antiseptic powder like aristol, and basket-strapped, the strapping extending from the ankle to the knee. Over this is applied a sung bandage beginning at the base of the toes and ending at the knee. This dressing is changed in three days. The second dressing is the same as he first. In a month's time under this management, and reasonable attention to the rules of right living, this old grisly stubborn and repellant reproach of the medical profession will be no more. A proper support will prevent a relapse.

The second means of attacking the condition is as I have already hinted based on a slightly different principle, but it is frequently successful in patients with resolution and perseverance. We proceed on the idea of supplying the lifeless swollen veins with an artificial elastic support that contracting and stretching with the movements of the leg will force the blood forward and keep down distention. In this procedure the ulcer itself is practically ignored. The cause is attacked with the assurance that all its consequences will clear up if it is removed. The underlying conception is identical in both methods, viz., to empty the veins. The difference is in the manner of actuating it. In this second procedure a rubber bandage is applied to the limb from the toes to the knee *before getting out of bed.* It is worn all day and taken off *after the patient gets into bed again.* During the night the swollen vessels reduce. The bandage is put on before they have a chance to fill, *i.e.*, before the patient gets in the upright position. By this method the varicose veins are practically removed as they never have an opportunity to sag into a varicose condition. Immediately all the ill effects of varicosity begin to pass away, and in a few weeks the ulceration will heal by the restoration of normal circulation through the part. This is the method proposed by Dr. L. D. Bulkley, and urged on a reluctant and dubious profession for years. It has one drawback. It is apt to set up a dermatitis in some people. But this is never marked, and with a little resolution can be tolerated with the prospect of a greatly counterbalancing advantage.

As remarked, the ulcer is practically ignored. At night a little ichthyol ointment is applied, but this is carefully wiped away in the morning before applying the bandage. A small bit of gauze is put between the ulcer and the bandage, more with the idea of saving the bandage than protecting the ulcer. At night the bandage is rinsed in cold water and looped over a chair to dry.

Both of these methods presuppose a certain amount of nerve on the part of the patient. If deficient in this regard he will not allow the incisions or persist against the discomfort of the rubber bandage. But it is only those with resolution that accomplish anything. The spineless, the self indulgent, the vaccilating, and sceptical neglect, for reasons peculiar to their characters, the relief that is offered by either of the two equally scientific and successful forms of treatment. To quote the vernacular, this "goes" for the doctor as well as the patient.

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THE END OF LIFE.

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It is an interesting fact that the evolution of our society has been such that while we devote much attention to the smallest details concerning our entrance into life, we pay but little attention to those concerned with leaving it. There is, indeed, a great contrast between the careful preparation that is made for the reception of the newborn child and the unpreparedness and neglect which in many cases we find so conspicuous in the hour of death. The former event we anticipate with the keenest eagerness; the latter we would postpone indefinitely, for death, the most unfailing of visitors, is always expected to knock at some other door before arriving at our own.

This contrast between our attitude toward birth and our attitude toward death is but the outward expression of our hopes and our desires. We have come to look upon birth as symbolic of all that is bright and joyful in human life; we regard death as the expression of all that is sorrowful. We are constantly impressed with the fact that death signifies the parting of the ways, the leaving of the world we know for the mysteries of a great beyond, the separation of lifelong ties, for aught we can prove otherwise, forever. There is, indeed every reason why we should prepare for the newly-born in a way that betokens love and watchful care and gentleness; but there is no reason why, because death is unwelcome and undesired, we should be any the less vigilant in the interests of the one who is doomed to die than we were previously; no reason why, because the end of life seems inevitable, we should be seized with panic at its approach and turn our faces to the wall. Our attitudes in these two great episodes of the drama of life are all the more remarkable when we consider that the babe who is conducted to the cradle from its mother's womb is but an insentient organism, wholly unable to react to its environment in any but purely reflex ways; while the adult who faces death, even when appearing to have lost consciousness, is frequently hypersensitive to the finest shades of light and sound. To the newborn child it can make no difference, however much we plan for his reception, whether his entry be in light or in darkness, or whether it be consummated in a palace or a hovel. To the dying adult it *may* make all the difference in the world whether death arrives with the shutters drawn or with the sunlight streaming through the window, or to an accompaniment of soft music or harsh words. It is to this much neglected phase of the end of life that it is our purpose to call attention, and to the obvious duty that it implies.

In considering the state of one who in the natural course of events is soon to die, the first question that naturally arises is whether or not he should be informed that death is impending. There are, perhaps, a few patients who should, if possible, be kept in ignorance of the fact that their illness will probably be fatal. But, in general, it may safely be asserted that one whose condition is considered hopeless should be apprised of the fact as early as possible. Most patients, however, will have reached the conclusion independently some time before the truth is told to them. But, in this connection, the manner in which the patient receives his knowledge is of the utmost importance. We are all familiar with the type of physician, so useful in fiction and on the stage, who, after carefully and seriously examining his patient, looks up and says: "My friend, you've got just three months to live." But the physician who leads his patient gradually and tactfully to the conclusion that death is at hand treats his patient with far greater kindness than the one who bluntly and coldly and at once asserts that "the jig is up."

Nevertheless, in view of our tenacity of life, no one, however hopeless his case may seem to be, should be left without some ray of hope. Drowning men grasp at straws, and sometimes they find them well worth the grasping. One has seen a patient *in extremis* with tuberculosis, emaciated, aphonic, and with horrid bedsores, restored by the wonders of Nature to a life of useful activity after being bedridden continuously for thirteen months; one has seen inoperable cancer entirely disappear where the science of man has played no known part in curing it; one has seen patients who have been given up by their physicians to die of infectious fevers snatched from the very jaws of death and cured by what seemed miracles. Nay, if we think this life of ours worth continuing and hesitate to cross to the world beyond, let us remember the old and trite aphorism: "While there's life, there's hope," and, remembering it, put it to good use. It is a comfort to some types of mind to feel that even after they have reached an apparently hopeless condition, we may after all be mistaken regarding their viability.

Since there is nothing more inevitable than death, we should naturally expect that everyone would keep himself in a degree prepared for that event. Yet those who have arranged their affairs with the end in view constitute a very small minority, and it is astounding how frequently even those who are forewarned through long and progressive illness fail to take advantage of the opportunity afforded them to put their house in order. Occasionally, but only with the greatest rarity, will one encounter such a spirit as Stevenson presents in "Will o' the Mill," who, when death appears, can say like Will: "I have been waiting for you these many years. Give me your hand, and welcome."

In the presence of death, the disability of the patient to manage his affairs makes it incumbent upon others to assume that responsibility. This responsibility, which is one of the most sacred of all responsibilities, falls upon relatives and near friends and, not infrequently, upon the physician. The old type of family physician, however hard his place may be crowded by the modern tendency toward specialism, will always maintain a position which is quite unique as an adviser and a confidant in extramedical affairs. The secrets that have been entrusted to him and the intimate knowledge that he possesses of his patients' affairs, gives him a function in the hour of death that is really far beyond the mere application of medical skill, however important and valuable that may be.

Man is by nature a religious being, and probably we could find no one, however stoutly he might deny it, who has not some faith in God. In the face of death, when no help from man can stem the tide, we turn instinctively toward our Maker. We do this in great companies, as in the case of shipwreck at sea, and we do it singly when death comes to us alone in obscure places. There are probably no rational beings who do not wish and try in some way to make their peace with God before they die. It is, therefore, a sacred and an essential duty of the physician to take every pains in his power to pro-

vide for his patient the solace which religion can afford. The physician, viewing the situation with the purely material consideration of cold, hard, scientific facts, may feel that when his science fails nothing else can be of avail. But when one has seen the resignation and the peace which comes with the ministry of pastor or priest, or the magic effect of hymn or prayer, one's materialism is likely to vanish like a mist.

Whenever possible, there should be opportunity, too, for the consummation of imperative matters of home and business. There is no end to the muddled affairs men leave behind that a tactful physician might have helped to avoid. How frequently we witness the frenzied effort of one who is dying to articulate the words to say something that should have been said long before! How often we see the dying harassed and disturbed by others in their attempt to secure information that they should have secured upon some earlier occasion! Men die without wills because they meant to make them on the morrow; they die with secrets which they would give a fortune to have divulged before it was too late; they die unconfessed and unreconciled in a thousand ways with never an intention of making so sorry an exit from the world. Happy is the man whose physician, coincidently with relieving his bodily distress, will help him get his house in order before he die!

As to the relief of the physical suffering of the dying, there is much to be said. Without some actual experience in the presence of death, it is difficult to imagine how frequently dying persons are permitted to suffer needlessly through the unintentional neglect of their attendants. The writer has stood by the bedside of many who were dying and watched the light flicker from their bodies; but he can recall no instance where something could not have been done for the patient that was left undone. Those who have passed through long and serious illness in which their comfort has been wholly dependent upon what was done for them by others are perhaps the best prepared to shed light upon the subject. An analysis of the sensations which such patients experience will give us many clues to the amelioration of patients in the time of death. A little thought upon this too little thought of subject will indicate how inhuman it is to cease our labor because we know that our charge is about to die, and how terrible it must be to the patient if it reaches his consciousness that all effort in his behalf has come to an end and that the battle is acknowledged to be lost.

What, then, can we do for the patient, if there is no chance to save his life? The gratitude of patients whose condition allows them to express gratitude shows how much little details of attention may mean to their recipient—even details that seem almost too trivial to make them worth considering. One of the chief causes of unnecessary suffering to which those unable to help themselves are often subjected is an uncomfortable position. By frequently changing the patient's position and by closely studying his attitudes and expressions, we can do him a great service by assisting him into the most comfortable positions attainable. We can arrange his clothes so that they will not annoy him. We can see to it that he has plenty of air to breathe, and, if it be available or indicated, we may provide great comfort by the administration of oxygen. By keeping his lips and mouth moist we can do much to allay suffering from thirst. We can keep his mouth clean, and attend to the excretory organs. We can do much to keep him warm with external heat. Above all, we can keep him free from pain. Morphia, the blessed banisher of pain, is at the command of all physicians—there can be no excuse for not invoking the peace its charms induce. In some conditions, such as the terminal stage of tetanus or meningitis, for example, the continuous administration of chloroform or ether to allay the spasms is a highly humane act that should not be neglected until the terrible convulsions have altogether ceased or the end has come. And in many other ways there should suggest themselves to the alert mind and the watchful eye of the *fit* attendant details of comfort that may be adapted to the individual case in hand.

But if our duty requires that we continue to devote ourselves zealously to the matter of physical comfort, it none the less requires that we be equally zealous to protect the peace and comfort of the patient's mind. We can never know just what effect the details of environment have upon the patient who lies in a semiconscious stupor preceding death; but we know what experience teaches in the case of those who are similarly situated in the course of serious illness from which they recover. It is, therefore, easy to reason by analogy from the one to the other. We have all experienced the unpleasant duty of entering a death chamber in which the patient is surrounded by well-meaning but misguided relatives and friends, crowded together in a close, foul-smelling room, all weeping and lamenting. Can one imagine a situation more inhuman or unkind? Or can one imagine a sorrier setting in which to make one's exit from the world?

The hours of sickness and death are the occasions upon which we expect friendship particularly to assert itself. There can be no greater blessing to one who is gravely ill than to look upon the hopeful countenance of some old and faithful friend. But for every friend whose presence is desired there usually appears another whose effect is quite the opposite. The supply of bores and bunglers always seems sufficient to go round. They usually manage, if given the remotest chance, to inquire within earshot of the patient how long the doctor thinks he's going to live, or to remark how sad it is that nothing can be done for him, or to regret that it will be so hard for Mary and the children when he's gone. Conversation of this lugubrious character within the hearing of the patient is common experience. The writer has even heard discussion of the details of the funeral within the hearing of a dying man who was cognizant of every word that was said. Can one imagine more heartless conduct in a society that has the presumption to call itself civilized? Let there be conversation around the patient, if you will—a mournful silence is by no means always to be desired. But let the conversation be directed with a view to its possible effect upon the patient's mind. There will be plenty of time for lamentation and the funeral after we have finished serving the patient during life.

There is, however, something to be said on the side of leaving the patient alone—of giving him a chance, as we say. While it is true that we much more frequently neglect our patients' comfort than otherwise, there are occasions when we add to his discomfort by the very multiplicity of attentions that we shower upon him. An excess of attention may easily be worse than not enough. Too many attendants fussing and bustling about in a noisy man-

ner must be most distressing to one who cannot raise his voice in protest. It is unjust to persist in disturbing the patient when he is already comfortable; it is unkind to keep on administering medicine by the mouth when he can scarcely swallow; it is cruel to keep up the use of hypodermic medication that can be of no avail. It requires a fine discrimination on the part of the attendant to know when the patient should be left alone. In "The Gate of Death," which is the record of the experiences of A. C. Benson upon the two occasions when he was near to death, the author states that his one desire was for solitude, and from this fact he deduces as a generality that one should be allowed to die in privacy. The experiences of others, however, lead us to the conclusion that it cannot be accepted as a standard that one should be left alone to die. Nevertheless, in view of the absolute lack of judgment so often encountered, one can readily imagine that the last prayer of many a patient might be: "O, Lord, deliver me from my tormentors!"

The immediate environment of the patient is, indeed, a matter of serious moment, and one to which we can hardly pay too much attention. It should be the custom, whether the case be one that is fatal or one in which recovery is expected to eventuate, to make the sick room as attractive to the patient as we can possibly make it. If there are in the house any pictures of which the patient is particularly fond, they should be placed where he can see them; if there are any odors which he particularly enjoys, as of flowers or foliage, we should try to provide them; if there is any music for which he particularly cares, we should endeavor to permit his hearing it. A knowledge of the tastes and temperament of our patients, and a careful study of the effects produced by the little details here suggested, would do much to mitigate the passing of life. Our Puritanical friends would doubtless be shocked to enter a house of death to the sound of merry music, or to find that the patient's cot has been carried to the roof so that he may hear the summer breeze stirring through the trees while he looks up at the stars. "Queer people over there," perhaps they'll say. Well, let them; convention and misery have more than once gone hand in hand. It is only convention, unsupported by philosophy, humanity, or common sense, that requires that the last conscious impression of this world shall be one of sorrow and suffering. There are two ways of looking at it, and, as in so many things, we allow the sadder to prevail. It is as though upon a college commencement day the atmosphere were permeated with regrets for the happy days just ending, instead of joyful confidence in a wider horizon of life that lies beyond.

We are often told regarding a patient that his case is hopeless and the doctor has given him up, or the doctor has stopped coming because he can do no more. One must submit that medical ideals and traditions cannot improve so long as there are physicians who give their patients up or physicians who can do no more. It must be an awful experience to the dying to sense from the conduct of the physician that he has given up the fight. No fight with death is ever lost until the final curtain falls; and if the patient has reposed his confidence in the physician, if he has given his life into his keeping, his confidence should be honored as a sacred trust to be guarded steadfastly to the end.

25 Second Street.

Medicolegal Notes.

X-Ray Photographs—Necessity for Verification.—In an action against a physician for malpractice in connection with the treatment of a broken arm two *x*-ray photographs were introduced for the plaintiff, one of which a medical witness testified he took before the operation was performed, the other afterwards. The defendant contended that there was no proof that either of these photographs correctly represented the condition of the arm at the time it was taken, and that they were therefore inadmissible as evidence. The use of photographs as testimony to the objects represented rests fundamentally on the theory that they are the pictorial communications of a qualified witness, who uses this method of communication instead of, or in addition to, some other method. In order to be admissible as evidence, such photographs must have the support of a competent person's oath. This rule applies to *x*-ray photographs, and where the witness who made the photograph, and who is the only person who can show that it does represent the fact as he saw it, fails to make an *x*-ray photograph admissible by testifying to its accuracy, it is not admissible and should be rejected. Here the witness merely stated that he took the photographs. He did not state that they correctly represented what he had seen, or how they were taken, or that he had ever taken an *x*-ray photograph before, or knew anything about how they ought to be taken. He gave no assurance as to the character or accuracy of his *x*-ray machine, or its condition or working order. While it might not have been necessary to establish all of these facts in order to make the photographs admissible under the rule stated, the testimony given was held to be insufficient to establish the accuracy of the photographs, which should therefore have been excluded.—Ligon vs. Allen, Kentucky Court of Appeals, 162 S. W., 536.

Liability of Operating Surgeon for Negligence of Hospital Nurses, etc.—In an action against an operating surgeon for damages caused by the hospital attendants in negligently leaving gauze in the wound after dressing it, causing pulmonary tuberculosis, it was held that an operating surgeon who operated at a number of different hospitals is not liable for the negligence of hospital surgeons, nurses, or internes in the after dressing of such wounds, if such operating surgeon is without knowledge of, or not privy to, such negligence.

It was held that a question to a medical witness whether it was the invariable custom among competent surgeons to personally apply all dressing following the operation where the patients are treated in hospitals was proper. The defendant was properly asked whether the dressing of wounds after operations in such cases was difficult, as bearing on his negligence in leaving the dressing of the wounds to the hospital authorities. As the plaintiffs claimed that the tuberculosis was the result of the gauze and rubberized silk being left in the wound, it was proper to ask a medical witness to state how, in his judgment, the sinus left from this wound became infected with tuberculosis, and what connection, if any, the tuberculosis condition of the sinus had with the operation or subsequent treatment of the case by the defendant. Evidence as to how long it usually takes such a wound to heal was held to be admissible. And evidence as to the custom in general hospitals in the caring for and treatment of patients after operation was admissible.—Hunner vs. Stevenson, Maryland Court of Appeals, 89 Atl., 418.

Contagious Diseases—Proof of Cause.—A policeman was dismissed from the police force of the city of New York on a finding of guilty upon charges of conduct unbecoming an officer. The specification was that he had contracted syphilis at some time in the past, and was then affected with the disease. In proceedings to review the determination it was held that a court may take judicial notice that syphilis may be contracted by a person entirely innocent of sexual commerce with one tainted therewith. No attempt was made to show that the policeman contracted the disease directly as the result of immoral practices or of loose conduct. On the other hand, he was not allowed to testify that such was not the cause of his affliction, if the existence of the ailment was established. For aught that appeared, the punishment of dismissal was inflicted for innocent misfortune, not conscious misdoing. The policeman was reinstated.—People vs. Waldo, New York Appellate Division, 143 N. Y. Supp., 818.

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CANCER STATISTICS.

"FIGURES," they say, "cannot lie"; yet of some notorious truth strangler one may hear remarked that "he lies like a bunch of statistics." One needs to keep these contradictory sayings in mind in taking note of the present controversy regarding the alleged increase in cancer. Writers of authority and statisticians of the first rank are notoriously at odds over this question, and each side supports its own contention with a mass of apparently irrefragable statistics. It may be conceded that figures, as such, cannot lie but they may be derived from unsound bases, and can be manipulated by an obstinately prejudiced, even though conscientious, statistician, in a way to mislead the most wary.

The general impression no doubt is that cancer is alarmingly on the increase and this impression is strengthened by many writers in both the medical and the lay press who seem to have the figures on their side. The value of these figures is, however, hotly disputed by men of equal repute as conscientious observers, who doubt the fact of an increase and believe that the spreading abroad of such alarming reports will react with cruel force upon the fears of many timid folk. They say that the apparent increase is due to the fact that the registration area, that is, the extent of territory in which approximately accurate mortality statistics are published, is constantly widening and that consequently the number of deaths reported as from cancer is growing larger each year. But while this would show an absolute increase it ought not to alter the relative mortality. There is, however, seemingly an increasing percentage of deaths from cancer as well as an absolute increase in their number. To this the reply is made that these mortality statistics are unreliable, especially in this country where the registration area is yet restricted and where physicians, even in the registration cities, are not trained to statistical accuracy. Both sides use the argument of an increasing exactness of diagnosis; one side contends that many tumors are now diagnosed as malignant which in former times would not have been so recognized, hence the increase in the cancer rate is apparent only; the other side says that in the old days the profession in general, as the laity even yet, was prone to pronounce all tumors, especially if pain-producing, cancerous, hence the more discriminating diagnosis of the present tends to minimize rather than exaggerate the fact of an increase in cancer.

As to the diagnosis of cancer *intra vitam*, it may be doubted whether there was any real improvement in that during the fifty years preceding the present decade, and even to-day (outside of the laboratory, whose findings are not yet absolutely infallible) the early diagnosis of malignant disease is largely a matter of conjecture. Early operation, which is now more common, might give opportunity for a more positive diagnosis, but if it really is as curative as present-day surgeons think, and not merely a postponer of the inevitable, its result should be to diminish the mortality rate from cancer. On the other hand, operation for so-called "precancerous" lesions ought to reduce materially the incidence of cancer, if they are right who preach that malignant disease is always engrafted on some previously innocent lesion.

Weighing all the evidence presented by one side and the other in this controversy, it seems permissible to believe that there is a slight increase in the prevalence of cancer at the present time, whether because the modern diet or mode of living is conducive to some fault of metabolism which lies at the foundation of malignancy or because the improved hygiene of to-day permits more people to live to the cancerous age. But the figures which seem to show this increase are not beyond disproof on skilful analysis, and it is doubtful whether, for some years to come, any statistics will be available by means of which this question can be definitely settled. The disputants would do well to wipe off the slate and start afresh, agreeing to use only those statistics obtainable from places which have been included in a registration area for a certain time, say ten years, during which physicians on whose returns the figures are based will have been educated up to an appreciation of the value and the morality of accuracy in making out certificates of death, not regarding the prejudices of the relatives who seem to regard the misfortune of cancer as also a reproach, and fortifying the diagnosis whenever possible by a postmortem examination or at least the microscopical examination of a fragment of the suspected growth. Then there might be some reason for pronouncing upon the near accuracy of the figures, and the deductions made from them could be more readily accepted as approximately correct.

PARALLELISM BETWEEN HYSTERIA AND DEMENTIA PRECOX.

THE relationship between hysteria and dementia precox is a subject which has been receiving considerable attention of late years. The progress in this direction has been quite rapid and many interesting parallelisms have been noted. We may enumerate here some of the most noteworthy contributions to the elucidation of this very fascinating, interesting, and important problem.

In his excellent treatise entitled the "Psychology of Dementia Precox," (Nervous and Mental Disease Monograph Series, No. 3) Jung shows in an admirable manner how nearly related are these two

mysterious and mystifying conditions. The emotional apathy of the dementia precox patient may be compared to the indifferent, "I don't care" attitude of the hysteric. Just as in hysteria indifference may suddenly give way to an emotional storm, be it a crying spell or the like, so also in dementia precox the apathy may suddenly be displaced by tumultuous, explosive attacks, impulsive, emotional outbursts. It is, however, to be noted that the blocking of the affect is greater in dementia precox than in hysteria. In both conditions we observe the occurrence of obsessive ideas, anxiety states, disturbed affective states, these being of an origin apparently unknown to the patient. In both conditions we find delirious episodes, irrelevant replies to questions, stupor, vasomotor disorders, and peculiar disturbances of consciousness. External mannerisms, affectations of speech, voice, and gait, originality, and stupidity may be present in either disease. Carelessness of others, selfishness, narrow-mindedness, prejudice, inaccessibility to persuasion, and decided egocentricity come to the surface in both diseases. In the precox patient as well as in the hysteric we come upon narrowing of the field of consciousness, difficulty in fixing the attention, and certain vague preoccupations. We find also, as Jelliffe notes, that the obsessive ideas of the hysteric can be compared to the delusions of the precox patient. Stereotypies and sensorimotor phenomena may appear in both conditions.

Evenson, in his work on Dementia Precox, calls our attention to the fact that such prominent symptoms in precox as negativism, stereotypy, and peculiar attitudes are very similar to the reactions of normal individuals occupied by one thought. He further argues that in preoccupied individuals and in the catatonic the fundamental disorder may be found in the narrowing of the field of consciousness about a central content. Evenson also mentions the relationship between hypnosis and catatonic stupor. This is quite in line with what we have known for some time about the relationship of hysteria to hypnosis. So close has this relationship been found to be by certain observers that the dictum has been formulated that to be hypnotizable meant that one was hysterical. In other words they were viewed as being quite alike, except that one was an artificially produced condition while the other was not. Jung has stated that the psychological mechanisms of dreams and hysteria are very closely related to those of dementia precox. In dementia precox we meet a greater degree of mental dilapidation and dissociation than we do in hysteria. This is due to the fact that the origin is deeper, probably complicated by organic factors of some unknown nature. Coriat well says (*American Journal of Insanity*, IXX, 3, 187): "When the underlying complexes control the entire mental life we have dementia precox, when they merely lessen the amount of energy at the disposal of the patient, we have hysteria."

That hysteria and dementia precox are both conditions arising from mental dissociation or splitting of the mind or personality is generally conceded by all students of psychopathology. Bleuler has permitted himself to go to the extent of calling dementia precox "schizophrenia," the synonym for splitting of the psyche or mentality, and has included under this heading all conditions which are characterized by a splitting of the personality or consciousness, and which, as a consequence, present evidences of contraction of the field of consciousness. This conception, although helpful in permitting us to understand better certain similarities in many heterogeneous conditions, is, however, not to be encouraged, since it would do away with our efforts toward more scientific and precise classification. Conditions of widely different origin or nature may show a certain number of similarities. Relationship is no proof of identity. Bleuler and Jung have endeavored to analyze the somatic and psychic symptoms of dementia precox patients according to Freud's ideas as originally applied to hysteria. They have, however, assumed a too exclusively psychosexual standpoint.

THE ISOLATION OF TYPHOID AND PARATYPHOID BACILLI.

THE comparatively close biological relationship among the members of the colon-typhoid group has always presented a certain amount of difficulty in an attempt to isolate one of these organisms in the presence of one or more of the others. For this purpose there have been devised a number of special media, many of which fulfil their purpose admirably. In the examination of the stools, however, special difficulties obtain. The predominant organism is the *B. coli* and its growth is so luxuriant that in order to be able to detect colonies of the typhoid and paratyphoid bacillus in plates it is necessary to inoculate them with a rather high dilution of the fecal mass. Under these circumstances it is probable that at times a search of the stool for typhoid results negatively because, in the specimen taken, the organism was present in too small numbers. Some method of "enrichment" of the stool is therefore desirable which shall either increase the typhoid bacilli without favoring the growth of the coli, or which shall hinder the development of the colon bacillus without injuring the *B. typhosus*. The use of bile media is of some help to this end but has not always given altogether satisfactory results.

Bierast believes (*Centralbl. f. Bakt.*, 1914, lxxiv, 348) that he has found an ideal agent in petroleum ether. His method is to rub up the feces with nutrient broth until a very thin emulsion is obtained. This is put into a tube and petroleum ether (B.P. 40) added. The tube is corked and shaken for five minutes, allowed to stand for fifteen minutes, and again thoroughly shaken. It is then allowed to stand for about fifteen hours at room temperature in a dark place. Plates were stroked with material from the middle layer found after standing thus. In all of his experiments he found that the great majority of the colon bacilli were killed or at least did not develop, while the typhoid and paratyphoid bacilli were apparently unaffected. The bacilli of the dysentery and the enteritidis group were not as resistant as the typhoid to this

agent but were apparently only slightly interfered with. He found that some strains of the colon bacillus were more resistant than others but that in every instance they were markedly affected. He was unable to ascertain in what manner the petroleum ether acted upon the coli, but does state that their form and staining reactions are apparently unchanged. If this method comes up to the author's expectations it ought greatly to increase the facility of the discovery of the typhoid bacillus in the stools. This is greatly to be desired for the present methods are tedious and uncertain and it is becoming almost a routine in some of our hospitals to examine the stools of typhoid convalescents before discharge to determine whether they are carriers.

Femina Militans.

The British suffragette is naturally receiving attention at the hands of medical jurists in other countries, and last June she was discussed before the Medico-Legal Society of Berlin (*Berliner klinische Wochenschrift, June* 20.) The phenomenon of militantism, said Marx, is an inversion of the seemingly natural passivity of woman, and is due to a certain immaturity of the brain, which is exhibited in the violent "short cut" toward a desired object. Violence has been termed the weapon of the weak. We are reminded in this connection of the young men of Greece, of whom the philosophers said that young men "use the harshest measures first." Marx absolves the women from hysteria. In passing he mentions other types of femina militans, in which the natural passivity of the sex is inverted, and women have revolted against what they believed to be a withholding of their rights, but in the modern type it is the ballot alone which is sought. In fixing punishment, each militant, Marx says, should be dealt with as an individual, and no wholesale penalties be carried out. Leppmann would not class the suffragettes indiscriminately as criminals. He would look into the components of imbecility and psychic infantilism. Strassmann classed the suffragette movement as a "crowd psychosis." Mass believed that no sane woman could die by hunger strike. Marx in closing said that the movement was a pathological development of neofeminism. The question of feminine militancy is now, however, for the time being at least, a thing of the past, overshadowed by the militancy of hordes of the ruder sex. The woman has resumed her rôle of ministering angel and is devoting her energies to relieving as far as she may the suffering caused by the combatants in the larger war.

Atypical Gout.

In theory the English medical men should be better suited to deal with this subject by reason of the predominance of true gout in the British Isles, and, as a matter of fact, they have published much on the gouty diathesis, uric acid, nephrolithiasis, and the like. On second thoughts, however, the infrequency of typical gout in other culture countries suggests that there may be an excess of unrecognized atypical gout in such localities in which genuine gout is infrequent. A paper read by Goldscheider on this subject before the Berlin Medical Society last June (Medical Record, August 15) was followed by a very full discussion (*Berliner klinische Wochenschrift, July* 20.) Umber stated that tophi could form without the presence of gout of any sort. He had seen them in a woman with destructive polyarthritis, who showed no disturbances in the purin metabolism. The tophi contained not a trace of urates. Creaking of the joints, so often imputed to incipient gout, might have a purely static origin as seen in the feet and knees of heavy men. Of course, one could waive the question of abnormal purin metabolism, and seek to include arthritis deprimans and destruens, Heberdensnodes, etc., under irregular gout, but this is quite unjustifiable, Heberden asserted positively that his nodes do not occur in the gouty, although pathologically they could be classed under tophi. Von Hansemann has made autopsies on subjects dead of definite illnesses who had in life exhibited extreme creaking of the knees, elbows, and other joints, and found absolutely nothing abnormal in the affected articulation. Brugsch thought the main question was whether or not uric acid played any rôle in some of these affections of joints and bursæ, tophi, etc., in which a gouty diathesis could apparently be excluded.

News of the Week.

Health of Canal Zone.—On April 1, 1914, the Department of Health of the Panama Canal was organized on a permanent basis, the name being changed from "sanitary department," and the "chief sanitary officer" becoming the "chief medical officer." This position is now held by Lieut.-Col. Charles F. Mason, Medical Corps, U.S.A.; formerly superintendent of the Ancon Hospital. Several other changes in the personnel were also made. During the month of May the health of the employees continued good. No cases of yellow fever, smallpox, or plague originated on or were brought to the Isthmus during the month. The total number of admissions to hospitals and quarters was 1,633, or a rate of 407.92 per thousand per annum, as compared with 350.59 for the preceding month, and 468.59 for the corresponding month of last year. The total number of deaths from all causes among employees was 39, of which 23 were due to disease, giving an average annual death rate of 9.74 per thousand. Lobar pneumonia caused 7 deaths, and tuberculosis, 6. The work of sanitation, including street cleaning, rat catching, destruction of breeding places for flies and mosquitos, control of infectious diseases, vaccination, etc., is being actively carried on.

Death Rate Lowered.—During the week ending August 1, the deaths in New York City numbered 72 less than those during the corresponding week of last year, the most noteworthy decrease being in the deaths due to diarrheal diseases among infants.

Child Labor Decreasing.—A recent report on occupations from the Bureau of the Census shows that between 1900 and 1910 there was a decrease of 129,236 in the number of children between ten and fifteen engaged in non-agricultural pursuits. Of this number 77,666 were boys, and 51,570 girls.

Public Health Director.—The Department of Health of the City of New York has recently created a new position under the title of Director of Public Health Education, the incumbent of which will be appointed by the Municipal Civil Service Commission. The duties of the director will be to organize and administer a bureau dealing with all

phases of public health education; to prepare and edit popular and scientific bulletins dealing with public health matters, including the regular health publications of the Department of Health; to organize exhibits and courses of lectures dealing with various features of public health work; to cooperate with existing teaching institutions in organizing a school of sanitary science; to secure the dissemination of public health information through moving picture theaters, leaflets, conferences, press bulletins, etc.

Personals.—Dr. Benjamin Jablons of New York has received from King Peter I of Servia, the Order of St. Sava.

New Hospital Site.—The Williamsburg Hospital, Brooklyn, which has for over fifty years been located on Bedford avenue, has recently purchased as a site for a new building a plot 100 by 123.6, at Driggs avenue and South Ninth street. On this a modern hospital will be erected at a cost of about $125,000.

Information on Typhoid Fever.—The New York City Department of Health announces that it has issued a new folder which is intended to instruct "the man in the street" on how to avoid contracting typhoid fever. This information is given in condensed form and is printed in four languages —English, German, Italian, and Yiddish. Five hundred thousand copies have been prepared and will be distributed through nurses, insurance companies, branches of the New York Public Library, and charitable organizations, without delay, so that the information may be utilized to forestall the usual autumnal increase in typhoid fever. It is expected that through the co-operation of these agencies in the distribution of these folders, substantial progress in the campaign for the prevention of typhoid fever will be made.

Gifts to Charities.—The Post-Graduate Hospital, New York, receives under the will of the late Miss Cora V. C. Catlin, a bequest of $5,000 for the endowment of a bed in the children's ward to be known as the N. W. S. C. bed.

Civil Service Examination.—The Philadelphia Civil Service Commission will hold, on September 22, a competitive examination of the position of chief resident physician in the Philadelphia General Hospital, Department of Public Health and Charities, at a salary of $4,000 a year. Applicants must be citizens of the United States but not necessarily residents of Philadelphia. The Chief Resident Physician of the Philadelphia General Hospital is the medical and executive head of the hospital, which contains 2,000 beds. He should be between twenty-eight and fifty years of age, and must be a graduate of a reputable medical school, who has had some experience in a hospital. Application for permission to take the examination may be made in person or by letter to the Civil Service Commission, Room No. 875, City Hall, Philadelphia. No applications will be received after September 19, 1914.

Iowa Licenses.—Certificates to practise medicine in Iowa were issued by the State Board of Health on July 25 to sixty-nine physicians who had successfully passed the examinations held on June 9.

Hospital Burned.—The Pasadena Sanatorium in South Pasadena, Cal., was destroyed by fire on July 25. The sixty patients in the institution were removed without mishap. It is estimated that the loss was about $30,000.

Tetanus Serum Called For.—One of the echoes of the European war here was the request received by the New York City Health Department from the Vienna Serum Institute, for fifty liters of tetanus antitoxin. The Health Department will have the serum prepared and forward it through the Austrian Consul.

Red Cross Active.—The International War Relief Board of the American Red Cross has decided to charter a big vessel for the purpose of sending hospital supplies to the foreign Red Cross societies involved in the war. The ship will carry hospital units, consisting of three doctors and twelve nurses each, and these will be assigned to work in the different countries as the need arises. The matter of securing the vessel and of obtaining supplies and organizing the units is in the hands of members of the Medical Corps of the United States Army and Navy.

The American Hospital in Paris and its staff of twelve surgeons have offered their services to the French Government and have arranged for a field hospital in the gardens at Neuilly. An ambulance service has been installed at the Lycée Pasteur near the hospital, and the equipment is ready to go to the front at any time.

Drug Trade Suffers.—The trade in drugs and chemicals is probably the one which has and will suffer most severely because of the interruption of our dealings with foreign countries because of the war. In the last few days the prices of all drugs, chemicals, and essential oils have advanced from 20 to 100 per cent. On August 8, morphine was quoted at an advance of 20 cents an ounce, and opium at an advance of $2 an ounce. Quinine, for which Hamburg is the center, had advanced to 35 cents an ounce, and cod liver oil from Norway was selling at $28 a barrel, an advance of $11. The United States as the largest drug-consuming though the smallest drug-producing country of the world, will naturally suffer greatly from this interruption of trade. Most of the synthetic antineuralgies and hypnotis, as well as salvarsan, are German products.

Obituary Notes.—Dr. HERMAN BERBERICH of Philadelphia, a graduate of the Philadelphia College of Pharmacy in 1898, and of the Jefferson Medical College, Philadelphia, in 1901, died by drowning at Wildwood, N. J., on July 26, aged 37 years.

Dr. JAMES FORSTER ALLEYNE ADAMS, of Pittsfield, Mass., a graduate of the Harvard University Medical School, Boston, in 1866, a medical cadet in Farragut's fleet during the Civil War, and a member of the Massachusetts and Berkshire District Medical Societies, died at his home on July 27, aged 60 years.

Dr. GEORGE E. KING, of Wedonia, Ky., a graduate of the Kentucky School of Medicine, Louisville, in 1898, died on July 20, from tuberculosis, after a long illness, aged 40 years.

Dr. HAGOP H. THOUMAIAN, of Saint Anne, Ill., a graduate of the Northwestern University Medical School, Chicago, in 1896, died in the Presbyterian Hospital, Chicago, on July 18, aged 47 years.

Dr. WILLIAM HENRY CARPENTER, of Brookline, Mass., a graduate of the Dartmouth Medical School, Hanover, N. H., in 1876, died at his home, after a long illness, on July 23, aged 77 years.

Dr. CHARLES EDWARD BOOTH of Minneapolis, Minn., a graduate of the Rush Medical College, Chicago, in 1872, died at the Asbury Hospital, Minneapolis, on July 25, aged 74 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

THE CONGRESS SEASON—CLINICAL SURGEONS OF NORTH AMERICA—PUBLIC HEALTH.

London, July 31, 1914.

ANNUAL meetings, conferences, congresses, are just now in full tide. The British Medical is the most numerous association, and its members are spread over the whole country. Many attend its annual meetings, where the general condition of the profession and its so-called politics excite as much interest as medical problems. You will probably receive some account of its doings from your reporters. Another congress attracting attention is that of the Surgeons of North America, which is meeting in London this year. A good number are here for it, and they are interested, I find, in our hospitals and other institutions, and, of course, especially in the surgical clinics. Dr. John B. Murphy, of Chicago, gave a sort of presidential address at their first meeting, in which he described his work in arthroplasty, and mentioned some striking cases. But you will be fully informed about his methods and work. Here it is known to not a few. The Congress was welcomed by Sir R. Godlee and your ambassador here. Lectures have been given during the week at the Royal College of Surgeons on specimens in the Hunterian Museum by the president (Sir Rickman Godlee), Professor Keith, and Messrs. Shattock, Colyer, and Cheatle, so that the visitors have been able to see the most of these treasures in the shortest time. A reception was also given at the college on Wednesday afternoon. Different hospitals, general and special, were visited, and I am informed the managements gave to the visitors a favorable impression of British surgery.

Another congress which met somewhat earlier in Edinburgh was that on Public Health. At this tuberculosis intruded into several sections: In State Medicine, Dr. Leslie Mackenzie, member of the Scottish Local Government Board, presided, and in his address said that the problem of the next five years would be to dissociate tuberculous patients from unsuitable homes—a supplementary problem being how to fit the homes to the patients' needs. The dispensary here, he thought, had a function, but the first necessity was not advice nor supervision at home, but hospital beds and open-air treatment. He hoped the Executive Research Committee, with its income of £60,000 per annum, would help scientific men to bring their best methods to the aid of administrative bodies. In the section on sanitary administration, the medical officer for Edinburgh, Dr. Williamson, declared that experience showed that only a small proportion of patients on leaving a sanatorium could be considered free from infection, and a still smaller proportion as cured. Most of these patients were removed from poor districts, and after a time were permitted to go back to the same conditions under which they had previously lived—generally to the selfsame homes. There they would still be living foci of the disease, tending to spread it under the very conditions which had proved to foster it. The key to the situation was clearly the housing question.

In the section set apart for tuberculosis, Sir R. W. Philip presided and gave a summary of the advances made in the treatment of phthisis.

In the section on child welfare, Professor Beattie read a paper on the electric heating of milk, which he found destroyed the germs without in any way deteriorating the quality of the milk.

The Naval, Military, and Colonial Section's meeting was practically abandoned on account of an unusual circumstance. A number of papers were anticipated, but the authors were called away to the mobilization of the fleet at Portsmouth. Fleet-Surgeon Bassett Smith, professor of clinical pathology and tropical medicine in the Royal Naval College, Greenwich, pointed out in his address that during the last ten years valuable work had been done to improve the health of the navy, as well as to make the sailors' life a happier, healthier, and altogether better one.

Sir Christopher Nixon, late president of the Royal College of Physicians, Ireland, died in Dublin on the 19th inst., in his 64th year, after a fortnight's illness. He had been chancellor of the old Royal University of Ireland, and when the National University took its place became vice-chancellor of the new institution. This year he was made a member of his Majesty's Privy Council in Ireland. He was a member of the General Medical Council since 1897. His "Handbook of Hospital Practice and Physical Diagnosis" had considerable success. He also communicated papers on the circulation and nervous systems.

OUR BERLIN LETTER.

(From Our Regular Correspondent.)

GERMAN CONGRESS OF SURGERY—POSTOPERATIVE ABDOMINAL HERNIA—PLASTIC SURGERY OF THE NOSE—RADIATION TREATMENT OF TUMORS—THYROID TRANSPLANTATION—THYMUS EXTIRPATION IN TREATMENT OF GOITER—TUMORS OF THE BLADDER—CONGRESS OF INTERNAL MEDICINE—NATURE AND TREATMENT OF INSOMNIA—TREATMENT OF INTERNAL DISEASES WITH ANIMAL CHARCOAL—RADIUM TREATMENT OF INTERNAL TUMORS—BEHRING'S METHOD OF DIPHTHERIA PROPHYLAXIS.

Berlin, July 15, 1914.

THE Forty-third German Congress of Surgery was recently held. One of the subjects that came up for discussion was the cause and treatment of postoperative abdominal hernia. Sprengel, of Brunswick, introduced the symposium with a paper in which he recommended the use as much as possible of the intermuscular incision. In difficult cases he thought the best results were obtained with the use of a mattress suture of catgut with superimposed stitches of fine linen thread. The use of packing is not without danger. Secondary suture in cases in which drainage has been employed is not justified. The speaker recommended strongly the transplantation of free fascia, and instead of plastic surgery he uses foreign material and inert muscles.

The plastic surgery of the nose was the subject of a paper by König, of Marburg. His method of employing the ear muscles has been applied by him and by others in 47 cases, 45 of which healed nicely. He described a new procedure by which he was able to supply the necessary supports for the bridge, septum, and wings of the nose from the sternum and two ribs. The results in two patients were very good.

The radiation treatment of tumors came up for extended discussion. Final judgment as to the efficacy of this method of treatment will not be possible for a number of years. The radiation treat-

ment employed to the exclusion of other methods is to be considered only in the case of inoperable tumors. In all operative cases there should be employed first the knife and then the rays. There is still considerable room for improvement in the technique of radiation, for this may destroy healthy as well as diseased tissue.

The permanent results of thyroid transplantation in human beings were discussed by Kocher, of Bern, who has treated 93 cases by means of this method, and without results in only 18. Transplantation was made into the bone marrow, the peritoneum, the spleen, and other organs. The best results were obtained in the case of transplantation into the spleen. The pieces of thyroid were best taken from the gland removed from patients with exophthalmic goiter, since in these instances the activity of the thyroid is most marked.

Very favorable results were reported by von Haberer, of Innsbrück, in the removal of the thymus gland in the treatment of goiter and of exophthalmic goiter. All of his sixteen cases made a good recovery. Particularly in exophthalmic goiter were the results good. The speaker maintained that in cases of enlargement of the thymus the combined operation on the thymus and on the thyroid is the operation of choice.

Tumors of the bladder were the subject of a paper by Hildebrand, of Berlin, who believed that the operative treatment gives bad results. Permanent cures are rarely obtained by this method. This is to be attributed partly to the fact that the lymph nodes are widely scattered and their removal requires opening the peritoneal cavity at many points. As regards papillomata, in all cases intravesical extirpation would be indicated if it were not for the fact that fifty per cent. of these tumors contain carcinomatous elements. For this reason incision into the bladder is to be recommended even though the mortality is eight or nine per cent. The treatment of bladder tumors by means of the high frequency current was favored by Joseph, of Berlin.

At the Thirty-first Congress of Internal Medicine the nature and treatment of insomnia came up for discussion. The first speaker, Gaupp, of Tübingen, advanced a theory concerning the origin of sleeplessness. Whereas formerly the waste products of the muscles were regarded as the factors in the production of fatigue and sleep, there is a tendency nowadays to regard the metabolic products of the central nervous system as the most important causative factors. In healthy individuals sleep deepens rapidly during the first hour, attains its greatest intensity before the end of the second hour, and then gradually lightens. For this reason one can conceive of the great recuperative value of a short and deep sleep, and one can understand how Frederick the Great, Napoleon, and Virchow could get along with four or five hours' sleep. The remedies for insomnia should be those that put the patient to sleep and that exercise their narcotic power only for a short time. The second paper on this subject was read by Goldscheider, of Berlin, who stated among other things that the most common fact in the disturbance of sleep is that external and internal causes counteract the diminution of nerve irritability, which diminution lies at the basis of sleep. The methods in the general treatment of insomnia are: (1) The removal of the factors that disturb sleep. (2) Physiological treatment. (3) Strengthening of the disturbed self-regulating mechanism. This method demands alternating periods of nervous activity and of rest. By this means there is diminished the state of excitability which is present at the onset of sleep. (4) Physical therapy. (5) Dietetic treatment. (6) Pharmacological treatment. The next speaker, Faust, of Würzburg, discussed the various narcotics from the viewpoints of their pharmacological characteristics, their indications, and their contraindications.

The treatment of internal diseases with animal charcoal was the subject of a most important paper by Wiechowski and Adler, of Prague. The former showed that colloidal bodies if mixed with animal charcoal are not absorbed and that the absorption of crystalloid bodies mixed with animal charcoal is greatly delayed. Adler has experimented with animal charcoal in the treatment of gastric and intestinal diseases and of poisonings in animals. In particular, cases of intestinal catarrh, and of meat and sausage poisoning, are favorably influenced. All severe cases of poisoning by phosphorus, corrosive sublimate, lysol, arsenic, and potassium chlorate, treated by means of animal charcoal, recovered.

The radium treatment of tumors of internal organs was also one of the subjects that came up for discussion before this congress. Good results were reported in the case of cancers accessible from the outside. In cancer of the stomach the operative treatment is preferable. In deep-seated tumors the use of *x*-rays is to be elected, but superficial growths are best treated with radium and mesothorium. Favorable results were also reported in cases of tumors of the lymphatic glands and in cases of leucemia. One of the causes of failure is the use of insufficient doses, for in this manner only stimulating effects are produced and the tumors grow more rapidly.

Diphtheria prophylaxis was the subject of a paper presented by von Behring, who aroused considerable interest with the description of his method of protective inoculation in which diphtheria toxin is partly neutralized by means of antitoxin. The investigations on this subject have already been carried out on about 5000 individuals. In 80 per cent. of the cases antibodies were produced. In most instances one inoculation sufficed.

FIFTH ANNUAL SESSION OF THE CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA.

(From Our Special Correspondent.)

LONDON, July 30, 1914.

A NEW departure has been made by those responsible for the management of the Clinical Congress of Surgeons of North America by the holding of its fifth annual session in London.

Undoubtedly, the surgeons of London and of England welcomed this move, not only because it gave them the opportunity to meet the surgeons of North America but because it inaugurated in England the system of making the paramount feature of such congresses clinical demonstrations, a plan which is now generally followed in the United States and Canada. Moreover, it afforded the visitors the chance of witnessing British operative methods, the technique and the somewhat different modes of conducting clinics which distinguish the British surgeon from his American confrère. Of course, no better center in the world from the surgical standpoint could have been chosen than London. In wealth of hospital material it is equaled by no

city with the possible exception of New York itself. In hospital facilities, too, London is conspicuous. It contains hospitals of every description. Some old, some middle aged, a few quite modern, while the majority are a composite of the old and new. To use a slang phrase, the London hospitals did themselves proud for the visitors. Clinical demonstrations took place in no fewer than twenty general and special hospitals, and these were so thoroughly appreciated that the capacity of most of the operating theaters was not equal to the demand for seats or standing room and, in many instances, would-be spectators were turned away. To avoid overcrowding the excellent scheme was put into force of issuing special tickets for each clinic and demonstration up to the capacity of the room in which the clinic or demonstration was given.

On Monday evening, July 27, Dr. Franklin H. Martin, secretary general, gave a presidential dinner in the Hotel Cecil. At the dinner among those present were Sir Rickman J. Godlee, president of the Royal College of Surgeons, and chairman of the London Committee of Arrangements; Mr. W. H. Page, the American Ambassador; Sir Watson Cheyne, the president-elect of the Royal College of Surgeons; Sir Francis Champneys, the president of the Royal Society of Medicine; Mr. F. C. Dwyer, president of the Royal College of Surgeons of Ireland; Sir Thomas Barlow, president of the Royal College of Medicine; Dr. John B. Murphy, president of the Clinical Congress; Dr. W. L. Rodman, president of the American Medical Association; Dr. Thomas J. Watkins, president of the American Gynecological Society; Sir Arbuthnot Lane, Sir St. Clair Thomson, Dr. C. H. Mayo, Mr. Herbert Paterson, Mr. H. S. Pendlebury, Mr. W. H. Jessop and Dr. A. B. Kanavel.

After the dinner the serious business of the Congress began in the large banqueting hall of the Hotel Cecil. Sir Rickman J. Godlee in an address of welcome expressed his regret that the annual meeting of the British Medical Association should be taking place at the same time as that of the Congress. Because of this several well-known London surgeons were unable to take part in the welcome that was being extended to the surgeons of America.

Dr. J. B. Murphy, president of the Congress, in the course of his remarks said that the work to be conducted during the week was a colossal undertaking. Such a task had never been undertaken by the Congress away from home. American surgeons would return with a high impression of London surgery. Highly as they had esteemed it before, they would esteem it higher still. They would return to their own country with an admiration and affection for the profession and people of Great Britain and with a feeling that science was a brotherhood that extended around the globe.

The American Ambassador said one of the most distinguished teachers of surgery in England had remarked to him recently that he said frequently to his students that no man had a right to consider himself well started in the great profession of surgery unless he had been to the United States to see the skill that the American surgeons possessed. Now that 1,000 American surgeons had found it well worth while to come to England to see how the distinguished surgeons of that kingdom did their work, he could say "honors are easy."

Dr. George Emerson Brewer of New York City, the retiring president, was unavoidably absent and in his place Dr. W. L. Rodman of Philadelphia read a paper, which dealt mainly with the College of Surgeons recently established in North America. He pointed out that, stimulated by visits to various clinics of America and other countries, the American College of Surgeons had come into being. It sprang as naturally from the loins of the Congress as the latter was the child of the American Clinical Association. He remarked that it was founded on the admirable lines of the English Royal College of Surgeons and that it could not fail to fill any but an honorable rôle in the standardization of surgery throughout the world. After referring in eulogistic terms to the report of the work of the Colleges of Medicine and Surgeons of England by their joint secretary, Mr. Hallett, Dr. Rodman concluded by expressing the hope that the American College of Surgeons might follow as closely as it could follow the venerable Royal College of Surgeons of England with "a wet sheet, a flowing sail, a wind that follows fast."

The really scientific part of the session then commenced by the reading of a paper on "The Choice of the Operative Method in the Treatment of Ulcer of the Stomach" by Professor Freiherr Anton von Eiselsberg of Vienna. Dr. von Eiselsberg summarized the results of his own and his co-workers' observations as follows: "(1) Symptoms of perforation of the ulcer into the general peritoneal cavity call for immediate operation, irrigation of the peritoneal cavity, closure of the perforation and in bad cases, jejunostomy in addition for the purpose of administering nourishment. (2) In the other complication of ulcer which we fear so much, viz., hemorrhage, operation in most cases is best left alone. (3) In typical stenosis of the pylorus, especially when in the case of a long standing ulcer no new symptoms have occurred, gastroenterostomy is the operation to be chosen. Sixty per cent. of all cases of stricture of the pylorus are completely cured by gastroenterostomy, while in the case of open ulcer gastroenterostomy is only successful in 41 per cent. of cases. Among 334 gastroenterostomies for ulcer of the stomach and duodenum and its complications, 17 deaths occurred. Of these 8 (nearly one-half) occurred through continued bleeding from the ulcer, therefore gastroenterostomy is not in all cases a complete protection against continuance of hemorrhage. (4) Unilateral pylorus exclusion, which I did first in 1894, offers the greatest security in dealing with ulcer and its complications. It should receive special consideration if the ulcer is still fresh and causing much pain and finally in cases of duodenal ulcer it seems to offer a better guarantee of stopping hemorrhage, even though this guarantee is not complete. (5) For ulcer situated at a distance from the pylorus simple gastroenterostomy is not so feasible as in cases of ulcer of the pylorus itself. This my pupil, Professor Clairmont, was the first to show on the evidence of the collective experience of the clinic. It offers only 34 per cent. of successes as contrasted with 54 per cent. of successful cases of pylorus ulcer. (6) High hydrochloric acid values of the gastric juice by distinctly favoring the development of post operative peptic ulcer detract very much from the value of gastroenterostomy and exclusion. (7) I have seen this post operative peptic ulcer after operation done by myself and my assistants in the hospital, as well as in patients who had been operated on by other surgeons, so that the growth of such an ulcer cannot have

been attributed to our perhaps faulty technique. The danger of the formation of peptic ulcer lies under the cases of high hydrochloric acid, especially in such cases where gastroenterostomy was not strictly indicated. There are cases in which the history of the patient given by himself points to a gastric ulcer, but in which the signs of gastric ulcer are wanting at the laparotomy. There may be, perhaps, merely a relatively small stenosis of the pylorus, some adhesions or cicatricial tissue in the stomach. In former years it was more easy to decide on gastroenterostomy in such cases. One regarded it as a safety valve, also as a prophylactic against a stenosis occurring later and therefore more serious. Since H. Braun made us familiar with the serious complication of post operative peptic ulcer of the jejunum great care is necessary with reference to it. In cases when by necropsy *in vivo* I have found no tangible condition to indicate what one had expected to find, judging from the history of the case, and nothing to show what sort of ulcer it was, I have done simple exploratory laparotomy and have refrained from doing what we may term a "concession gastroenterostomy." Among 16 cases of post operative peptic ulcers of the jejunum which I have seen following gastroenterostomies performed in my own clinic and some by other surgeons, a whole series of measures, some of them very complicated, attempted to reproduce normal conditions, only 2 patients were cured, 4 improved, 3 unknown, 2 unrelieved, and 5 died. So that we see that peptic ulcer is a very serious condition. (8) In cases of ulcer situated at a distance from the pylorus, as well as in cases where there is a high hydrochloric acid value, transverse resection seems to me the operation of choice, as this of all other resections, as for instance, extirpation methods of operation, gives the best security against subsequent complications. It must be made whenever there is the least suspicion that the tumor under consideration may be of a malignant nature. Of 269 patients on whom gastroenterostomy was done at my clinic, and who could be kept under observation for some time after, 41 died at a later stage of the disease, 13 from carcinoma, while 6 died with continuance of the symptoms of the ulcer. These later deaths speak decidedly in favor of the radical operation. Transverse stomach resection is also the correct operation when the ulcer has invaded neighboring organs, as nothing except removal of the ulcer will be of any real assistance. Transverse resection as planned by Riedel, also warmly advocated by Küttner, is a relatively safe operation. We have up to January, 1914, done 11 transverse resections, to which 6 more can be added up to July 1, making 17 in all and not a single death. I have never seen a peptic ulcer or any other harmful result from this operation. When transverse resection cannot be done Method Billroth II should be employed. Method Billroth I is the third in order to be considered. Partial excision is to be entirely rejected. In extreme cases only when other operations are not feasible jejunostomy may be considered, as has been suggested already in cases of perforated ulcer when the patient is so weak that he must be fed immediately after the operation. Jejunostomy makes it possible for nourishment to be given even on the operation table. Further, in cases of peptic ulcer in which for exceptional reasons excision is not possible, it is the easiest and most rapid of all operations for gastric ulcers and above all it leaves the stomach undisturbed. As it has only been done in extreme cases one cannot wonder it has met with so little success and that it is noticeable that so many cases of peritonitis have been associated with it. They were patients whose peritoneum had lost its powers of resistance."

Sir Watson Cheyne discussed this paper or rather gave his views on the operative treatment of gastric ulcer. He laid down three requirements of treatment, rest of the organ, avoidance of chemical irritation, and nourishment of the system. He did not appear to be strongly in favor of gastroenterostomy but recommended gastrostomy as it eliminated movements of the stomach. By the insertion of a tube acid was carried off and the stomach was given time to heal.

Dr. James Sherren, of London, dealt with the subject at very considerable length. He drew attention to the fact that the operation to be performed in the treatment of gastric ulcer could only be decided upon after the abdomen had been opened. His contribution to the discussion was based upon a personal operative experience of 200 cases of chronic gastric ulcer, and 224 cases of chronic duodenal ulcer. The treatment of chronic duodenal ulcer consisted in unfolding the ulcer when it was in its usual situation on the anterior wall and doing post gastrojejunostomy. In the series there were four deaths, all in men over 60 years of age, three from broncho-pneumonia, and one from acute edema of the lungs, twenty-four hours after operation. The results of gastrojejunostomy in this condition were, in his experience, unequalled by any other operation. All surgeons who have had a wide experience of the treatment of gastric ulcer had found that gastrojejunostomy failed to bring about healing in certain cases, and that relapse occurred in many of those operated upon by excision alone. He was convinced that gastrojejunostomy alone so modified gastric conditions that ulcers healed, and that only when complications had arisen was excision or partial gastrectomy necessary. His present practice was to perform gastrojejunostomy in every case, the posterior vertical, no loop operation by preference, or, if this was impossible from adhesions, or the situation of the ulcer, the anterior no loop operation, which he first carried out ten years ago. After excision alone recurrence of ulceration was common. It should never be done except as a complement to gastrojejunostomy When there was indication for excision, and the ulcer was large, Sherren believed that partial gastrectomy was preferable to simple excision and gastrojejunostomy. In no instance had he found it necessary to practise any method of pyloric exclusion, nor did he believe in the view that every chronic ulcer should be excised on account of the possibility of becoming malignant. When hour-glass stomach had supervened gastrojejunostomy on the central side of the obstruction, single if there was one obstruction only, double if two, was the most satisfactory operation. The indications for excision or partial gastrectomy were the same as in ulcer without this complication. Acute perforation of a chronic gastric ulcer was a rare event which should be treated, if the condition of the patient admitted, by closure or excision of the ulcer, followed by gastrojejunostomy. Hemorrhage in chronic ulcer called for operation as soon as possible after first attack, usually within twenty-four hours. The ulcer should be directly treated by ligature of the vessels on each side of it, by inversion or excision followed by gastrojejunostomy. Treated

on these lines the results of the operative treatment of chronic gastric ulcer, both immediate and remote, were excellent. Among 200 cases, excluding those in which perforation had occurred, but including those in which the immediate indication for operation was hematemesis (eight cases, one death), there were six deaths.

The results of cases operated on over two years by all methods were briefly as follows: One hundred and twenty-one were operated on over two years ago, with four operative deaths; 109 of the survivors were traced for over two years; 99 of these remained perfectly well, five were better, but not quite well. Only one received no relief.

There was no difference whatever in the results in those operated on for ulcer at a distance from the pylome and those at the pylome, or in those in which the ulcer was excised in addition to gastrojejunostomy. In conclusion the speaker would say that gastrojejunostomy still remained the operation of choice in chronic gastric ulcer; it was only when complications had arisen that gastroenterostomy had to be added to the operative procedure.

The next event on the programme was the presidential address by Dr. J. B. Murphy, who took for his subject, "Arthrodesis and Bone Transplantation." As American surgeons are well acquainted with Dr. Murphy's work, only the main points of his address will be given. He insisted that in the case of ankylosed joints, prophylaxis was of more importance than treatment. Infection originated in two tissues, in the vascular layers of the synovial membrane and the bone end, metastasis took place either in one of these two tissues. Infection rarely occurred on the surface of joints. Metastasis was conveyed by the blood vessels. Acute infection did not originate in the joint. A chill was the primary danger signal. Rheumatism, so-called, was never a primary infection. One of the difficulties of tracing the infection was that a long period elapsed between primary infection and manifestations in the joint. Neisser's infection manifested itself from 18th to 22d day after primary infection, the cycle of metastasic. Streptococcus infection was manifested in the early days of recrudescence of the disease and not in the early stage, and that was the reason why there was difficulty in connecting the primary infection with the joint lesions. In arthritis the organisms were held in the joint fluid in swarms. When the joint fluid was aspirated they were found in large numbers. Prophylaxis came in to prevent disintegration of the joints. Three points had to be considered: (1) Violence of infection. (2) Tension in the joints. (3 Articular pressure in the joints. The means to avoid ankylosis were to relieve tension of the joints. To achieve this object careful technic was necessary. If you opened the joint and exposed the serous membrane you would have destruction of the endothelial cells, and if you drained the joint you would produce ankylosis. The joint might be incised and the products of infection permitted to escape thus relieving tension, but the joint must be immediately closed. The joint might be washed out and closed. The joint might be aspirated and the aspiration might be repeated as the fluid reappeared. The violence of infection might be minimized by injecting into the joint. For this purpose, turpentine seemed to be the ideal substance, but was not available because we could not control it without destroying tissue. The best known substance was formalin 1-3 per cent. in glycerol. A fluid could be produced in the joint which was opposed to the growth of microorganisms and would bring about the highest polynuclear cytosis that could be effected. When high pressure and inflammation were present in the joint the cartilages became softened and contact with the bony end was the result. What could be done to prevent this? We must occasion separation of the bony ends. Surgeons were considered responsible for the deformities of joints caused by injury, but were not considered responsible for the deformities occasioned by arthritis. In order to control the deformities of arthritis they must be taken in hand immediately. If allowed to persist deformities became ineradicable. The first step in this direction was to place the limb in correct position for subsequent use. With regard to arthoplasty Dr. Murphy declared that a movable sliding joint could be made. This had been contradicted, but if in 100 cases you had one successful case it showed that it could be done, and its accomplishment was a matter of technic and asepsis. As for ankylosis of the jaw, operation should be performed on the side opposite to that on which flattening had occurred. The hip joint was the easiest for the surgeon to reconstruct, and the knee joint the most difficult, but the latter gave the more satisfactory results. Operation on the knee joint should be performed with the knee hanging over the edge of the table. The surgeon's hand must never be placed in the cavity and the normal conformation of the knee must be preserved.

Progress of Medical Science.

Boston Medical and Surgical Journal.

July 30, 1914.

1. Cesarean Section. An Historical Review, With an Analysis of Sixty Cases. T. F. Greene.
2. The Fasting Metabolism of Infants. H. Murschhauser.
3. Myatonia Congenita, with Report of Cases. C. H. Dunn.
4. Three Unusual Cases. R. M. Green.
5. Pneumothorax for Hemoptysis. E. von Adelung.

1. Cesarean Section.—T. F. Green reports a series of sixty cases in which this operation was performed. One mother died. There was no fetal mortality. Of the mothers, 4 were under twenty years of age; 13 were from twenty to twenty-five years old; 13 were from twenty-six to thirty years old; 14 were from thirty-one to thirty-five years old, and 16 were from thirty-six to forty years old. There were 34 first, 16 second, 1 third, 5 fourth, and 4 fifth pregnancies. Of the sections, 51 were first and 8 were second sections, and 1 was a third section. The following were various indications: Eclampsia with varying degrees of justo minor pelves, 7; eclampsia with large baby (nine pounds) in primipara, 1; malposition of uterus after Alexander operation, 1; old tuberculous anchylosed hip with deformed pelvis, 2; placenta previa complete in primipara with justo minor pelvis, 1; chronic heart with general edema plus pelvic deformity, 1; primiparous twin pregnancy with breech presenting in flat pelvis, 1; flat pelvis, 17; varying degrees of justo minor pelves, 29. The author emphasizes the fact that the Cesarean operation should be an operation of election. This means that the obstetrician puts himself in the position of a prophet foretelling the outcome of labor. It is true that he may be criticized, but his results will be far more satisfactory to mother and child than if he puts his trust in chance. Opening the abdomen of a woman exhausted by long labor and exposed to the risk of infection is a task from which any operator may well shrink; but if for religious reasons, one recognizes that the child in utero has a

right to life, there is left open no other method of delivery, and its results justify the wisdom of the choice.

3. **Myatonia Congenita.**—C. H. Dunn reports three cases of this condition which was first described in 1900 by Oppenheim. The disease is characterized by a limitation of active movement, varying in degree, which in the most marked cases apparently reaches a complete paralysis, the extremities lying motionless. Although on close observation contractions may be brought out in some of the muscles, they are weak and without locomotor effect. In Oppenheim's cases the lower extremities were always more markedly affected than the upper, and the muscles supplied by the cranial nerves were not affected at all. The muscles of the neck and trunk were affected in one case. In none of his cases were the muscles atrophied, although they were soft. Electrical stimulation showed a varying diminution of contractility up to complete disappearance. There is no disturbance of sensation, and there is no reaction of degeneration. There is a very marked relaxation of the joints, owing to the flaccidity of the muscles. The affection is congenital, though it may not attract attention for some time after birth. Oppenheim considers the condition to be essentially one of retarded development of the muscles, and that it tends to betterment, although he does not exclude the possibility of involvement of the nerves or spinal cord. Since 1900 about forty cases of this condition have been reported, and all the main points in their symptomatology are covered by Oppenheim's original description. It seems that the disease is toxic rather than infectious. The author believes myatonia congenita is much commoner than is generally supposed.

5. **Pneumothorax for Hemoptysis.**—E. von Adelung notes that the value of induced pneumothorax to control bleeding from the lungs is hardly sufficiently appreciated. The medical treatment involves considerable loss of time and subjects the patient to the unpleasant and often harmful by-effects of the drugs used. This is especially true of opium, the most valuable of the drugs used for hemoptysis. Pneumothorax, on the other hand, acts promptly and obviates the disadvantages of drugs. For the purpose of inflation the author uses a portable apparatus modeled after Murphy's original apparatus. More recently Murphy has suggested a simple procedure which consists in introducing a hypodermic needle into the pleural space and allowing atmospheric air to be sucked in until the patient feels distress. The needle is dulled by rubbing it on a stone, the skin is cleansed, a puncture of the skin is done with any sharp instrument, and the boiled hypodermic needle is then inserted into the pleural sac with its outer end covered by sterile absorbent cotton which filters the air that passes in.

New York Medical Journal.

August 1, 1914.

1. Typhoid Fever in Early Life. J. P. Crozer Griffith
2. Cardiac Headache. L. Kolipinski.
3. Constitutional States in Relation to Gynecological Conditions. R. S. Morton.
4. Four Unusual Obstetric Complications. J. C. Applegate
5. The Treatment of Scarlet Fever. H. C. Becker
6. Eosinophilia in Chorea. S. S. Leopold.
7. The Necessity for Cooperation of the Medical Profession in Successful Treatment of Pyorrhea Alveolaris. D. B. Freundlich
8. A New Electric Ophthalmoscope. C. H. May

1. **Typhoid Fever in Early Life.**—J. P. Crozer Griffith describes this disease as it occurs in infancy, in early childhood (two to six years of age), and in later childhood. The division is of importance because the symptoms, course, and prognosis vary with the three different periods of life. The onset in infancy is decidedly shorter than at a later age. It may be roughly stated as lasting from three to four days before the fully developed attack is reached, this being marked by the appearance of the roseola or by the fever reaching its height. The temperature rises rapidly and is often at its height when medical aid is first summoned. There is rarely seen the steplike rise of the adult type. Vomiting is a frequent early symptom and in some cases is very troublesome; while diarrhea is oftener observed than at later periods of life and is probably more frequent than constipation. After the attack has reached its height vomiting is comparatively frequent; diarrhea continues to be oftener seen than constipation; coating of the tongue is common, but dryness and fissuring are very exceptional; there is not much loss of appetite, this depending perhaps upon the presence of thirst; abdominal distention is frequent but not troublesome. Comparatively uncommon are such nervous manifestations as decided dullness, apathy, or unconsciousness; and only in the severer cases is there marked prostration. The roseola is perhaps as frequently seen in infancy as later. The temperature is not characteristic and many variations are witnessesd. In early childhood one expects the attack to run its mildest course. The onset is not as sudden as in very many cases in infancy but nevertheless is often short and abrupt. In most cases the onset is insidious, with symptoms so little marked that nothing of importance is suspected until perhaps the roseola and enlarged spleen are found. In the eruptive stage there is generally an absence of the evidences of the typhoid state so common in adults. In later childhood the disease gradually approaches the adult type more and more as puberty is approached. This is especially true after the age of ten years. Diarrhea is now often troublesome, the result of the greater degree of intestinal ulceration present at this time of life. Hemorrhage and perforation are more liable to occur than earlier. The symptoms of the typhoid state are more likely to develop, yet not to the extent seen in adult life, and only in severe cases. The course is longer than before, frequently equalling the ordinary four weeks of the adult, and the temperature of the third stage is often more of the remittent type.

3. **Constitutional States in Relation to Gynecological Conditions.** By R. S. Morton. (See MEDICAL RECORD, July 25, 1914, page 185.)

6. **Eosinophilia in Chorea.**—S. S. Leopold presents a preliminary report which indicates the following: Eosinophilia is present in the majority of cases of true Sydenham's chorea. It is present almost invariably in recurring cases, especially where there has been more than a single recurrence. Because of the limited number of cases studied, this observation must be taken tentatively, pending future and more exhaustive study. The absence of eosinophilia in every case in which the diagnosis of true chorea was in doubt may prove of some diagnostic significance in borderline and doubtful cases. The presence of eosinophilia in the majority of cases is in favor of the theory of the infective origin of chorea rather than of the theory that chorea is a functional neurosis.

Journal of the American Medical Association.

August 1, 1914.

1. Parenteral Protein Digestion. V. C. Vaughan.
2. Limitations of the Dialysis Method as a Practical Test for Pregnancy. C. M. Echols.
3. Value of Abderhalden's Biologic Reactions to the Obstetrician and Gynecologist. H. Schwarz.
4. The Use of Salvarsan in Non-Syphilitic Diseases. W. H. Best.

5. Experimental Chronic Gastric Ulcer. A Second Contribution to the Experimental Pathology of the Stomach. J. C. Friedman and W. W. Hamburger.
6. Adenomyoma of the Rectovaginal Septum. D. S. D. Jessup.
7. A Few Practical Points on the Treatment of Leg-Ulcers. A. Ravogli.
8. Pelvic Varicocele. W. E. Darnall.
9. Notes on Cases of Sprue Invalided from the Tropics; Will it Become Endemic Here? H. B. Hiatt and W. Allan.
10. The Blood in Acidosis from the Quantitative Point of View. W. McKim Marriott.
11. Diphtheria of the Skin of Unusual Types. F. C. Knowles and L. D. Frescoln.
12. Lead Poisoning with Paralysis of the External Ocular Muscles. E. M. Williams.
13. Foreign Body in the Submaxillary Gland. W. H. Smith and N. T. Kirk.

1. **Parenteral Protein.**—By V. C. Vaughan. (See MEDICAL RECORD, June 27, 1914, page 1192.)

2. **Dialysis Method as Practical Test for Pregnancy.**—By C. M. Echols. (See MEDICAL RECORD, June 27, 1914, page 1192.)

3. **Abderhalden Reaction in Obstetrics and Gynecology.**—By H. Schwarz. (See MEDICAL RECORD, June 27, 1914, page 1192.)

4. **Salvarsan in Non-Syphilitic Diseases.**—W. H. Best formulates the following rules for the use of salvarsan in non-syphilitic diseases: Salvarsan is specific in diseases caused by any variety of spirillum. Salvarsan has curative properties in those diseases in which the infecting organisms are found in the blood or lymph, or in other locations where they can be easily reached. Salvarsan has great therapeutic value in those diseases in which arsenic has been successfully used. Salvarsan if used with caution, in repeated doses over a long period, has a therapeutic value in those diseases in which previously arsenic gave indifferent results. Salvarsan used as an adjunct to some other drug or drugs is useful in those diseases in which a decided and quick tonic, stimulating and alterative effect is desired, depending on the other drug or drugs for the ultimate result. The mode of administration is important, and should be as follows: intravenous in those diseases in which a specific action is desired; full dose muscular injections repeated once or twice at long intervals (eight weeks), in those cases in which the tonic, stimulating, and alterative effect is desired, as well as a certain specific action; small, oft-repeated (week or ten days) doses, intramuscularly, over a long period of time, in those chronic diseases in which a purely tonic, stimulating, and alterative effect is desired.

5. **Experimental Chronic Gastric Ulcer.**—J. C. Friedman and W. W. Hamburger conclude from their experiments on dogs that chronic ulcers may arise from acute ulcerations, if certain factors are present, namely, prolonged and probably violent action of active gastric juice, that is, hypersecretion and hyperperistalsis, and that such ulcers may remain unhealed if the acidity later drops to normal. Other factors, such as anemia, absence of antipepsin, vascular obstruction, etc., are unnecessary presuppositions. Stromeyer's theory of the digestive action of the gastric juice and the progress of food particles as determining the typical shape of ulcers is probably correct. The majority of chronic ulcers are single and situated near the pylorus, because ulcers elsewhere tend to heal, the factors causing chronicity being usually present only near the pylorus.

8. **Pelvic Variococele.** By W. E. Darnall. (See MEDICAL RECORD, July 4, 1914, page 38.)

9. **Cases of Sprue Invalided from the Tropics.**—By H. B. Hiatt and W. Allan. (See MEDICAL RECORD, June 27, 1914, page 1187.)

10. **Diphtheria of the Skin of Unusual Types.**—F. C. Knowles and L. D. Frescoln state that diphtheria of the skin may occur in several forms, in addition to the false membrane type: the ulcerative, gangrenous, eczematous, impetiginous eczema-like pustular, impetiginous, ecthymatous, vesicular (varicella-like), bullous, dermatitis herpetiformis-like, tumors and abscesses. The authors' two cases were of the bullous impetigo type, one terminating fatally. Inoculation of the skin occurs by autoinoculation, by means of infected articles, and from one person to another. It may occur primarily on the integument, remain limited to it, and spread to the mucous membranes, or, more commonly, it is secondary to throat, nasal, or laryngeal diphtheria. In cases of diphtheria of the skin the Klebs-Loeffler bacillus always has to be distinguished from the pseudodiphtheria bacillus. These two organisms differ somewhat morphologically, culturally, and in animal inoculations. The diphtheria bacillus is particularly distinguished by the metachromatic granules as shown best with the Neisser stain, by the acid producing qualities, and by the fatal results on inoculating animals. The diphtheritic skin lesions are a constant source of contagion, because they are frequently unrecognized for a considerable period. They may last over a long period or run a rapidly fatal course.

The Lancet.

July 25, 1914.

1. Localization of Motor and Speech Centers in Definite Areas of the Cortex of the Brain. E. Dupuy.
2. A Reduction in the Virulence of Tubercle Bacilli Stored in Normal Saline. L. S. Dudgeon.
3. Observations on 120 Cases of Lead Absorption from Drinking-Water. W. W. Stainthorpe.
4. Further Note on the Use of Celluloid Splints in the Treatment of Acute Cases of Poliomyelitis. F. E. Batten.
5. Epidemic Catarrhal Jaundice. E. A. Cockayne.
6. Some Problems in Cardiac Physiology: Contributions to a Study of the Relations Which Exist Between the Various Chambers of the Mammalian Heart. A. F. S. Kent.
7. A Case of Tuberculous Disease of Vertebrae Complicated by an Extensive Acute Suppurative Meningitis. J. Miller and A. F. Hewat.
8. The Surgical Treatment of Streptococcic Arthritis. J. O'Conor.
9. The Technique of Abderhalden's Serum Reaction. W. E. Bullock.
10. The Geographical Distribution of Appendicitis. R. W. Murray.

1. **Localization of Motor and Speech Centers.**—E. Dupuy states that lesions of both hemispheres in almost the same ratio cause paralysis on the opposite side of the body. In the first 600 cases of hemiplegia which the author has collected 260 showed lesions in the right hemisphere, from which fact he concludes that there is no difference in the functions of the two halves of the brain. Numerous operations performed by surgeons to remove the cause of convulsions or contractures, show that the so-called motor centers for the arm, for instance, or the hand having been removed, not only the convulsion or the contracture disappeared, but no paralysis ensued. Seven years ago Marie tried to show that aphasia is composed of different conditions—one the loss of power of pronouncing words, and the other the loss of comprehension and understanding, or sensory aphasia, so-called. He endeavored to establish the seat of the real lesion of aphasia in that part of the temporoparietal lobe which he defined in a quadrilateral space, including Wernicke's convolution and deeper parts. The author offers the explanation which he believes is the rational one of the mechanism of symptoms in brain lesions. He states that the conception of the seat of definite function, as the doctrine universally adopted will have it, is erroneous. In the light of the examples which he has reported it appears that there are no supplemental centers, but that the entire cortex is endowed with the faculty of acting in specific and differentiated manner, and that at most disease or destruction of a given area brings on motor paralysis or aphasia by an inhibitory influence. This inhibition

would naturally imply alterations of the muscular sense.

4. Celluloid Splints in Acute Poliomyelitis.—F. E. Batten shows that early splinting of cases of acute poliomyelitis with celluloid splints is attended with good results, in that it has aided the recovery of the paralyzed muscles by keeping them at rest, that it has prevented deformity, and has enabled the patient to walk. Of the twenty-four cases of acute poliomyelitis seen and treated within three months of the onset, in twenty-one it is known that no malposition has arisen; three cases have not been seen recently, so no positive statement can be made in regard to them. In one severe case after wearing splints for a year, recovery was so far complete that splints were no longer required, and a year later it was difficult to say that there was any residual paralysis. It is fully recognized that this is fortuitous, and under other forms of treatment the boy might have made an equally good recovery, but it seems certain that his recovery was greatly assisted by the prevention of deformity in the early stage of the disease. Of the remaining cases all have still varying degrees of weakness, Batten says, but nevertheless they are all able to get about and have no malposition of the limb.

5. Epidemic Catarrhal Jaundice.—E. A. Cockayne states that this disease has an almost world-wide distribution and a definite seasonal and age incidence, and is commoner in some seasons than others. It is still an open question whether the disease is a local one of the bile-ducts and liver or a general blood infection. Recently collected evidence seems to prove that the disease is contracted by breathing in air containing the organism, and close contact is necessary. The disease appears to be most infectious in the prodromal period and in the early stages, but the virus may remain active and be transported to a distance.

8. Surgical Treatment of Streptococcic Arthritis.—J. O'Conor bases his treatment of this condition on the following hypothesis: Acute rheumatism is primarily a joint affection due to some pathogenic germ (streptococcus) conveyed by the blood from an infected tonsil, decayed teeth, or some lesion in the intestinal mucous membrane. The joint invasion is promptly followed by a form of acute arthritis with general toxemia, and the infected joints serve as incubators, where the poison is elaborated and poured into the circulation, and thus conveyed to other articulations and to the cardiac valves. In some cases the joints retain the virus in a latent condition until some chill or other cause rouses it into activity. Holding such views as to causation, it naturally followed that the author should suggest that the term acute infective arthritis be substituted for rheumatic fever, etc., and that the names gonorrheal, pyemic, tuberculous, syphilitic, etc., be retained in order to differentiate the infection peculiar to each. The author makes it a rule to operate in cases which do not promptly yield to medical treatment (sodium salicylate, ½ dram; sodium bicarbonate, 1 dram, every three hours; salines, milk diet, woollen clothing, etc.). All infected joints are opened, flaky turbid lymph is evacuated, free irrigation is performed with warm oxygen water, and drainage-tubes are inserted and retained in situ for three days. Multiple incisions are made into areas of periarticular cellulitis and hot mercurial fomentations are applied. Splints are employed for immobilization purposes for from seven to ten days, at the end of which the patient is requested to commence graduated active movements. When the wounds are healed, O'Connor says, gentle massage should be prescribed.

British Medical Journal.

July 25, 1914.

1. The Serum Diagnosis of Pregnancy and of Cancer: A Critical Study of Abderhalden's Method. A. Leitch.
2. National Health Insurance. J. B. Fisher.
3. The Position of the County Doctor in 1879 and To-Morrow. J. L. Thomas.
4. Sprue. P. H. Bahr.
5. The Controlled Use of New Tuberculin in the Treatment of Pulmonary Tuberculosis. G. V. Stockdale and R. Hodson.
6. A Note on Sixty-three Successive Cases of Enteric Fever Treated with Vaccines. Captain W. P. MacArthur.
7. Hernia of the Uterus, Vagina, and Fallopian Tubes in a Boy. L. R. Braithwaite and W. Craig.

1. The Serum Diagnosis of Pregnancy and of Cancer.—A. Leitch in summing up the results in 100 cases tested to prove the diagnostic worth of the dialysis reaction in pregnancy, finds that by the most generous reading possible, judging by two sets of experiments and not by the usual one, and making allowances for all the hypothetical fallacies that there are, still seventeen most glaring mistakes in diagnosis, which of themselves constitute a large percentage, sufficient to destroy the diagnostic worth of the reaction. But if one applies to the good results the same code of ethics by which one rejects the undesired, then the whole theory becomes worthless.

4. Sprue.—P. H. Bahr concludes that sprue is a specific disease of tropical and subtropical countries, though it is possible that cases occasionally originate in temperate zones. It is a prevalent disease in Ceylon especially among the Europeans. Contrary to the opinion hitherto held, it occurs among the natives irrespective of race or mode of life. This fact, together with the occurrence of the disease in people closely associated with one another, suggests some local influence or some communication of the specific cause from man to man. Sprue is a variable disease. It may occur in a mild or in a particularly virulent form, and, in common with many other serious diseases, is prone to sudden exacerbations, remissions, and periods of latency. There is evidence that the disease may occur in distinct clinical forms, according to the portion of the alimentary canal attacked. Researches in the composition of the stools point either to a complete absence or to an inadequacy of the intestinal digestive ferments. Researches on the blood and on the urine suggest that certain of the more important clinical features of sprue are dependent on an alimentary toxemia. The pathological findings are also in favor of such a conclusion, and, if anything, point to an invasion with the thrush fungus as being concerned in their production.

Berliner klinische Wochenschrift.

July 13 *and July* 20, 1914.

Atypical Gout.—Goldscheider writes a serial article on this subject which he is able to condense into comparatively few words. The so-called gouty metabolism is an extremely common affection, but its highest expression, which we call typical gout, is but a small fraction of the whole. When this does appear there are usually phenomena which suggest plainly a diathetic state, resulting so to speak from the extreme aberration of the gouty metabolism. In atypical gout we do not behold any evidences of a diathesis, save in the metabolism, which indicates unusual burdening of the alimentary organs—which are unequal to the maintenance of normal nutrition—and an incomplete consumption of energy. These changes from the normal also constitute the gouty diathesis. The therapy of atypical gout differs from that of the typical form. The departures from normal metabolism are sufficient to determine numerous disorders of the nervous, circulatory and renal systems, which are sufficiently analo-

gous to the conditions seen in gout proper. A treatment based on correcting the metabolism, which would not alone reach actual gout, is of great service in the atypical form. This consists on the one hand of a correct diet, such as is well known to all practitioners as indispensable in uric acid calculi, "lithemia," etc.; and on the other hand of measures directed against the abdominal plethora so commonly encountered. To sum up the leading symptoms of atypical gout, these include obesity, enlarged liver, neuralgia, myalgia, arthralgia, high blood pressure, tendency to arteriosclerosis and changes in the myocardium; last of all is the tendency to gouty kidneys. Atypical gout while a much milder affection than true gout, is none the less well able to set up fatal disease of the heart and blood vessels and kidneys. Tophi have often been seen in atypical gout.

Relations of the Thymus to Graves' Disease.—Matti concludes a long serial article on this subject. His conclusions, set forth at great length, show that his attitude is chiefly speculative, although numerous facts upon which it is based are of interest. With Graves' disease we commonly find an enlarged, hyperplastic thymus. This does not represent mere coincidence. The enlarged organ may, however, be isolated, or be one element of the status thymico-lymphaticus. The enlarged thymus potentizes the ill action of the thyroid in Graves' disease, yet it does not appear that an enlarged thymus *per se* exerts an deleterious action on the body. Such enlargement is sometimes compensatory, the thymus acting vicariously for the medullary tissue of the adrenals when the latter are hypoplastic. The fact remains, however, that in Graves' disease hyperplastic thymus is part of the syndrome. Experiment produces results opposite to those which one would expect. It is not justifiable to associate hyperplastic thymus with the condition known as vagotonus, which has by some been made responsible for Graves' disease. Vagotonus comprises subjective heart disturbances without corresponding objective finds, sweating, diarrhea, digestive disturbances, pronounced picture of Graves' disease, and finally a high degree of myasthenia. An enlarged thymus forms *per se* no contraindication to operation for Graves' disease; in fact, if the thymus is large and the thyroid not greatly involved, operation on the thymus is indicated. If the adrenals are hypoplastic, experience shows that adrenalin should be given as a preliminary to operation on the thymus. We are at present justified in the belief that Graves' disease is not due entirely to the thyroid. We commonly find associated changes in both glands and a peculiar blood picture.

Experimental Pneumonia.—Meltzer in his report on recent work carried out at the Rockefeller Institute on this subject gives the actual results obtained as follows: Various species of microorganisms of proved virulence were conveyed directly into the bronchial tubes by intrabronchial insufflation. The first trial was made naturally with the pneumococcus. All virulent germs gave a distinct pneumonia reaction, varying much in degree. Heat-killed pneumococci caused a simple transient hyperemia. The right lower lobe was usually the seat of the inflammatory lesion. The reaction varied in extent almost directly with the number of bacilli injected. The germs were found virulent in the exudate during the first forty-eight hours, the latter containing but little fibrin; and could also be cultivated from the blood during the same period. Unless the animals had perished in the meantime, the germs showed complete loss of virulence by the third day. The fatalities were about 16 per cent. The same lesion could be caused by streptococci, but much less readily; while the exudate had a slightly purulent quality. Insufflation of pyocyaneus cultures appeared to poison the animals promptly before any lung focus could have developed.

Münchener medizinische Wochenschrift.

July 14, 1914.

An Exciter of Coughs and Colds.—Kruss believes that the various microorganisms which are apparently capable of setting up acute rhinitis cannot explain certain phases of the latter. In certain cases pathogenic bacteria may be found in the nasal mucus in such small quantities that they cannot be regarded as responsible. This, in fact, is rather the rule than the exception, and in turn tends to throw doubt upon the contention that an ordinary cold is due to the various germs at present accused, as the *Micrococcus catarrhalis*, the influenza bacillus, etc. A simpler and more probable view is that a cold is due to some ultramicroscopic filtrable virus, for during the past twenty years about that number of diseases has been brought etiologically under this head. The writer filtered some nasal secretions of a patient with a cold through a Berkefeld filter and inoculated a considerable number of individuals with the filtrate. In from one to three days all had developed colds. The disease was then propagated through other series. The filtrates were sterile as far as our known germ life is concerned. The invisible offender, thought to be a protozoon, he regards as responsible for most of our colds.

Magnesium Treatment of Tetanus.—Stromeyer, assistant of Lexer, has had very poor results from this aspect of therapeutics. There was but one recovery in five cases. There was no doubt as to the immediate results of the method which sends the patient into a deep sleep and causes notable relaxation of the muscles, but the contractions again light up, and in any case death occurs early from pneumonia and heart failure. Two of the patients had severe pneumonia when admitted for treatment. The series of patients is a most peculiar one in that tetanus did not cause death directly in a single case, while indirectly it can only be said to have been a contributory cause. The author does not appear to accuse the magnesium. To give the latter a full trial, no other remedy was employed. He gave the drug in moderation, and claims that in none of the cases was there any evidence of respiratory failure. In regard to the double pneumonia, one wonders to what extent it was hypostatic. To sum up, it is certain that none of the patients could have died from convulsions because these had either greatly diminished or ceased outright long before death. The fact that in all deaths the autopsy finds were about the same—double pneumonia, acute dilatation of the heart, pulmonary edema—shows a common type. The patient who barely recovered also went through double pneumonia and severe acute decubitus. The anesthetic action of magnesium below the puncture point was notable. One can hardly escape the conclusion that the treatment contributed to the demise of these patients, despite the author's stout denial.

Congenital Milium.—E. G. Graham Little reports the case of a male infant aged three months whose condition as seen had been noted at birth and had increased since then. At the present time the patient had a very copious eruption on the face, especially on the chin, where the whole surface was closely studded with the characteristic small white tumors, in the axillæ, and on the chest, back, and scalp, there being many hundreds of the lesions. The mother had no milium, and this was the only child affected.—*Proceedings of the Royal Society of Medicine.*

Insurance Medicine.

Heart Irregularity and Life Insurance.—Dr. J. S. Lankford, Medical Director of the San Antonio Life Insurance Company, writing in *Salic*, May, 1914, points out that almost all about the heart must be rewritten to conform to the valuable information obtained in the past few years by better methods of investigation. He states that the supreme test to aid in determining the gravity of the situation is to try out the integrity of the heart muscle by exercise and blood pressure tests. If the condition of the heart seems at all suspicious, the blood pressure, diastolic and systolic, should be taken and then the applicant should be made to exercise to the equivalent of climbing two ordinary flights of stairs. If there is serious disease he will come back breathless and more or less distressed, with great irregularity and a murmur may be revealed. Take the blood pressure at once and it may be found that the systolic has fallen and the diastolic has remained stationary, creating a small pulse pressure. If the pressure rises it will be found to decline very slowly in a case of serious disease if the test is made every three minutes. In a normal heart the return to the original position will be very prompt.

A New Investigation Into the Mortality of Insured Syphilitics.—The author cites statistics compiled by L. P. Orr, the British actuary, from reports of American and Canadian insurance companies. The material covers the period 1885-1908 and comprises the risks who had presumably recovered from the disease after proper treatment, and second those in which for any reason there was a possibility that syphilis was latent, and who were insured only as substandard risks with increased premium. In the first class there were three grades based on time elapsed between dates of infection and insurance, no one being accepted unless at least three years had expired. The three periods were (1) from 3 to 5 years; (2) 5 to 10 years; (3) over 10 years.

The actual mortality was much greater than the expectation of life. If the latter be regarded as 100 per cent., the percentages for the three groups were respectively 139 per cent., 147 per cent. and 217 per cent. The finds in the substandard class were of the same kind, the mortalities showing high percentages. Deaths from tabes and paresis were fivefold more than the actual expectation.

Two sets of European statistics compiled up to 1904 are also cited, to wit: those of Gotha and those of the Scandinavian insurance societies. The results are evidently less carefully compiled than those of America but show excess of syphilis mortality to be 68 per cent. and 63 per cent. respectively. The Scandinavian figures go back to 1852. In those regarded as damaged by the disease, the increase is 86 per cent. The Scandinavian material owing to its great age can hardly hold good today, for diagnosis and treatment were both undeveloped and nothing was known of metasyphilis.

The figures from the United States and Canada going back only to 1886 are not open to these objections. At about this period the question "have you had syphilis" first formally appeared on insurance blanks, together with the one relating to nervous affections. These resulted in a better selection of cases. It will be noted that the average mortality of risks in the American countries is 188 per cent. This excess of 88 per cent. is roughly comparable with the figures of the European countries, to the extent of a complete verification. The excess of mortality today with all our refinements of diagnosis and treatment can only be explained by a more careful analysis of the material.—*Blätter für Vertrauensärzte der Lebensversicherung*, May-June, 1914.

The Reporting of Disease.—In an address presented to the Association of Life Insurance Presidents on June 5, 1914, Dr. Louis I. Dublin, statistician, Metropolitan Life Insurance Company, New York, said in part that sickness throughout the country had not decreased, despite a lowering of the death rate. He urged the passage of a bill drafted by the State health officers of New York at a conference in 1913 to ensure complete reports of diseases. Dr. Dublin was of the opinion that the application of sanitary science based on such reports would reduce disease to a considerable extent and be of great economic value to the country. The speaker then pointed out that the amount of sickness has not been controlled to any appreciable degree. The next twenty years must, therefore, see our activities in health work directed especially to the control of disease. The basis for any campaign against sickness must be an accurate knowledge of its prevalence. Just as the reduction of mortality is furthered by a complete registration of deaths and their causes, so our efforts to reduce the frequency of disease depend upon machinery for reporting cases of illness, their causes and their duration. Although most of the States had laws requiring the reporting of some infectious diseases, investigation showed that the reports were almost useless because of incompleteness. Whatever is the explanation, it is quite clear that at present no important aspect of our State health work showed up to such poor advantage as did the registration and control of the preventable diseases. Dr. Dublin outlined a few cases in which epidemics of communicable diseases had been checked by early reporting, including an epidemic of infantile paralysis in Buffalo, which was halted without serious fatalities.

Varicose Veins and Hemorrhoids in Life Insurance.—At a meeting of the British Life Assurance Medical Officers' Association on November 5, 1913, Dr. F. de Haviland Hall said that he had had personal experience of only two cases in which an addition was made on account of varicose veins and these two cases threw no light upon the influence of varicose veins on life expectancy. On this point he could only repeat what he had written in his little book on "The Medical Examination for Life Assurance." In this he said that varicose veins need not be regarded unless they are very large; in this case the risk of rupture and fatal hemorrhage or of embolism must be considered. It has been suggested that from a life assurance point of view varicose veins might be disregarded, but a recent case of death from pulmonary embolism as a result of varicose veins had shown the need for caution. The existence of piles should give rise to the suspicion of commencing cirrhosis of the liver, although, of course, they often occur in people of sedentary habits, suffering from constipation and without any relation to liver disease. Dr. Hingston Fox considered that the great majority of hemorrhoids might be taken at ordinary rates and that varicose veins did not materially add to the risk.

Book Reviews.

TASCHENBUCH DER THERAPIE. Herausgegeben von Dr. M. T. SCHNIRER. Zehnte Ausgabe. Price 2.50 Mks. Würzburg: Curt Kabitzsch, 1914.

THIS is the tenth edition of Dr. Schnirer's pocket manual. 45 new drugs are mentioned. Prof. Gaertner, Dr. Hahn and Prof. Knöpfelmacher have contributed additions and revisions, and Dr. Schnirer has included the "Formulae magistrales Berolinenses."

FESTSCHRIFT DES KURMITTELHAUS DER AL HAYAT COMP. IN HELOUAN. Herausgegeben von Dr. WILHELM PREMINGER und Dr. MAX LOEWY. Cairo: Druckerei der Société Orientale de Publicité, 1914.

THIS pamphlet includes articles on nephritis and gout of the knee joint by Dr. Wilhelm Preminger, on hypnosis and the limits of hypnotic influence, and on the climate of Helouan and its indications in certain diseases by Dr. Max Loewy. The Prussian Ministerium sent an expedition to Helouan to make a report on the desert climate, and this pamphlet was issued as a souvenir by the doctors of the Al Hayat Company's Institut Médical.

DIE GONORRHOE DES WEIBES. Von Prof. Dr. F. FROMME. Price 2 Mks. Berlin: S. Karger, 1914.

PROF. FROMME advocates a purely conservative treatment of gonorrhea in women in this pamphlet intended for practitioners. He has devoted some space to the questions of diagnosis and the relative values of therapeutic methods.

DES HAARSCHWUNDS URSACHEN UND BEHANDLUNG. Von Sanitätsrat Dr. S. JESSNER. Price Mk. 90. Würzburg: Curt Kabitzsch, 1914.

THE seventh edition of Dr. Jessner's dermatological lecture on the causes and treatment of falling hair mentions all the new remedies for the various alopecias and their therapeutical values.

DIE REINFECTIONEN BEI SYPHILIS. Von Dr. med. J. BENARIO. Price 3.50 Mks. Halle a. S.: Carl Marhold's Verlagsbuchhandlung, 1914.

DR. BENARIO has collected the cases of syphilitic reinfection which have been observed and published in the French, German, English, American, and Italian medical journals since the introduction of salvarsan. There are 49 cases after salvarsan treatment and 47 cases after salvarsan and Hg treatment. Dr. Benario concludes that the increased number of these reinfections point to a superior sterilization attained by salvarsan since Neisser's animal experiments have proved that reinoculations are only possible in such animals as had been thoroughly cured. Dr. Benario thinks that analogous conclusions may be drawn for men.

THE CLINICAL HISTORY IN OUTLINE. By PAUL G. WOOLLEY, S.B., M.D., Professor of Pathology, College of Medicine, University of Cincinnati; Director of Laboratories, Cincinnati General Hospital, Cincinnati, Ohio. Price $1.00. St. Louis: C. V. Mosby Co., 1914.

THIS little book makes no attempt to take automatically a clinical history. It is intended merely as a sort of reminder of points to be considered and to offer a systematic scheme for arranging the facts concerning a patient. It does not replace the larger works on this subject.

A WAY OF LIFE. An address to Yale Students Sunday evening, April 20, 1913. By WILLIAM OSLER. Price 50 cents net. New York: Paul B. Hoeber, 1914.

THIS is one of the most recent of Osler's addresses and sums up in terse words a philosophy of life. The lesson is taught that man should live in "day-tight compartments." Profiting by the experience of the past and providing for the needs of the future, he should heed the following precepts: "Waste of energy, mental distress, nervous worries dog the steps of a man who is anxious about the future. Shut close, then, the great fore and aft bulkheads, and prepare to cultivate the habit of a life of life of Day-Tight Compartments." "The failure to cultivate the power of peaceful concentration is the greatest single cause of mental breakdown." "The quiet life in day-light compartments will help you to bear your own and others' burdens with a light heart. Pay no heed to the Batrachians who sit croaking idly by the stream. Life is a straight, plain business, and the way is clear, blazed for you by generations of strong men, into whose labors you enter and whose ideals must be your inspiration."

HANDBOOK OF MEDICAL TREATMENT. A Guide to Therapeutics for Students and Practitioners with an Appendix on Diet, by JAMES BURNET, M.A., M.D., M.R.C.P. Edin. Fellow of the Royal Society of Medicine, Lecturer on Practical Materia Medica and Pharmacy, Examiner in Materia Medica and Therapeutics to the University of Aberdeen, Physician to the Marshall Street Dispensary and Registrar to the Royal Hospital for Sick Children, Edinburgh, Author of "The Pocket Prescriber" and "The Pocket Clinical Guide." Price $1.25. London: Adam and Charles Black, 1913.

THIS volume is an unambitious attempt to supply the main facts of medical treatment within the compass of a small book, convenient to handle and to carry about. Purely surgical and gynecological conditions have been entirely omitted. The subjects are alphabetically arranged.

HEALTH PRESERVATION IN WEST AFRICA. By J. CHARLES RYAN, L.R.C.P.I.L.M., L.R.C.S.I., L.M., Diplomate in Tropical Medicine, University, Liverpool; late M.O. West African Medical Staff, with Introduction by Sir RONALD ROSS, K.C.B., F.R.S., Nobel Laureate M.D., D.P.H., F.R.C.S.D.Sc., LL.D. Price, 5 shillings. London: John Ball Sons & Danielsson, 1914.

OWING to the fact that the number of people who are finding employment in West Africa is yearly on the increase and because of the misleading and dangerous statements uttered by some of the "old coasters" the compilations of these hints have been found necessary. As briefly and as simply as possible the essential and personal measures are described towards the preservation of health by those visiting West Africa.

THE HYPODERMIC SYRINGE. By GERRGO L. SERVOSS, M.D., Editor of "Nevada Medicine," Member of the Nevada State Medical Association, Fellow of the American Medical Association. Price $2. Newark, N. J.: Physicians Drug News Co.

THIS book follows in the footsteps of Bartholow's little work on hypodermic medication published several years ago. No attempt has been made to inject anything of an original nature but rather to give a condensed narrative of the hypodermic syringe and its possibilities as set forth by numerous authors and investigators. The wonderful strides made in hypodermic medication in recent years call for the concise and thorough presentation as here given. Some of the subjects taken up are technique, drugs, chemicals, sera, bacterins, anesthesia, etc.

MAN'S REDEMPTION OF MAN. A Lay Sermon, McEwan Hall, Edinburgh, Sunday, July 2, 1910. By WILLIAM OSLER. Price, 50 cents net. New York: Paul B. Hoeber, 1913.

THE gospel of health is the keynote of this sermon written in a forceful and epigrammatic style. The abolition and the prevention of disease are the means whereby man's redemption by man is being accomplished. "In the comedies and tragedies of life," says Osler, "our immutable human nature reacts very much as in the dawn of science, and yet, with a widening of knowledge, the lights and shadows of the landscape have shifted, and the picture is brighter. Nothing can bring back the hour when sin and diseases were correlated as confidently as night and day; and how shall we assess the enormous gain of a new criterion, a new estimate of the value of man's life. There are tones in human sentiment to-day which the ancients never heard, which our fathers indeed heard but faintly, and that without recognizing their significance. The human heart by which we live has been touched as with the wand of a Prospero. What availed the sceptred race, what the glory that was Greece, or the grandeur that was Rome, of what avail even has been the message of the gospel, while the people at large were haunted by fear and anxiety, stricken by the pestilence of the darkness and the sickness of the noonday? The new socialism of science with its definite mission cares not a rap for the theories of Karl Marx, of Ferdinand Lasalle, or of Henry George; still less for the dreams of Plato or of Sir Thomas Moore—or at least only so far as they help to realize the well-being of the citizen. Nor is there need to fear that in weighing the world in our balance we may drain the sap of its life, so long as we materialize in the service of man those eternal principles on which life rests—moral fervor, liberty, and justice."

Society Reports.

BRITISH MEDICAL ASSOCIATION.

Eighty-second Annual Meeting Held in Aberdeen, July 24-August 1, 1914.

(Special Report to the MEDICAL RECORD.)

SIR ALEXANDER OGSTON, M.D., PRESIDENT.

AT the opening meeting of the Representatives it was decided to hold the meeting of the Association for 1915 at Cambridge from July 2 to 10 and Sir T. Clifford Allbutt was appointed president-elect. Concerning the finances a question was asked as to payments made to members of parliament for supplying reports for the *Journal*. Complaint was made by Dr. Beaton of the low salaries paid to some members of the staff and a recommendation to the council for a favorable consideration was unanimously carried. Dr. Haslip protested against the appointment of three new assistant secretaries as unnecessary and therefore extravagant. The financial report was eventually adopted.

It was agreed that the subscription be two guineas for residents in the United Kingdom, and 25 shillings for those in the Channel islands and colonies. A resolution was passed that the annual representative meeting should be deliberative and not bound by proceedings at divisions.

It was agreed on in the proposal of Mr. Turner, representing the Kensington division, to write to the Chancellor of the Exchequer to urge that the petition of Sir Ronald Ross for remuneration for services to the Empire in connection with the investigation of malarial fever ought to be granted. Mr. F. J. Smith said it was a lasting shame on England that medical men at home and in the colonies were let to go into the difficult and dangerous byways of nature and get nothing for it unless posthumous honor. A resolution warned against contributing articles on medical matters to publications issued to the general public. One such was named in which dangerous drugs had been recommended. Steps towards the State registration of nurses were approved.

On Saturday the whole day was occupied by the representative meeting with a report of the council on the proposal to establish a special fund according to instructions of a previous meeting in favor of doing so. The proceedings had been in private as to this, but an official statement was issued to the effect that the proposal was carried by a large majority. It was settled that the fundamental object should be protection of the honor and interests of the profession and the formation of a reserve. The question whether this should be done in the trade union way was decided against that plan—some other method of administration to be employed.

On Sunday (26th) there was a temperance demonstration. Some twenty doctors spoke from Aberdeen pulpits and platforms. Sir Victor Horsley addressed a brotherhood meeting on "Alcohol, the Enemy of Brotherhood," because, he said, it was responsible for poverty, misery, and the destruction of life; some 1,600 persons being poisoned by it every year. There was close association between the drink trade and slums. Housing was one of the most difficult problems, but he expected the great municipalities, when the taxation of land values came in, would be provided with one way of dealing with this complex question, without falling back on that patient ass, the ratepayer.

On Monday the relation of the profession to the State and the Insurance Act was discussed in various aspects, including payments proposed, the danger of doing government work without payment, the alleged desire of the government to control the voluntary hospitals, the right of all insured persons to a free choice of a doctor—whether on the panel or not, the admission into free hospitals of women entitled to maternity benefit. These and similar points occupied a long time. On the other hand much amusement was caused by the speed at which Scottish affairs were rushed through—all the recommendations of the special committee being approved within a minute.

On Tuesday the representative committee held another meeting when other points in the working of the Insurance Act were considered and business of interest only to members disposed of, prior to what may be termed the meetings proper of the association when the decisions for the coming year stated above were confirmed, the gold medal was presented to the chairman of the representative meetings and to the treasurer.

The Presidential Address was delivered by Sir ALEXANDER OGSTON on "The Making of a Scottish Medical School." The president described the steps by which the foundation of the university and its medical school had been laid. It was partially owing, he said, to the Wars of the Roses that the earliest of all British medical schools was established in Aberdeen. At the close of the fifteenth century the state of education and culture in Aberdeen was at a low ebb. In a Bull regarding the founding of the university the Pope (Alexanderd VI.) had stated that the people were so ignorant that persons could not be found who could read the Word of God, preach or administer the sacraments. To the advent of Bishop Elphinstone, about 1483, Aberdeen owed reforms of the greatest importance. As a result of the Wars of the Roses the clergy, who acted as negotiators, possessed exceptional powers, and Bishop Elphinstone gave effect to three great schemes for the benefit of Aberdeen, the restoration of the Cathedral, the provision of a good and practicable access to the city by land, and the foundation of a university. The wisdom of the bishop in respect to the study of medicine was worthy of the greatest admiration. Not a single university in the British Isles had up to that time seriously set itself to establish a teaching medical faculty as part of its machinery. For the profession, or rather the trade, of medicine had sunk very low, particularly in Scotland, and the specimens to be met with there would not have encouraged an ordinary mind to provide a faculty for them in a university. For the post of principal of the university he selected Hector Boece or Boyce, who at the time of the starting of the university was about thirty-three years of age. The medical seed planted by Elphinstone did not at once spring up into full vegetation. The English masters of medicine had not yet arisen, and the scientific foundations on which modern medicine rested were not even begun to be laid. Nevertheless, it was the foresight of Elphinstone that prepared the ground, and his endowments that planted the seed which was afterwards to spring up into the flourishing school of medicine of which Aberdonians had good reason to be proud.

Medicine from the Chemical Standpoint.—Dr. ARCHIBALD E. GARROD of London delivered this, the Address in Medicine, on Wednesday, July 29. He said that many of the early chemists were practitioners of medicine, and from the days of Paracelsus and of van Helmont, the father of physiological chemistry, down to the earlier years of the nineteenth century, the chemical outlook had been that most widely adopted by medical men. Throughout the greater part of the last century morbid anatomy and histology had held the field unchallenged; and they had been justly entitled to do so in view of the progress made in the macroscopic and microscopic study of diseased structures, upon which had been reared the imposing edifice of cellular pathology. Yet, during this period the science of chemistry, both in its inorganic and organic branches, had been making rapid strides. The syntheses of urea by Wöhler in 1828 brought the products of life within the province of the pure chemist, and there had always been investigators who, with Liebig, studied the intake and output of living organisms, and who added to our knowledge of the chemistry of the urine, and of the problems presented by such maladies as diabetes and gout. Carbon compounds of ever greater complexity had been built up, step by step, from their elements, and even the synthesis of proteins was being brought within reach, thanks to the labors of Emil Fischer and of a body of workers who derived their inspiration from him.

Among the building materials employed in the construction of living organisms the proteins held a place apart. They were the actual vehicles of life, and upon their properties the very possibility of life depended. The huge molecules of the proteins had been teased out—to borrow a term from histology—and, as a result, the conception of an unwieldy group of atoms had been replaced by that of an orderly structure composed of comparatively simple building stones, of a neatly constructed block of masonry rather than an amorphous mass of concrete. These building stones were the now familiar protein fractions. Some of them had long been known as rare ingredients of the excreta—such, for instance, as tyrosin, leucin, and cystin—but whence they came and how they were formed in the body had been, until recently, unknown. Widely as the protein fractions differed in their structure, they had this in common—that they were amino- or di-amino-acids. Seeing that they shared the properties of acids and bases, they were capable of combining with each other to

form the complicated chains or networks which constituted the protein molecules; and since they admitted of combination into many different groupings, there was a possibility of almost infinite varieties of protein structure. Abderhalden estimated that the possible combinations of the twenty known protein fractions, in which each individual fraction was represented once, and only once, needed for their expression a number composed of no less than thirteen digits. The very proteins which performed identical functions in different animals were not themselves identical, but differed from genus to genus, from species to species, and differed the more widely the further the several species were separated from each other in the evolutionary scheme. The effect upon physiological thought of this conception of chemical specificity had already been far-reaching. One no longer thought of the proteins of food as utilized, after comparatively slight change, and in such complex forms as albumose and peptone. The differences between the food proteins and those of the animal fed necessitated the assumption that their disintegration by the digestive juices was far more thorough than used to be supposed, and that reconstruction of the proteins in the organism fed started from the primary amino-acid fractions. Moreover, each tissue-protein bore not only the impress of the specific stamp, but also of a second stamp derived from the organ of which it formed part. The recent work of Abderhalden and the study of cytolysins afforded evidence that the proteins of the liver, spleen, pancreas, or any other organ had their special peculiarities. Sulphur was contained in one particularly amino-acid fraction—namely cystin, and an unusually large proportion of sulphur indicated a large cystin content. Phosphorus, on the other hand, was a constituent of the nucleo-proteins, which, as essential constituents of the cell nuclei, might lay claim to an importance second to that of no members of the protein group. In them also was included the purin grouping, the parent complex of most of the uric acid of the urine. As another example of a protein to which a special atomic group was attached hemoglobin called for mention, seeing that, in virtue of the iron-containing hematin which it included, it was able to fulfil the all-important function of carrier of oxygen to the tissues. Each kind of foodstuff, and indeed each individual protein fraction, followed its own special metabolic path. Moreover, there were paths for fats and paths for carbohydrates, and it was evident that even dextrose and levulose were dealt with in different manners, for a patient whose power of burning dextrose was grossly impaired might deal with levulose with far better success. In the same way the power of catabolizing a single protein fraction might be lacking in an individual who was able to dispose of the other protein fractions in a normal manner. It was believed that these changes were wrought by specialized enzymes, many, if not all, of which were capable of reversed action. Thus were produced numbers of intermediate products which were subjected to further changes as soon as they came into existence, and which called to mind a moving staircase rather than a flight of steps. Most of these intermediate products were never met with in an examination of the excreta, or only when the further transformations which they naturally underwent were in some way arrested.

In the course of evolution, a state would have been brought about in which the end products of metabolism would be harmless to the organism in which they were formed; but so delicately were the relations of tissue change adapted to the requirements of the organism that any deviation from health which disturbed the chemical processes, however slight the disturbance might be, led to the formation of products which were less well adapted, and tended to do harm. Obviously, only by a rigid system of control could the orderly working of the intricate metabolic changes be maintained, and the working of regulating mechanisms in the animal body was made manifest in a variety of different ways. In recent years there had been gained some insight into the mechanisms by which regulation was affected, and of the importance in this connection of the internal secretions of glands, ductless and others. However, the internal secretions were implements, rather than originators of control. The hormones were themselves but chemical products of certain specialized cells, and the activities of the glands which produced them were themselves under the control of the vegetative nervous system, which transmitted to them impulses in response to the chemical demands of the tissues. The inborn errors of metabolism were individually as rare as structural malformations, and much more liable to be overlooked. Their scientific value far exceeded their clinical importance, for they constituted true natural experiments. Thus, in cystinuria cystin, and sometimes other protein fractions also, escaped their normal fate, and appeared unchanged or only slightly changed in the urine. In alkaptonuria, on the other hand, there was a failure to complete the breakdown of the aromatic protein fractions, and the homogentisic acid which was excreted was thought, with good reason, to be an intermediate product of normal metabolism.

When into the field of intricate, but orderly, metabolic activities there intruded the agents of disease, a new set of phenomena was brought into action. The entire community bestirred itself to beat off the intruders, and there were called into play protective mechanisms of immense variety. The mechanisms of defence were of various kinds. Some were comparatively simple chemical reactions, as when free acids were neutralized by ammonia diverted from its ordinary path to the formation of urea; or when aromatic poisons were combined with sulphates, and were excreted in harmless forms. But aromatic poisons were also combined with products of protein or carbohydrate metabolism, with the protein fraction glycin to form the harmless hippuric acid and its allies, or with glycuronic acid to form compound glycuronates. Other mechanisms were far less simple, and the very nature of the protective agents was beyond the ken of the chemist. These were the agents known as antitoxins, agglutinins, precipitins, opsonins, and the like.

It was a question of much interest whether or no the various protective mechanisms had been evolved to meet the assaults of those toxic agencies to which the organism was specially exposed, or whether an entirely new mechanism could be devised, at any moment, to meet an unforeseen emergency. Evidence might be adduced in support of either hypothesis. There were many other ways in which derangements of metabolism were brought about by disease, apart from the calling into play of protective mechanisms. When an important organ became the seat of structural changes its functions became disturbed, and their normal orderly working was put out of gear, either permanently or only for a time. In the case of many maladies, even of the more acute and graver ones, the chemical disturbances which they brought in their train were far less conspicuous than the structural changes. In others, again, the metabolic disorders occupied the forefront of the clinical picture, as is the case in those maladies which one was accustomed to group together under the collective name of "diabetes."

There remained to be considered a group of maladies which might be classed as *negative*, seeing that they had their origin in the withholding of some portion of the supplies which the organism derived from external sources, and upon which its wellbeing depended. The extreme example of such a disease was starvation—a condition in which the body, being deprived of its food supplies, lived for a time upon its own fats and carbohydrates, and ultimately upon the proteins of its tissues. Minor degrees of the same condition were induced by restriction of the intake below an adequate calorie value, of proteins below the amount compatible with maintenance of nitrogen balance, or by complete deprivation of carbohydrate foods. The cutting off of carbohydrates, or failure to assimilate them, was promptly responded to by disturbance of fat and protein metabolism, with the result that the substances of the acetone group, aceto-acetic and β-oxybutyric acids were formed and excreted in large quantities. The new study of vitamines and of the effects of a diet consisting of pure proteins, fats, and carbohydrates upon the growth of young animals, was beginning to throw light upon the nature of such factors, "exogenous hormones" as styled by the speaker.

Thus one saw how delicate a matter was the maintenance of the integrity of the metabolic processes in the human body, and how slight disturbing influences might lead to their derangement. One realized how inefficient were therapeutic efforts when compared with the powers of protection with which patients were themselves endowed. It was in the field of diagnosis that the practical utility of chemical knowledge was most obvious.

Perhaps the greatest recent advance in diagnosis by chemical means was the perfecting of methods which enabled accurate and reliable estimations to be carried out, of such substances as glucose and uric acid.

in small quantities of blood drawn from a vein, and even in a few drops of blood from a prick in a finger. Again, the diagnostic methods of Abderhalden, afforded means of diagnosis of a subtlety hitherto not dreamed of, and gave promise of widely extended utility in the near future.

There were scientific grounds for the belief that mankind habitually took more protein food than was required for the due nutrition of the tissues, and undoubtedly the amount exceeded that required for the maintenance of nitrogen balance. As regards details of dietary, the speaker asserted that two-thirds of the restrictions imposed upon sufferers from particular maladies found no real justification in the teachings of science or of experience. One should aim at a diet of adequate calorie value, with due representation of the main classes of foodstuffs. The food should be so prepared as to be easily assimilable, and with due regard to the condition of the patient's alimentary canal. Some at least of it should be in a fresh state, and special restrictions were often desirable in view of defects of excretion, to rest damaged mechanisms, or to limit accumulation in the blood of metabolic products which failed to be dealt with in the normal ways. So, too, as regards treatment by drugs. In default of knowledge of anatomy and physiology, therapeutics could not be other than empirical; but step by step a scientific system of therapeutics was being built up. When one administered a serum or a vaccine, or such a drug as thyroid extract, one was copying Nature's methods, and employing her own weapons. When, on the other hand, the drugs which were employed were toxic substances, foreign to the organism, one should realize that, in giving them, one often produced not only the effect aimed at, but by-effects which could not be fully estimated. Not only were the weapons improved but the progress of knowledge was making one's aim more sure. That the progress of medicine had been more rapid in recent years than ever before was due to the cumulative advance of science as a whole. Modern physics and chemistry, and the borderland science of physical chemistry had rendered possible modern physiology and pathology, and upon the foundations thus provided was being raised the stately edifice of a modern medicine, in which the scientific spirit should have freer play than heretofore.

The Surgeon of the Future.—Sir JOHN BLAND SUTTON of London delivered this, the Address in Surgery, on Thursday, July 30. He said that the art of surgery was probably as ancient as the art of war, and was practised by warlike savages who had never been influenced by civilization. The antagonistic callings of the soldier and the surgeon had been markedly modified by the progress of science. It was believed by many that the ingenuity exercised in the invention of methods for destroying life would make war impossible, and the discovery of the causes of diseases and the perfection of preventive medicine would render physicians and surgeons unnecessary. The belief in each instance was futile. Soldiers and surgeons would be required as long as civilization endured; but their methods had undergone great changes, and greater were impending. Gunpowder revolutionized warfare; the discovery of anesthetics and the invention of the microscope completely changed surgical methods. The arena of an operating theater in the first half of the nineteenth century smacked of the bull ring. When anesthesia began to make progress, although surgeons recognized its importance, many years elapsed before it was fully utilized. Chloroform had been in constant use for operations before its usefulness in the reduction of dislocations was recognized. The utility of chloroform in the diagnosis of hysterical contractures, phantom tumors and spurious pregnancy was its last merit to be appreciated.

The speaker next discussed a subject which he designated as new diseases and the plagues of Egypt. Appendicitis became endemic in great centers of civilization in the last quarter of the nineteenth century. This disease occurred sporadically, and had been known as perityphlitis and iliac abscess for many years, but the cause of the present epidemic had not been discovered by pathologists or bacteriologists. A study of the history of diseases showed that they waxed and waned. In the fourteenth century lepers were common, and leper houses were as numerous in Europe and the British Isles as lunatic asylums to-day. In Europe generally leprosy diminished greatly without any recognized cause in the fifteenth century, but its decline was coincident with a great increase in syphilis. One disease trampled out another. Today one was staggered by the important observations that many infections were conveyed from man to man, man to beast, and from beast to man by insect agency. Flies acted as vectors of the parasites of sleeping sickness, gnats spread filaria, malaria, and yellow fever; fleas infected man with plague, and bugs could convey the leprosy bacillus. The famous plagues of Egypt fraught with such important consequences to the Israelites were intensified by flies. During the last decade they had come to be regarded as a conveyor of disease, and the indictment is very strong. It is not an unreasonable assumption that the death of the Egyptian children, which induced Pharaoah to let the children of Israel go, was due to an epidemic of infantile enteritis spread by an enormous swarm of "divers sorts of flies."

It was usual to ascribe the remarkable progress of surgery to the discovery of anesthesia and the perfection of methods designed to prevent wound infection, but one must not forget that most important was the invention of the microscope; without its assistance the minute bodies which effected such great changes in organic and inorganic nature, and caused so many varieties of infective disease in animals and plants, would have remained not only hidden but unsuspected.

The speaker next discussed the influence of chemotherapy on the surgery of the central nervous system. The effort to arrest the development of bacilli in the blood by means of compounds injected into the cerebrospinal fluid was a method of specific therapy unsuspected in one's wildest dreams. Orr and Rows found that microorganisms used neural lymphatics as routes for infecting the cord. The results of surgical enterprise on cerebral tumors were unsatisfactory; the mortality was great and the condition of the survivors in many instances sad. The indefiniteness of gliomatous formations made them extremely unfavorable for operation, to say nothing of the difficulty in localizing cerebral tumors in nonmotor areas. It was probable that compounds would be discovered that could be injected into the cerebrospinal fluid and cause gliomas to shrivel in the same way that gummas disappeared under potassium iodide, mercury, or salvarsan, and thus abolish some of the most uncompromising operations of modern surgery.

Investigations of the minute structure of morbid growths had been mainly useful in separating the so-called benign tumors from those which inevitably destroyed life. Thirty years ago the two groups were regarded as distinct. It was true that type forms could be distinguished as innocent or malignant, but each genus of the so-called innocent group, with the exception of lipomas, contained species in which the histological features of innocency shaded away into those indicating malignancy.

Cancerous cachexia had no special relation to cancer; it was due to the entrance into the circulating blood of toxic substances secreted by the bacteria and cocci which colonized cancerous growths in exposed situations. This was important to the surgeon, and influenced his work very markedly. As a general rule, nonulcerating cancers of the breast were sterile. Cancer of the tongue usually swarmed with streptococci, and the neck of the uterus when cancerous was colonized by staphylococci, streptococci, or some of the coli group. The author made bacteriological investigations of the neck of a cancerous uterus before undertaking its removal; he found that the fate of a patient submitted to operation for this disease depended not so much on the skill of the surgeon as on the nature of the infecting microorganism. In the general hospitals of London during the year 1912 the mortality of radical hysterectomy for cancer of the neck of the uterus varied from 10 to 48 per cent. This formed a striking contrast to hysterectomy for fibroids of the uterus, for the mortality of this operation in the general hospitals of London was about 2 per cent., the difference being almost entirely due to the presence of bacteria and cocci in the cancerous tissues. The virulence of cancer, as a rule, depended on its septicity, and cancers in exposed situations were rapidly destroyed by bacteria.

The relationship of sepsis and cancer was an important matter for the surgeon. In regions of the gastrointestinal tract free from pyogenic bacteria, union occurred after surgical operations safely and quickly; thus a gastrojejunostomy in the hands of competent surgeons was devoid of risk from septic peritonitis. How different the picture for radical operations performed for cancer of the colon! Septic peritonitis destroyed the lives of at least 30 per cent. of those who

submitted to it. It was by no means uncommon to see surgeons clad in sterilized overalls, gloves, caps, masks, and top boots resecting a cancerous segment of colon swarming with pyogenic microorganisms. This could only be described as surgical coquetry. In order to improve the results of operations for visceral cancer means must be devised for sterilizing them, or a specific remedy found for cancer. There were indications that both methods would be available. What surgeons urgently needed was a molecular compound which would either kill the bacteria and cocci that colonized cancer or neutralize their harmful toxins in the same way that salvarsan rendered spirochetes inert without destroying the organs or tissues of their host.

In pre-Listerian days the path to surgery lay through the dissecting room. A thorough practical knowledge of the anatomy of man had been and was indispensible to a sound surgeon. Surgeons were of two types, they were either craftsmen or biologists. The surgical craftsman invented variations in technique; metal plates, wires and screws for bones; or fancy methods of suturing wounds. Some expended their ingenuity on surgical cutlery. The utility of a simple tool such as the clip forceps was inestimable. In spite of much ingenuity among surgeons, an ideal ligature material awaited discovery. Clever contrivances like the laryngoscope, bronchoscope, and cystoscope revolutionized special branches of surgery. Another useful instrument, the esophagoscope, required for its successful use a surgeon with the instincts of the sword-swallower and the eye of a hawk. The biological surgeon studied pathology in its broadest aspect and investigated into the laboratory problems of morbid anatomy and bacteriology. The diagnostic value of reports issued from the laboratory by the pathologist and the bacteriologist, to be of value, must be estimated with the help of clinical experience. As it was of the utmost importance that surgeons should have a practical knowledge of clinical pathology, it became essential to bring the wards, operating theaters, and laboratories into the closest intimacy. From this union of workers means would be found for curing diseased organs by chemotherapy rather than by extirpating them. The magical effects of salvarsan on the lesions of syphilis, acute and chronic, led one to hope that this compound would assist in the elimination of cancer of the mouth and tongue, for in these situations cancer was often engrafted on chronic syphilitic lesions. In regard to the cure of malignant disease, there was most hope in chemotherapy.

(*To be continued.*)

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

South Dakota State Board of Medical Examiners.

January 13 *and* 14, 1914.

EMBRYOLOGY, HISTOLOGY AND ANATOMY.

1. Describe the maturing and fecundation of the ovum. 2. From what embryonic layer does the respiratory tract develop? What other structures are developed from the same layer? 3. Describe microscopic difference in appearance of heart-muscle and skeletal muscle. 4. Describe microscopically superficial cells lining trachea. 5. Describe the patella. What is its function and how does it functionate? 6. Describe the shoulder-joint. 7. Name the muscles participating in tranquil respiration. 8. Give the blood-supply of the stomach. 9. Give origin and distribution of trifacial nerve. 10. Draw and describe the dorsal surface of the tongue.

PHYSIOLOGY.

1. What is lymph and how formed? 2. What is circulation of the blood? Follow it from and until it returns to the heart. 3. What is the object of circulation? Describe the changes that take place in the blood as it passes through the body. 4. Describe digestion in the mouth and stomach. 5. What is respiration and what causes it? 6. What are the enzymes? Give their chemical composition. 7. Describe intestinal digestion. What juices enter into it? 8. Name the excretory organs. What do they excrete? 9. Name the ductless glands. What are their specific offices in the human economy? 10. How is heat produced and how maintained in the human body?

CHEMISTRY.

1. What use has a physician for knowledge of chemistry? 2. Name ten elements, giving valence and atomic weight. 3. Give chemical name, common name, physical appearance and common use of: (*a*) $MgSO_4$, 7 H_2O; (*b*) Na_2CO_3, 10 H_2O; (*c*) $CH.Cl_3$; (*d*) C_2H_2; (*e*) H_3BO_3. 4. Give chemical name, formula, physical appearance and common use of (*a*) sal ammoniac; (*b*) saleratus; (*c*) calomel; (*d*) corrosive sublimate; (*e*) lunar caustic. 5. What is glycerin? How is it produced? 6. On what chemical substances does hardness of water usually depend? What would you use to soften water? How does that do it? 7. Boil acid urine; if a cloud or precipitate appears, what substances may the cloud or precipitate be? How determine which it is? 8. (*a*) Describe your favorite test for sugar in urine. What are its fallacies? (*b*) Name all the ingredients of your reagent. (*c*) What color change takes place? (*d*) What is the chemical reason for the color change? 9. Give a test for copper in canned vegetables. 10. Is there chemical or pharmaceutical incompatibility in the following prescription? Where is it and why?

℞ Strychninæ sulphatis..... gr. ss (½)
Ammonii chlorid ..... ʒ i
Ammonii carbonatis ..... ʒ i
Aquæ puræ ..... ʒ i
Syrupus pini strobi comp., q.s.ad. ℥ iv
Misce.

BACTERIOLOGY.

1. What is the cause of difference in the virulence of diphtheria? 2. What pathogenic conditions may be produced by the colon bacillus? 3. What is tuberculin? How is it produced? What is it used for? 4. Describe in detail the bacterial findings in puerperal septicemia. 5. How does the tetanus bacillus induce its effect? On what theory is tetanus antitoxin administered?

PATHOLOGY.

1. What is the cause of death following burns? 2. What is thrombosis? Describe the manner of its formation. Where are emboli most frequently found? Of what do emboli most frequently consist? 3. What general pathological lesion characterizes chronic alcoholism? 4. What is ischemic paralysis? 5. State the result of stenosis of the tricuspid valves of the heart. 6. Carcinoma of stomach: Is it usually primary or secondary to carcinoma elsewhere? Where is it usually situated? Give most common type. 7. What conditions may cause dropsical effusion in the abdomen and in the lower extremities? 8. What diseases of the mother may be transmitted to the fetus? 9. Explain the process occurring in necrosis of bone. Give the pathological condition characteristic of necrosis and caries of bone. 10. What determines the benign or malignant nature of a new growth?

ANSWERS.

EMBRYOLOGY, HISTOLOGY, AND ANATOMY.

1. *Fecundation* is the result of the meeting of a live and healthy spermatozoon, with a live and healthy ovum, in a suitable medium (generally the Fallopian tube). During coitus the seminal fluid is ejected into the upper part of the vagina and against the cervix of the uterus; the spermatozoa enter the uterine cavity (either by the suction of the uterus or by their own vibratile motion) and so on to the Fallopian tube. Several spermatozoa may surround an ovum, or even pierce the perivitelline space; but only one spermatozoon enters the vitellus. This spermatozoon loses its tail; and its head becomes the male pronucleus. The male pronucleus and the female pronucleus now fuse together, and fecundation is completed.

Development of the fertilized ovum. "(1) When the ovum is mature, two small cells are detached from the main body of cells; these are called polar globules. It was formerly supposed that these were associated with the disappearance of the germinal vesicle, but recent experiments have demonstrated that the germinal vesicle plays an active part in their formation. This can take place independently of fecundation. (2) The portion of the ovum remaining after the throwing off of the polar globules is called the 'female pronucleus.' (3) Fecundation is effected by the penetration of the head of one spermatozoon. This is called the 'male pronucleus.' (4) The male and female pronucleus coalesce. The ovum is now called the oösperm, or blastosphere.

(5) The *segmentation* of the nucleus and vitellus, *i.e.* they both split into two masses, these into four, and so on until a large number of segments are formed. This is known as the morula, moriform body, or mulberry mass. (6) A clear fluid is secreted within the ovum, which presses these segments to the surface of the ovum, where they form a double layer of cells, differing somewhat in size. The outer and larger is termed the *epiblast* or *ectoderm*, and the inner and smaller the *hypoblast* or *endoderm*. Together they are known as the blastodermic vesicle. (7) There then appears upon the outside of the vitellus a small oval elevation, surrounded by a depression, which is called the *area germinativa*. (8) There appears in the area germinativa a small, dark line called the *primitive trace*. About this line will be grouped the various parts of the embryo, the rest of the ovum serving only as a covering and for nutriment. (9) A covering for this trace or embryo is now formed. Thus far the vitelline membrane has been sufficient. The embryonic line sinks into the center of the ovum, while the edges of the external blastodermic layer about the area close around it, inclosing it in a sac called the *amnion*. Between the amnion and the embryo, fluid at a later period is deposited; this constitutes the liquor amnii. The vitelline membrane then disappears."—(Landis's *Obstetrics*.)

2. The epithelial lining of the respiratory tract is developed from the entoderm (or hypoblast). From the same layer are also developed the epithelial lining of the digestive tract and its glands, including liver and pancreas; also of the larynx, trachea, and lungs; and of the pharynx, tonsils, Eustachian tube, and thymus and thyroid glands. It also forms the notochord; and the epithelial lining of the bladder and urethra.

CHARACTERISTIC	VOLUNTARY STRIATED	SMOOTH	CARDIAC.
Shape.	Long cylinder.	Spindle.	Stubby cylinder.
Length.	1-5 inches.	25-500 microns.	100-200 microns.
Nucleus.			
Number.	Many.	One.	One.
Location.	Peripheral.	Central.	Central.
Shape.	Intermediate.	Rod.	Oval.
Striations.	Cross and long.	(Longitudinal occasionally.)	Cross and long.
Sarcolemma.	Present.	None.	None.
Branches.	Occasional.	(Occasional.)	Always.
Arrangement.	In masses called muscles.	In layers.	As a syncytium.
Control.	By will.	Not by will.	Not by will.

—(Radasch's *Histology*.)

4. The trachea is lined by long columnar, ciliated, epithelial cells; these cells are often irregular in shape and rest upon a basement membrane.

5. The *patella* is a flat, triangular bone situated in front of the knee-joint; it is said to be a sesamoid bone developed in the tendon of the quadriceps extensor. Its anterior surface is convex and shows perforations for nutrient vessels; it is separated from the skin by a bursa. Its posterior surface is smooth and oval-shaped, and has two facets separated by a vertical ridge; these facets articulate with the two condyles of the femur. The superior border gives attachment to the rectus and crureus; the lateral borders give attachment to the vastus externus and vastus internus. The apex gives attachment to the ligamentum patellæ. The anterior surface is covered by the tendon of the quadriceps extensor, which is continuous below with the ligamentum patellæ.

It serves to protect the front of the knee-joint, and it increases the leverage of the quadriceps extensor muscle, by making it work at a greater angle.

6. THE SHOULDER-JOINT "is an enarthrodial joint formed above by the glenoid cavity of the scapula and below by the head of the humerus. Its ligaments are—glenoid, coraco-humeral, and capsular. The *glenoid* surrounds the edge, deepens the glenoid cavity, and is continuous above with the long head of the biceps tendon. The *capsular ligament*, extensive and loose, arises above it from circumference of glenoid cavity behind the ligament, is attached below to the anatomical neck of humerus, and is pierced by tendons of two or three muscles. The *coraco-humeral*, or *accessory*, is a fibrous band which extends obliquely downward and outward from the coracoid process to the anterior part of great tuberosity, strengthening the capsular ligament."—(Young's *Anatomy*.)

7. The *muscles which participate in tranquil respiration* are: The diaphragm, intercostals, levatores costarum and the scaleni.

8. The *blood-supply of the stomach:* gastric (or coronary), pyloric, right and left gastro-epiploic, and vasa brevia.

9. TRIFACIAL NERVE. *Origin:* (1) *Superficial*, from the side of the pons Varolii; (2) *Deep* (sensory root), from the medulla, and upper part of cord; (motor root) from floor of fourth ventricle, and side of the aqueduct of Sylvius.

Distribution: First, ophthalmic branch supplies sensation to conjunctiva and skin of upper eyelid, cornea, skin of forehead and nose, lachrymal glands, mucous membrane of nose. *Second, or superior maxillary branch*, supplies sensation to skin and conjunctiva of lower lid, nose, cheek, upper lip, upper teeth and alveolar processes, and palate. *Third, or inferior maxillary branch*, supplies sensation to external auditory meatus, side of head, mucous membrane of mouth, anterior two-thirds of tongue, lower teeth, lower lip and skin of the lower part of the face. This branch, in addition, supplies motion to the muscles of mastication (masseter, temporal, external pterygoid, internal pterygoid), also mylohyoid and anterior belly of digastric.

10. The dorsum of the tongue, at rest, is arched from before backward. On it is a median longitudinal raphé, terminating behind in the foramen cæcum. The anterior or oral part of the dorsum of the tongue forms about two-thirds of the whole, and is rough and covered with papillæ; the posterior third is smooth and contains muciparous glands and lymphoid follicles.

PHYSIOLOGY.

1. LYMPH. *Origin:* There are two theories as to the formation of lymph: (1) That it is formed from the blood plasma by the processes of filtration, diffusion, and osmosis. (2) That in addition to these, the endothelial cells of the capillaries exercise some influence. *Description:* Lymph is a colorless, albuminous fluid, alkaline in reaction, with specific gravity of about 1015, containing lymph corpuscles, and coagulating when drawn from its vessels. *Composition:* Proteins (serum albumin, fibrinogen), sugar, sodium chloride and carbonate, water, urea, fat. *Function:* To provide cells and tissues with materials necessary for their growth, repair, and functional activities; and to receive and carry away their waste products.

2. The *circulation of the blood* is the course or circuit of the blood from the heart, through the body, and back to the heart. Beginning at the left ventricle of the heart, the blood flows through the left semilunar valve into the aorta, from which branches are distributed to every part of the body, through the capillaries to the veins, from the veins to the venæ cavæ, thence to the right auricle of the heart. From the right auricle, through the tricuspid valve to the right ventricle, thence through the right semilunar valve to the pulmonary artery to the lungs, from the capillaries in the lungs to the pulmonary veins, thence to the left auricle, and through the mitral valve to the left ventricle, to begin the circuit again.

3. The object of the circulation is to convey arterial blood and products of digestion to all the tissues of the body, and to carry waste products from the tissues to various organs of excretion. As the blood passes through the body it gets warmed, until it reaches the lungs, where it is cooled. As the blood passes through the lungs the reduced hemoglobin of the venous blood becomes almost wholly, by the absorption of O, converted into oxy-hemoglobin.

4. In the *mouth*, the food is masticated, and mixed with saliva; salty substances and sugar may be dissolved, boiled starches are converted into maltose by the action of the ptyalin. In the stomach the food is mixed with gastric juice, more thoroughly triturated, moved around the stomach, and finally expelled into the duodenum. In the stomach the proteins are split up into proteoses and peptones by the pepsin of the gastric juice, and certain bacteria are killed by the hydrochloric acid; starches are not affected; fats are split up by a gastric lipase.

5. Respiration means the taking in of oxygen and the elimination of carbon dioxide. The respiratory act consists of inspiration and expiration. The origin of the impulses is at the respiratory center in the medulla. The phrenics and intercostals are the chief nerves conveying the impulses; and they are distributed to the diaphragm and intercostal muscles, respectively. External respiration is the interchange that takes place between the blood and the gases in the lungs; internal

respiration is the interchange that takes place between the blood and the tissues of the body. Respiration causes changes in the air as follows:

	EXPIRED AIR.	INSPIRED AIR.
Oxygen	16.6 per cent.	21 per cent.
Nitrogen	79 per cent.	79 per cent.
Carbon dioxide	4.4 per cent.	0.04 per cent.
Other gases	Often present	Rare.
Watery vapor	Saturated.	Variable.
Temperature	That of body.	Variable.
Volume	Diminished.	Varies.
Bacteria	None.	Always present
Dust	None.	Always present

6. *Enzymes* are bodies produced by living cells, and are capable of producing certain definite chemical changes in certain substances under certain well-defined conditions, and without themselves undergoing any alteration. Their chemical composition is unknown; not one of them has ever been isolated in an absolutely pure condition; it has been assumed that they are of a protein nature.

7. In the intestine, the food passed on from the stomach is mixed with the bile, pancreatic juice, and intestinal juice. Starches are converted into sugar by the amylopsin of the pancreatic juice; fats are emulsified and saponified by the action of the bile and of the steapsin of the pancreatic juice; proteids are split up into proteoses and peptones by the trypsin of the pancreatic juice and the erepsin of the succus entericus.

8.

EXCRETORY ORGANS.	EXCRETION.
Kidneys.	Urine.
Liver.	Bile.
Skin.	Sweat.
Lungs.	Carbon dioxide.

9. The *ductless* glands are: The spleen, thymus, thyroid, parathyroids, supraenals, carotid, coccygeal, pituitary, and pineal glands.

The function of the spleen: The following theories have been held: (1) It is a source of production of the white blood corpuscles; (2) it is a source of production of the red blood corpuscles during fetal life; (3) it is a place where the red blood corpuscles are destroyed; (4) uric acid is produced in the spleen; (5) an enzyme is produced in the spleen and is carried by the blood to the pancreas, where it converts the trypsinogen into trypsin.

The function of the thyroid is not definitely settled: (1) it has some trophic function, regulating oxidation in the body, and it is supposed to have also a special influence on the vasomotor nerves, the skin, the bones, and on the sexual functions; (2) it is supposed to antagonize toxic substances, and (3) it produces an internal secretion.

The *function of the thymus* is not settled; it is said: (1) To be a blood-forming organ; (2) to have influence on growth and nutrition; (3) in hibernating animals it is supposed to store up materials which can be utilized during the period of inactivity.

The *function of the suprarenals* is not definitely settled; they produce an internal secretion which is probably necessary to life; it is supposed that they are able to destroy or remove some toxic substance produced elsewhere in the body.

The function of the *other* ductless glands is unknown. They all, or nearly all, furnish an internal secretion.

10. The normal body temperature is *regulated* and *maintained* by the thermotactic centers in the brain and cord keeping an equilibrium between the heat gained or produced in the body and the heat lost.

Heat is produced in the body by: (1) Muscular action; (2) the action of the glands, chiefly of the liver; (3) the food and drink ingested; (4) the brain; (5) the heart; and (6) the thermogenetic centers in the brain, pons, medulla, and spinal cord.

Heat is given off from the body by: (1) The skin, through evaporation, radiation, and conduction; (2) the expired air; (3) the excretions—urine and feces.

CHEMISTRY.

1. A knowledge of chemistry is of the utmost use to a physician. It is essential to an understanding of physiology, toxicology, and materia medica; it is of use in diagnosis and prescription writing. Without it, any understanding of some of the vital processes going on in the body is impossible; and many tests are based on a knowledge of chemistry.

2.—

ELEMENT.	VALENCE.	ATOMIC WEIGHT
Hydrogen	1	1
Oxygen	2	16
Nitrogen	3 or 5	14
Carbon	4	12
Phosphorus	3 or 5	31
Chlorine	1	35.5
Potassium	1	39
Sodium	1	23
Calcium	2	40
Sulphur	2 or 6	32

3. (*a*) $MgSO_4, 7H_2O$ is magnesium sulphate, also called Epsom salt; it is a crystalline, white solid, slightly effervescent, soluble in water, and on being heated fuses and loses its water; it is used as a cathartic.

(*b*) $Na_2CO_3\ 10H_2O$ is disodic carbonate, also called washing soda; it is a white crystalline solid, and is soluble in water and effloresces on exposure to the air; it is used as a cleansing agent in washing.

(*c*) $CHCl_3$ is a trichlormethane, also called chloroform; it is a colorless, volatile liquid, with a sweet taste and a strong, characteristic odor; it is used as a general anesthetic.

(*d*) C_2H_2 is ethine, also called acetylene; it is a colorless gas, with a disagreeable odor, somewhat soluble in water, and forms an explosive mixture with air; it is used for illumination.

(*e*) H_3BO_3 is boric acid, also called orthoboric acid; it is a white, crystalline solid, sticky, soluble in water; it is used as a mild disinfectant.

4. (*a*) *Sal ammoniac* is ammonium chloride, NH_4Cl; it is an elastic solid, salty in taste, volatile, and soluble in water; it is used as a rapid stimulant.

(*b*) Saleratus is monopotassic carbonate, $KHCO_3$; it is a crystalline solid; it is used in baking powders.

(*c*) *Calomel* is mercurous chloride, Hg_2Cl_2; it is an amorphous powder, white or yellowish, insoluble in cold water; it is used as a cathartic.

(*d*) *Corrosive sublimate* is mercuric chloride, $HgCl_2$; it is a crystalline solid, and is soluble in water; it is used as a disinfectant.

(*e*) *Lunar caustic* is silver nitrate, $AgNO_3$; it is a crystalline solid, soluble in water; it is used as a caustic.

5. Glycerin is a triatomic alcohol, $CH_2OH.\ CHOH.\ CH_2OH$. It is obtained as a by-product in the manufacture of soaps.

$$\left.\begin{matrix}(C_3H_5)'''\\(C_{18}H_{35}O)'_3\end{matrix}\right\}O_3 + 3\left\{\begin{matrix}K\\H\end{matrix}\right\}O = \left.\begin{matrix}(C_3H_5)'''\\H_3\end{matrix}\right\}O_3 + 3\left\{\begin{matrix}(C_{18}H_{35}O)\\K\end{matrix}\right\}O$$

Tristearin, Potassium hydroxide, Glycerin, Potassium stearate.

6. The hardness of water depends on the presence of calcium salts, chiefly the bicarbonate and sulphate; if due to the bicarbonate the water should be boiled, when the calcium salt is decomposed and deposited.

7. The cloud or precipitate may be due to urates or phosphates. If it is due to phosphates, it will clear upon the addition of a few drops of nitric acid; if it is due to urates, it will disappear on being heated.

8. *Fehling's test:* Place in a test tube a few c.c. of the liquid prepared as stated below, and boil; no reddish tinge should be observable, even after five minutes' repose. Add the liquid under examination gradually, and boil after each addition. In the presence of sugar a yellow or red precipitate is formed. In the presence of *traces* of glucose, only a small amount of precipitate is produced, which adheres to the glass, and is best seen when the blue liquid is poured out.

[The reagent must be kept in two solutions, which are to be mixed immediately before use. Solution I consists of 34.653 gms. of crystallized $CuSO_4$, dissolved in water to 500 c.c.; and solution II of 130 gms. of Rochelle salt dissolved to 500 c.c. in NaHO solution of sp. gr. 1.12. When required for use equal volumes of the two solutions are mixed, and the mixture diluted with four volumes of water.]

Fehling's solution is also reduced by uric acid, creatinin, bile pigment, and certain drugs.

9. Copper in canned vegetables can be detected by inserting a large needle into the vegetable; if copper is present the needle will be found to be coated with copper in about half an hour.

10. In this prescription the strychnine would be pre-

cipitated by the ammonium salts, and the patient would get most of the strychnine in the last dose.

BACTERIOLOGY.

1. *Virulence of bacteria* may be increased by successive animal inoculation, by the addition of animal fluids to the culture media, by enclosing cultures of the bacteria in collodion sacs and placing the latter in the abdominal cavity of animals, and sometimes by increasing the temperature at which the bacilli are usually grown.

2. The *colon bacillus* may produce cholecystitis, cholangitis, gallstones, cystitis, lesions of the urinary tract, suppuration, and diarrhea; it has also been credited with causing peritonitis, appendicitis, enteritis, endocarditis, and pleurisy.

3. *Tuberculin* is a preparation made from cultures of the tubercle bacillus in glycerin broth; it is used for the diagnosis and (sometimes) treatment of tuberculosis.

4. The *bacterial findings in puerperal septicemia* include the *Streptococcus pyogenes*, *Staphylococcus pyogenes*, gonococcus, *Bacillus coli communis*, *Bacillus diphtheriæ*, *Bacillus aërogenes capsulatus*, and *Bacillus typhosus*.

5. Tetanus is caused by the *Bacillus tetani*, which "gains entrance to the body through wounds and abrasions, and, multiplying locally, produces poisons which diffuse into the tissues and have an elective action as stimulators, especially of the spinal cord. The chemical composition of these poisons is not yet fully known" (Muir and Ritchie). Tetanus antitoxin is administered with the view of its neutralizing the action of the tetanus toxin; its action is similar to that of diphtheria antitoxin. It only affects the toxins which are in the circulation, and its curative value is much lower than its prophylactic value.

PATHOLOGY.

1. *Death following burns may be due to:* Shock, exhaustion, duodenal ulcer, or from absorption of some toxic substance.

2. *Thrombosis* is coagulation of the blood within the vessels, during life. The endothelium lining the vessel wall becomes impaired, then roughened; fibrin ferment is liberated from the blood; the lumen of the vessel is narrowed; the blood-flow is diminished; the leucocytes tend to adhere to the vessel wall and fibrin is deposited. *Emboli are most frequently found* in the spleen, kidneys, and brain.

Emboli may consist of: Detached thrombi or fragments of thrombus; vegetations detached from the heart; foreign bodies such as air, bone, fat, oil, or parasites; calcareous plaques.

3. In *chronic alcoholism*, there may be found: sclerotic arteries; cirrhotic liver; enlarged heart, which may also be fatty; inflamed gastrointestinal tract; and nephritis.

4. *Isehemic paralysis* is paralysis of a part due to stoppage of the circulation—such as paralysis of the lower limb following embolism or thrombosis of the femoral artery.

5. *Stenosis of the tricuspid valve of the heart* is generally found in connection with mitral stenosis; it is apt to be accompanied by dyspnea; and edema, albuminuria, cyanosis, and enlarged liver are generally present.

6. *Carcinoma of the stomach* is usually primary, and is generally found on the lesser curvature and pylorus; the most common type is the cylindrical-celled epithelioma.

7. *Dropsical effusions in the abdomen and lower extremities may be caused by:* Cardiac dropsy; hepatic cirrhosis; pressure on the inferior vena cava by abdominal tumors, enlarged liver, spleen, pancreas, or mesenteric glands; chronic malarial poisoning with enlarged liver and spleen; thrombosis of femoral vein, or pressure on the femoral vein by tumor of groin or abdomen; lymphedema.—(From Butler's *Diagnostics of Internal Medicine.*)

8. *Diseases of the mother which may be transmitted to the fetus:* syphilis, smallpox, tuberculosis, varicella, measles, scarlet fever, erysipelas, rheumatism, cholera, typhoid fever, yellow fever, malaria, and influenza.

9. "*Caries* is a term applied to the molecular destruction of bone, corresponding to ulceration of the soft parts. It may be associated with osteomyelitis, or with necrosis due to traumatism or various infective conditions. The changes consist in progressive softening and crumbling of the bone, with eventual destruction of more or less considerable areas. Caries is especially frequent as a part of tuberculosis of the bones.

"*Necrosis* is a term applied to the death of a small or large portion of bone in mass. Necrosis may be partial or total, and may occur in the center of the bone or at the periphery. The dead portion of the bone, termed sequestrum, presents itself as an irregular, more or less eroded, fragment, almost completely or completely separated from the remaining structure. The separation occurs by the process of demarcation, as in necrosis of the soft parts. This line consists of an area of absorption of the calcareous matter and proliferation of the cellular elements. The necrotic portion, or sequestrum, acts as a foreign body, and by its continued irritation keeps up a suppurative inflammation of the surrounding tissues. Fistulous communication with the exterior is usually observed. If the sequestrum is peripheral and has been discharged, the periosteum or the bone may replace the lost tissue by regeneration. If the fragment is large or centrally placed, discharge is impossible and suppurative inflammation continues, sometimes for years. In these cases considerable hyperplastic material may be deposited over and around the sequestrum, and thus irregular thickening of the bone may be produced."—(Stengel's *Pathology.*)

10. *Malignant tumors* are not encapsulated, tend to infiltrate the surrounding tissues, give rise to metastatic growths, have a tendency to recur after removal, give a cachexia, have a fatal tendency.

Benign tumors are encapsulated, do not tend to infiltrate the surrounding tissues, do not give rise to metastatic growths, do not tend to recur after removal, do not produce cachexia, and do not have a fatal tendency (except from their location).

(To be continued.)

Case of Myasthenia Gravis, with Affection of the Larynx and Soft Palate.—E. D. Davis reports the case of a woman aged 25, who was admitted to Charing Cross Hospital in February last for Raynaud's disease. she complained, among other symptoms, of loss of voice, difficulty in swallowing, and regurgitation of fluids through the nose. Th loss of voice occurred suddenly, without apparent cause, in September, 1912, and was followed a little later by difficulty in swallowing and regurgitation through the nose. When seen in February, 1913, a diagnosis of functional aphonia was made, and in spite of the nasal voice and regurgitation through the nose no paresis of the soft palate was detected. Treatment by the faradic current, cold douching, valerian, etc., had no effect. At a second examination in June the condition had progressed, the paresis of the soft palate was well marked, the vocal cords abducted slightly, but remained in the cadaveric position during deep inspiration, and on vocalization very little abduction was produced. The pharynx and palate were somewhat insensitive. Organic nervous disease was now suggested, but no definite diagnosis was made. The Wassermann reaction was negative. The condition of the skin was also first noticed then. It was observed on repeated examinations that the amount of paresis varied and appeared to increase when examination was prolonged. On December 16 Gordon Holmes saw the patient for the first time and made the diagnosis of myasthenia gravis. This diagnosis was based on: (1) the muscular weakness and rapid fatigue; (2) the variability of the paresis; (3) the increase of paresis on exertion and the difficulty of mastication and swallowing; and (4) the affection of the cranial nerves —*Proceedings of the Royal Society of Medicine.*

Preadolescent Dyspituitarism.—F. G. Crookshank reports the case of a male aged 13½ years, weighing 151 pounds. He appeared to be in good health generally, but it was said that it was only in the last six months that he had become so fat. His father was over 6 feet in height, and the mother who was dead was said to have been a very stout woman. The boy had a definite limitation of the temporal half of the right visual field. Sugar tolerance had not yet been estimated. The boy was obviously very stout, but the distribution of the fat was feminine, and the external genitals were small. Associated with these characters there would seem to be some skeletal overgrowth. The size of the pelvis was notable. On the whole the case appeared to correspond to the type described by Cushing as differing from Frohlich's dystrophia adiposogenitalis in the skeletal overgrowth and in the markedly feminine distribution of the fat.—*Proceedings of the Royal Society of Medicine.*

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Isolation Hospitals. By H. Franklin Parsons, M.D. Cloth; illustrated; 266 pages. Published by G. P. Putnam's Sons.

Die Immunitätswissenschaft. By Dr. Hans Much. Paper; illustrated; 284 pages. Published by Curt Kabitzsch.

L'Infection Puerperale. By Prof. Constantin Daniel. Paper. Published by A. Maloine, Paris; 121 pages.

The Clinics of John B. Murphy, M.D. Paper. Volume III, Number III; illustrated; price, $8.00 per year. Published by W. B. Saunders Company; 215 pages.

Eye, Ear, Nose and Throat. By Drs. Wood, Andrews *and* Ballenger. Cloth; illustrated. Vol. III; price, $1.50. Published by The Year Book Publishers; 354 pages.

General Medicine. By Drs. Billings and Salisbury. Cloth. Vol. I; price, $1.50. Published by The Year Book Publishers; 375 pages.

General Surgery. By Dr. John B. Murphy. Cloth; illustrated. Vol. II; price, $2.00. Published by The Year Book Publishers; 578 pages.

A Doctor's Viewpoint. By John Bessner Huber, A.M., M.D. Cloth; price, $1.00. Published by the Gazette Publishing Co.; 164 pages.

Anoci-Association. By Crile and Lower, M.D. Cloth; illustrated; price, $3.00 net. Published by W. B. Saunders Company; 259 pages.

Handbuch der Gesammten Frauenheilkunde. By Dr. W. Leipmann. Paper. Vol. II; illustrated; price, M. 6. Published by F. C. W. Vogel; 302 pages.

Practical Hormone Therapy. By Henry R. Harrower, M.D. Cloth; price $4.50. Published by Paul B. Hoeber. 475 pages.

Source, Chemistry, and Use of Food Products. By E. H. S. Haliey, Ph.D. Cloth; illustrated; price, $1.60 net. Published by P. Blakiston's Sons & Co.; 497 pages.

Diagnostic Methods. By Ralph W. Webster, M.D., Ph.D. Cloth; 4th edition; illustrated; price, $4.50. Published by P. Blakiston's Sons & Co.; 708 pages.

Diseases of Infancy and Childhood. By Louis Fischer, M.D. Cloth; 5th edition; illustrated. Published by F. A. Davis Co.; 902 pages; price, $6.50 net.

Doctor Thomas Shortt. By Arnold Chaplin, M.D. Cloth; illustrated. Published by Stanley Paul & Co.; 70 pages; price, $2.00 net.

Medical and Surgical Reports of the Episcopal Hospital of Philadelphia. Cloth. Vol. II; illustrated. Published by Wm. H. Dornan; 421 pages; (2 books).

International Clinics. By leading members of the Medical Profession throughout the World. Cloth; illustrated. Vol. II; 24th series. Published by J. B. Lippincott Co.; 291 pages.

Diseases of the Rectum and Colon. By Jerome M. Lynch, M.D. Cloth; illustrated. Published by Lea & Febiger; 583 pages.

Österreichisches Bäderbuch, by Dr. Karl Diem. Paper; illustrated; published by Rebman Company; price, 40 Mks.; 798 pages.

Technik der speziellen klinischen Untersuchungsmethoden. By Drs. Brugsch and Schittenhelm. 2 Volumes. Paper; illustrated; published by Rebman Company; price, 40 Mks. per volume.

Pharmakologie. By Drs. H. Meyer and R. Gottlieb. Paper; published by Rebman Co.; price, 15 Mks.; 595 pages.

On Dreams. By Dr. Sigm. Freud, Prof. Cloth; published by Rebman Co.; price, $1.00 net; 110 pages.

Ambidexterity and Mental Culture. By H. MacNaughton-Jones, M.D. Cloth; illustrated; published by Rebman Co.; price, 75c. net; 100 pages.

Compendium der Arzneimittellehre. By K. Lipowske, M.D. Cloth; published by Rebman Co.; price, 5 Mks.; 238 pages.

Local Anesthesia. By Dr. Arthur Schlesinger. Cloth; published by Rebman Co.; price, $1.50 net; 202 pages.

The Philosophy of Radio-Activity. By Eugene Coleman Savidge, M.D. Cloth; illustrated; published by William R. Jenkins Co.; price, $1.50 net; 151 pages.

Therapeutic Hints.

The "Triple-Acid" Ointment for Pruritus.—Brocq recommends the following as effective in the treatment of pruritus:

℞ Phenol, 1 gram.
Salicylic acid, 2 grams.
Tartaric acid, 3 grams.
Glycerite of starch, 80 grams.

A Simple Method for the Intravenous Injection of Neosalvarsan.—M. P. Le Damany describes a modification of Ravaut's simple technique for the intravenous injection of neosalvarsan. The virtue of the latter method consists in the small volume of solution used, which may be 10 cubic centimeters or even less. In order to avoid displacement of the needle in the vein while the piston is pushed home, the author interposes a piece of red rubber tubing having a lumen of 1 millimeter and a thickness of wall of 1 millimeter, between the syringe and the needle. This tubing is provided at each end with a metallic couple, the syringe end being female and the needle end being male. The syringe should be all glass. The neosalvarsan is dissolved in sterilized distilled water, and is then drawn up into the syringe through a piece of sterile rubber tubing which contains in its lumen a bit of absorbent cotton which acts as a filter. The syringe and the special tubing described above are then held vertically and all air is expelled from the apparatus. A tourniquet is applied to the patient's arm above the elbow, and the skin in the region of the bend of the elbow is cleansed with alcohol. The needle is plunged into the median basilic vein and the blood is allowed to run freely until one is certain that the needle is in the vein. The tubing is then attached to the needle. It is not necessary to hold the latter for the constriction of the tissues that it has traversed suffices to keep it firmly in place. The solution is injected slowly. If any of it enters the subcutaneous tissue, this fact is at once made evident by an area of edema in the region of the puncture.—*La Presse Médicale.*

Lactucarium in the Treatment of Opium Smokers.—Millan has found that this drug provides an effective substitute for opium in the treatment of those addicted to opium smoking. The extract of lactucarium is softened in the water-bath to a syrupy consistency and is then rolled into pills similar to the pills of opium used by smokers of this drug. When smoked in the pipe lactucarium produces a sedative effect similar to that produced by morphine. The preparations of lactucarium usually contain a minute percentage of morphine. This is no disadvantage in the treatment for the author does not break off the opium abruptly, but uses a slight admixture of it with the lactucarium, diminishing the amount, however, from day to day. —*Le Caducée.*

Diphtheria Antitoxin in the Treatment of Pneumonia.—J. L. Elizagaray has essayed the application in pneumonia of this form of therapy, which a number of years ago was tried in other diseases, notably in meningitis. The theory upon which this treatment is based is that the antibodies contained in the diphtheria antitoxin may be effective against toxins other than those of the diphtheria bacillus. The author finds that in mild and moderately severe cases of pneumonia the diphtheria antitoxin hastens convalescence, but that it has no effect in diminishing the mortality in severe cases of this disease.—*Revista Clinica de Madrid.*

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Original Articles.

THE LOW TABLE POSITION AND OTHER AIDS TO PERFORMING SUPRAPUBIC PROSTATECTOMY.*

BY C. L. GIBSON, M.D.,

NEW YORK.

From the First Surgical (Cornell Medical) Division of the New York Hospital.

IN common with many operators I have abandoned the perineal prostatectomy which I practised almost exclusively for ten years to return to the suprapubic operation which I had used fifteen years ago. The earlier suprapubic operations gave me a much larger mortality than the subsequent perineal operations, and there is no doubt in my mind that there is distinctly less shock, generally speaking, in the lower route. The various modifications and improvements of the modern suprapubic operation have, however, made it nearly as safe and the operation gives much better final results.

The operation as I do it now is simple, time-saving and is distinctly less risky than when I began my prostatic work. It has four features which I think are all important in attaining these better results—the special position, the anesthetic, rapidity of operating, and more efficient after treatment by improvement in the method of drainage.

Position.—This particular feature gives me a pretext for writing this paper and giving it its title, "The Low Position."

Instead of using the Trendelenburg position, I not only have the patient in the horizontal position, but also use a special table 24 to 26 inches high. The advantage of such a position was revealed accidently. I opened a patient's bladder in his bed under nitrous oxide anesthesia to drain a bladder filled with clots. To my examining finger the prostate seemed so easily accessible that almost involuntarily I enucleated it in a few seconds' time, the very elderly patient making a prompt recovery. On analyzing the features of the operation I became convinced that this unexpected ease was no accident, but due to a mechanical advantage not existing usually, the ordinary bed requiring a stooping position. By this low position one brings in leaning downward the weight of part of the operator's body on the abdominal wall which being so totally depressed also allows of the easy working of the enucleating fingers in the bladder without loss of force. Fig. 1.

Anesthetic.—It is, however, in combination with the anesthetic of choice—nitrous oxide and oxygen—that the greatest advantage of this overcoming of the muscular resistance becomes manifest. The anesthetic does not have to be pushed to get complete relaxation—sometimes impossible to get without ether or chloroform.

"Gas oxygen," therefore, under these circumstances is, I believe, the best anesthetic of all. Ether or chloroform I bar absolutely, certainly for the "bad risks," and spinal anesthesia presents no advantages over gas oxygen and has distinct psychic drawbacks. The effectiveness of the gas oxygen is much increased by giving a hypodermic of morphine, one-fourth or one-third of a grain, about an hour before operation.

Operation.—The operation is performed as follows: The patient is placed on the low table. In most cases by omitting one or two scheduled catheterizations, the bladder is sufficiently distended. Any necessary distention (and not much is necessary) must be done by injecting water, *as air distention is unquestionably fatal at times.* The laughing gas and oxygen anesthesia is administered by an expert. The skin is painted with one coat *fresh* Tr. iodine. A mid line incision three to four inches long is carried down to the recti muscles which are separated by blunt dissection. Retractors expose the distended bladder. At its upper portion a suture is introduced on either side through the prevesical fat and the whole thickness of the bladder wall (no stripping back of fat or peritoneum, *i.e.* mangling of the tissues). The bladder is opened between these traction sutures of chromic catgut. An opening admitting two fingers snugly is sufficient. Bladder palpated, stones removed if present.

The enucleation is easily accomplished by following Squier's procedure, introducing the index finger into the urethral opening and penetrating into and through the thin layer of prostatic tissue overlying the urethra. Having arrived at the outer surface of the prostate it is easily shelled out of its capsule piecemeal, sometimes whole. When one has distinctly struck the line of cleavage the procedure is most rapid and the bleeding is slight. Care must be taken that no pedunculated bits of prostatic tissue or strips of mucous membrane are left to fall into the vesical outlet to act as a ball valve obstruction. A rubber tube about eight inches long, interior caliber one inch, is inserted just clear of the floor of the bladder. The original traction sutures are now tied and they will sufficiently close the opening around the big tube to make much more suturing generally unnecessary. While the abdominal wall is being closed the "sucker" has been introduced into the bladder through the short, wide drainage tube. It is not discontinued till the patient is actually removed from the operating table.

The patient is now transferred with all possible dispatch to his bed where a similar apparatus should be coupled up in readiness to be introduced into the drainage tube so soon as the patient returns to

*Read before the meeting of the American Association of Genito-Urinary Surgeons at Stockbridge, Massachusetts, May, 1914.

bed. If this procedure has been properly carried out the after care will present a minimum of trouble. The bladder is kept at all times free from blood

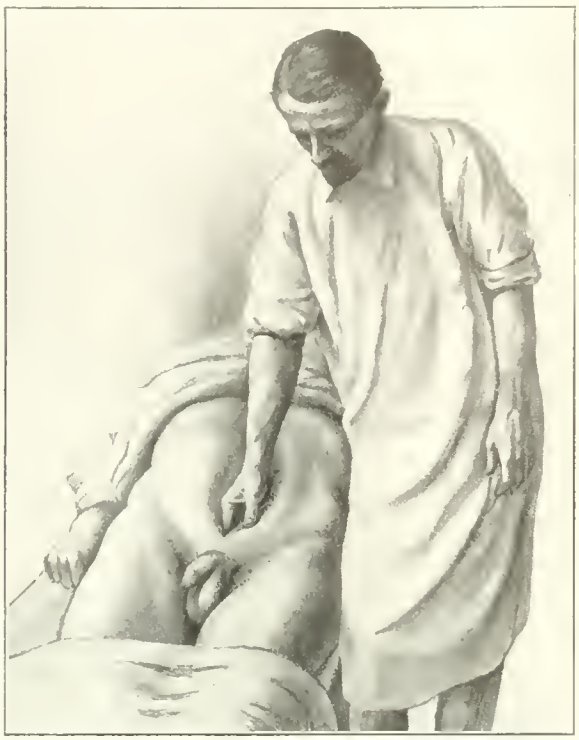

FIG. 1.—The operator leans on the patient, depressing the abdominal wall and overcoming the imperfect relaxation entailed by the gas-oxygen anesthesia.

and the annoyance of clot formation. In forty-eight hours any notable oozing will have ceased, the

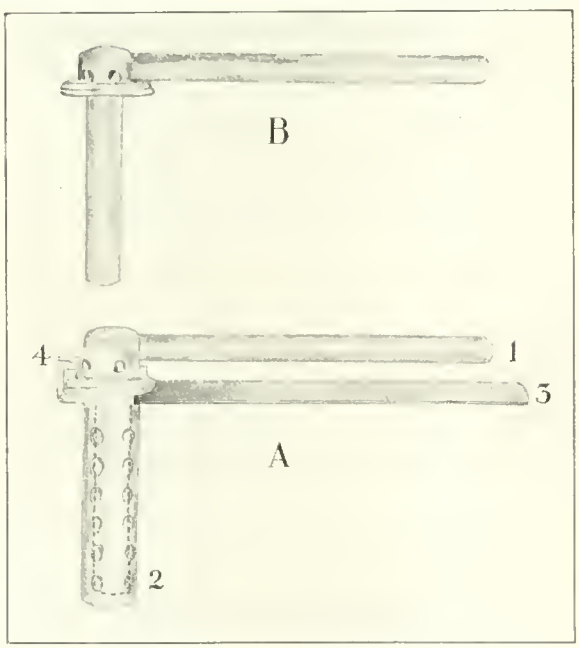

FIG. 2.—A. Double metal tube for continuous suction in postoperative treatment. 1. Inner tube with corrugated tapering end to be connected with rubber tube from the suction bottle. 2. Short fenestrated outer tube with rounded end to be inserted in the wound. Dotted line shows the position of inner tube. 3. Thin strip of malleable metal, continuous with outer tube, which can be bent to fit the surface of the body. It is held in place upon the skin with strips of adhesive plaster. 4. Hooklike projection on outer tube overhanging flange on inner tube holding the two together. B Inner tube removed showing flange with notch which fits under the hook shown in A. 4.

large tube will have outlived its usefulness and may be removed, suction still being kept up by attaching a small-sized catheter to the "sucking" apparatus. This catheter is introduced a short way into the vesical lumen.

After-Care.—The patient should be made to drink large amounts of water. If the intake does not seem sufficient or the patient shows any untoward manifestations such as shock or uremia, continuous instillation of water in the rectum by the Murphy drip will bring great improvement in his condition. The patient should have suitable nourishment in generous quantities, should be propped up in bed and frequently urged to change his position. Within a week, sometimes less, the patient may be allowed out of bed for portions of the day. Meanwhile, the sucker apparatus, after its final withdrawal from the bladder, say in eight or ten days, is applied at the later stages to the surface of the wound, thus keeping the patient perfectly dry.

The suction apparatus which contributes so much to the patient's comfortable and successful convalescence is the one devised by Kenyon and Pool. (*Surgery, Gynecology and Obstetrics*, December, 1909.) They say, "To produce the required suction . . . simplest and most practical device is one in which the suction is produced by water or steam on the principle of the Sprengel pump. A serviceable apparatus of this type is the H. D. ejector made by Hayden & Derby Co. This model can be operated by water or steam at any pressure over 20 pounds, and may be connected with a water or steam pipe whenever convenient."

Fig. 2 shows some tubes for suprapubic drainage to be used in connection with the suction apparatus. They have also been devised by Kenyon, who has kindly furnished me with the drawings.

COCCYGODYNIA — A NEW METHOD OF TREATMENT BY INJECTIONS OF ALCOHOL.*

BY FRANK C. YEOMANS, A.B., M.D.,

NEW YORK.

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J. C. NOTT reported a case of "Extirpation of the Os Coccygis for Neuralgia" in a woman, aged 25, in the *New Orleans Medical Journal* of May, 1844. The two distal segments of the coccyx were removed, the terminal one being carious, and a cure resulted. This, I believe, is the first instance of record in which the bone was resected for pain.

Sir J. Y. Simpson, of Edinburgh, however, was the first to describe the condition as a definite entity to which he gave the name coccyodynia (κόκκυξ coccyx, + ὀδύνη pain), and to report a number of cases, in an able lecture on "Coccyodynia and Diseases and Deformities of the Coccyx," published in the *Medical Times and Gazette* of July 2, 1859.

Strictly speaking, the affection is neurological, but in practice it has been considered by some as medical and by others as surgical. Thus, being a border-line condition, it has received scant mention in the text-books, but because of the serious symptoms to which it gives rise it may well engage our earnest attention. The leading symptom is pain

*Read at the sixteenth annual session of the American Proctologic Society, Atlantic City, June 22-23, 1914.

in the region of the coccyx. The earlier writers, notably Simpson, thought that the pain was due to traction on the coccyx by the attached muscles and ligaments. More recently several theories have been advanced as to the etiology of the pain:

Fig. 1.—Bidigital examination to determine point of maximum tenderness.

1. The *neuralgic* theory, advocated by Marro, Pozzi, and others, claims that there is no definite anatomical lesion, but that the initial trauma caused violent nerve irritation which persists without any anatomical changes.

2. Gräfe holds it to be a *neuritis* and so explains twelve cases in women as due to pressure of the fetal head on the terminals of the sacral plexus. This accounts for those cases only that follow labor.

3. Theory of *injury* of the coccyx, resulting in fracture, dislocation, ankylosis, or caries.

4. *Symptomatic*, *i.e.* a referred pain of central origin due to many functional or organic diseases of the nervous system. Starr mentions its frequent occurrence in neurasthenic and anemic persons, chiefly in women, and states that in the majority of cases it is a purely hysterical symptom. He also says that it may be associated with irritable spine and occur in cases of traumatic neurosis. Strümpell mentions its presence in two individuals with tabes dorsalis. Pain about the coccyx and anus is quite common in tabes but usually occurs at intervals.

Viewed broadly, then, all cases of coccygodynia may be classed as traumatic or symptomatic, *i.e.* dependent upon an organic change or functional disturbance of the central nervous system. In the traumatic cases the impact may be from within the pelvic canal or external. Difficult labor is the chief example of internal violence. Instances resulting from external force are by far the commonest and usually the patients give the history of a fall which may cause injury of the soft parts only or fracture, dislocation, ankylosis, or caries of the cocyx and result in neuralgia or neuritis of the coccygeal plexus of nerves. As a rule, no gross lesion of the coccyx is demonstrable. The injury usually affects the periosteum only and the soft structures adjacent or attached to the bone. Repeated traumata, as in horseback riding, have been responsible for some cases.

Symptomatically it may occur in toxemia, hysteria, neurasthenia, irritable spine, the traumatic neuroses, and tabes dorsalis, or may be even a "habit pain." Although practically limited to women, a few examples have been reported in men.

Anatomy.—A consideration of the anatomy of the coccygeal plexus of nerves and the relations of the latter to the sympathetic system will elucidate the protean disturbances of sensation occurring in coccygodynia. The nerves entering into the formation of the coccygeal plexus are the fourth and fifth sacral, except the visceral branch of the fourth anterior sacral; the coccygeus, anterior and posterior branches, and probably the inferior hemorrhoidal branch of the internal pubic.

Moreover, there are on the anterior surface of the coccyx two ganglia which belong to the pelvic system of the sympathetic. These coccygeal ganglia are united to each other by a small nerve filament and are connected by other filaments to the last sacral ganglion of the chain which constitutes the pelvic sympathetic. (Hamant and Pigache.)

Very naturally, then, irritation of any part of a nerve plexus so intimately related to the central and the sympathetic nervous systems may give rise to the most varied symptoms. Jointly the nerves supply sensation to the integument over the coccyx, around the anus and the intervening area, and innervate the levator ani, sphincter ani, and coccygeus muscles, all of which are attached to the os coccyx.

All of the cases I have seen and most of those reported give a history of injury, most frequently a fall, and I am forced to the conclusion that trauma is the causal factor in the greater number of cases of coccygodynia. The only exception may be certain symptomatic cases. Even here the history of injury should be very carefully investigated. Why a painful condition should follow such injury is evident. The coccyx is a small bone, but given insertion to the levator ani (in part) and coccygeus muscles on its anterior surface, the gluteus maximus (part of origin) on its posterior surface, while the sphincter ani is inserted into its tip. The sacrosciatic ligaments are also attached to it. Thus the coccyx is surrounded by dense structures, largely fibrous, which the delicate network of nerves penetrates.

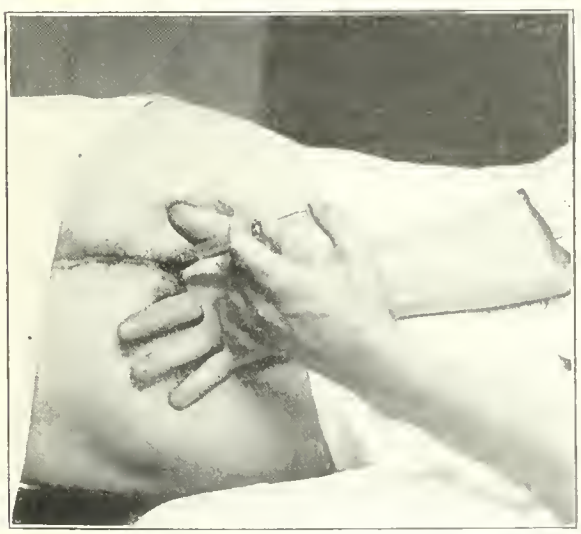

Fig. 2.—Making the injection.

If these structures are bruised an inflammatory reaction naturally results with proliferation and subsequent contraction of the new fibrous tissue and compression of the nerves.

Injury of the bone, as fracture or dislocation, in like manner causes pressure pain. Pressure upon the nerves either by the injured bone or by the contraction of the injured soft parts produces neuralgia. If the pressure is maintained, inflammation takes place in the nerves, *i.e.* neuritis results, or neuritis may occur at the beginning if the primary injury is of sufficient severity.

Symptoms.—The predominant symptom is a characteristic spasmodic, aching pain in the region of the coccyx, increased by sitting or rising, and at times by defecation and urination. Consequent avoidance of stool may result in constipation. While it may be a symptom of a hysterical condition, conversely, in the writer's opinion, coccygodynia long continued will result in a general neurotic state. The pain may be localized or radiate to the perineum or bladder.

Diagnosis.—This is established by a thorough examination, both general and local. The former embraces the spinal column to determine injuries or disease as caries, and the nervous system to exclude tabes dorsalis, hysteria, the neurosis, etc., as well as autotoxemia. The local external examination with the patient in the Sims' posture determines the position of the coccyx and the point of maximum tenderness which is usually just beyond its tip. The anal canal is then examined. An anal fissure may give all the symptoms characteristic of coccygodynia as also may cryptitis or inflammation of the crypts of Morgagni. A blind internal fistula, hypertrophied anal papillæ and foreign bodies in the rectum must also be excluded, as must rectitis by proctoscopy. The well lubricated index finger is next introduced into the rectum and the coccyx grasped between it and the thumb outside. The exact position, contour, mobility, and tenderness of the coccyx can thus be determined at once. If now the soft parts just distal to the tip of the coccyx are compressed between the examining fingers, the patient will complain of exquisite pain—the diseased coccygeal plexus of nerves has been squeezed and the pathognomonic symptom elicited. (Fig. 1.) In women a vaginal examination must also be made to determine the position and condition of the uterus and its adnexa, while in men the prostate, seminal vesicles, and urethra are examined for abnormalities which might cause reflex pains.

The *prognosis* hitherto has been more favorable in the traumatic cases than in those of frank neuralgia or neuritis without demonstrable associated lesions. However, with the treatment proposed, the writer confidently predicts that the latter will be equally amenable to treatment.

Treatment.—The methods of treatment that have yielded varying degrees of success are legion and only serve to emphasize their unreliability. They include local applications, counter irritation, electricity in its various forms, subcutaneous division of all muscles and ligaments attached to the sides and tip of the coccyx (Simpson) and finally excision or resection of the coccyx. Removal of the coccyx, wholly or in part, was based on the erroneous idea that the pain resided in the bone rather than in the nerves and has wisely been abandoned except in those rare cases where it is diseased or deformed. Relief seldom followed removal of the coccyx in other cases. In fact, the patient suffered a trying operation and was left in a rather worse condition from a weakened pelvic floor.

The treatment proposed by the writer is an application of the principle of injection of sensory nerves with 70 to 80 per cent. alcohol, thereby causing their degeneration, as suggested by Professor Schlösser* of Munich in 1907, and practised with marked success by him and his many followers, particularly in neuralgia of the trifacial nerve.

All of my cases were of the type of neuralgia or neuritis of the coccygeal nerves in which this method is peculiarly applicable, though I think it should be tried in all cases of coccygodynia, whatever their nature, as its application is simple and harmless. It may relieve the distressing pain even though it does not affect its cause.

The *technique* is easily carried out at the office under strict aseptic precautions. The patient, with rectum empty, assumes the left lateral (Sims') position on a firm table, with the thighs well flexed on the abdomen, and the region of the coccyx is painted with tincture of iodine. An all-glass Luer or similar sterile syringe of two centimeters capacity is filled with 80 per cent. alcohol and armed with a two-inch needle of fine gauge. The right index finger is now inserted into the rectum and the point of maximum tenderness is determined by counter pressure with thumb outside. In my cases this has been just below the tip of the coccyx in the midline or slightly lateral to it. Maintaining the finger in the rectum to guard against its puncture and to act as a guide, the needle is now introduced through the midline directly to the painful spot. (Fig. 2.) When this is reached the patient exclaims from pain that is exquisite but tolerable, and the injection of 10 to 20 minims is made slowly. The needle is withdrawn and its puncture sealed with collodion after neutralizing the iodine on the skin with alcohol. The pain from the injected alcohol lasts a few minutes only and may be followed by a dull ache for a day or two. It is conceivable but not probable that a single injection would work a cure in some cases. As a rule, three and at the most five injections should suffice. The interval between the injections should vary from five to ten days—one week on the average—and they are to be made always at the point which is found most tender at the time of injection. A consideration of the rather broad distribution of the coccygeal plexus of nerves already stated readily explains the necessity of repeated injections.

The writer's experience is limited to the seven cases here reported owing to the comparative rarity of the disease, but the outcome in these has been so favorable that he earnestly commends it to others for trial.

Case I.—Miss F., aged 29 years, developed Pott's disease in her seventh year. By wearing a plaster jacket cast she was cured when fourteen years of age, but has marked spinal deformity. She fell six months before I saw her, striking the coccyx. Since then she has had pain low down on right side of the back radiating to the hip, and "a feeling as if the spine were telescoping"—prevented her sleeping. Pain in the coccyx gradually increased, and was the predominating symptom when she was referred to me in June, 1910. Examination showed the coccyx deviating to the left and not movable laterally. Antero-posterior motion caused pain at the sacrococcygeal joint, and marked tenderness was elicited by compression of the soft parts between the tip of the coccyx and the anus. As all the routine measures had been tried, it occurred to me that injections of alcohol might be beneficial. On June 23, 1910, ♏ xv of 80 per cent. alcohol were injected by the method described above. June 30, pain relieved.

*Schlösser: "Erfahrungen in der Neuralgebehandlung mit Alkoholeinspritzungen." Proceedings of the Congress of Internal Medicine, Wiesbaden, 1907, XXIV, pp. 49-55.

Dull ache persists. Sleeps better. Injected ♏ xv. July 10, repeated injection. No further pain, but dull ache occasionally which disappeared in a fortnight and she has remained well since.

Case II.—Miss S., aged 36, fell, striking the lower part of her spine three months before I saw her in October, 1911. The pain disappeared except in the region of the coccyx. She could not sit, rise, or walk with comfort and had become very nervous. Examination showed a spare, neurasthenic woman, with normal genital organs. The coccyx was normal in position and mobility. The soft parts intervening between the coccyx and anus were very tender. After five injections of 10 to 20 minims each of 80 per cent. alcohol, given at intervals of one week, all pain disappeared and her general condition improved markedly. As she has not returned to my class at the Vanderbilt Clinic, I presume that she has remained well.

Case III.—Miss R., aged fourteen years, schoolgirl, came under my care January 11, 1913. Six months before she fell while roller-skating, striking the lower part of her spine. One month later she developed pain over the coccyx which is very severe when she sits or rises. Bowels move 3 or 4 times daily without pain. Frequent micturition. Urine normal except that indican is in excess. She has never menstruated. Appetite voracious. Examination shows a very stout, over-developed girl with normal organs. The coccyx is normal, but pressure just beyond its tip by the finger in the rectum elicits exquisite tenderness. Jan. 30, 1913, injected 80 per cent. alcohol ♏ x. Feb. 6, pain diminished. Repeated injection. Feb. 13, slight pain still present. Injected ♏ x. Feb. 20, pain absent till past three days. Repeated injection. May 16, 1914, fifteen months after the last treatment, she reported that the pain had been absent since the last injection and that she felt perfectly well. Examination elicited no tenderness.

Case IV.—M. S., widow, aged 42, came under my care at the Workhouse Hospital, June 7, 1913. She had had the diseases of childhood, but otherwise was always well till the birth of her third and last child seven years ago. Since then she had intractable pains in the region of the coccyx. For this all her internal organs of generation had been removed at three laparotomies. The perineum was also operated upon three times and the coccyx removed, but the pain still persisted. She complained of severe dragging pain at lower part of the sacrum and in the rectum. She also suffered from "nervous spells," in which she fainted and had convulsions. She drinks alcoholics to excess, as she expressed it "to drown her trouble." Physical examination showed a medium sized woman, fairly well nourished and of good intelligence. The chest and abdomen were normal. Perineum was lacerated. Area over the normal site of the coccyx was very sensitive, and when compressed between the finger in the rectum and thumb outside was exquisitely tender. Protoscopy was negative. June 7, 1913, injected 80 per cent. alcohol ♏ xx, in the sensitive area. June 17, pain diminished. Injected ♏ xx. Aug. 19, pain absent since last treatment. Considers herself cured.

Case V.—M. W., widow, aged 39. She had a miscarriage at 20 and was operated upon for appendicitis one year ago. Two years before admission to my service at the Workhouse Hospital in June, 1913, she fell, striking on the tip of her spine. Since then she had been unable to sit without pain which was aggravated by rising. Examination showed a markedly tender point just beyond the tip of the normal coccyx. June 13, 1913, injected 80 per cent. alcohol, ♏ xv. July 10, improved. Injected ♏ x. Aug. 19, still some pain. Injected ♏ xx. This gave permanent relief while she remained in the institution.

As Cases IV, and V, were inmates of the Workhouse, I am unable to give a later report.

Case VI.—E. G., aged 19, single, consulted me April 25, 1914. She had diphtheria in childhood, but no other illness and was strong and well nourished. Six years before visiting me she fell one story from a fire escape striking on her buttocks. Following this fall she had attacks of pain in the region of the coccyx, especially after standing or walking. Three months ago she sustained a second fall on the buttocks. Since then the pain had been markedly aggravated and was also present when she sat or attempted to rise. Her bowels were constipated, but the stools were painless. Local examination showed marked tenderness over the entire coccyx, especially at its tip. April 25, 1914, injected 80 per cent. alcohol ♏ viii, at the most tender point. May 4, less pain. Injected M vii, just to the left of tip of coccyx. May 9, very little pain or tenderness now. Injected ♏ x, at the right of tip of coccyx. June 10 reported freedom from pain.

Case VII.—M. B., a widow, aged 69 years, fell in December, 1912, striking upon her buttocks and the tip of the spine. Thereafter she suffered pain in the coccygeal region. This pain was aggravated by motion and was present even when reclining when she consulted me in April, 1914. At that time local examination showed the coccyx normal in position, not ankylosed but very tender, particularly along its margins and tip. April 20, 1914, injected 80 per cent. alcohol, ♏ vii, at the tip of the coccyx. April 25. Some improvement. Injected ♏ viii. May 9. Condition about the same. Injected ♏ x at the left margin of the coccyx. May 23. Markedly improved. Pain now only when sitting or rising. Injected ♏ xv just to the left of tip of coccyx. June 11. Reports feeling well since last treatment.

Recurrence has not taken place, to my knowledge, in any of my cases. The time that has elapsed since treatment has varied from four years to one month. This would seem to justify the expectation of permanent cure. However, should relapse occur, a repetition of the treatment is a simple matter.

230 West Fifty-ninth Street.

REPORT OF FOUR CASES OF WHAT APPEARED TO BE TUBERCULOUS MENINGITIS WITH APPARENT PERMANENT ARRESTMENT.*

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Tuberculosis in any tissue may be acute, subacute, or chronic in its course. The terminal stage of tuberculosis may be infiltration, fibrosis, caseation, chalcosis, or complete breaking down and destruc-

Fig. 1—L. W., photograph taken July 18, 1909, when the child was 2 years 7 months old. Note evidence of emaciation.

*Read at meeting of American Climatological Association, Atlantic City, N. J., June 20, 1914.

tion of tissue, or a combination of two or more of these changes. It is always a replacement disease, the replacement remaining permanent.

These conditions must be considered in discussing the curability of tuberculosis of any tissue. If

Fig. 2—L. W., photograph taken 20 days later than Fig. 1. Note continuance of emaciation. Apparent slight flatness left side of face.

a return to the former condition of tissue is indicated by the term cure, such does not occur. If clinical restoration to health of the individual or restored function of an organ is the requisite, cures occur. Pathological cures may not occur. Clinical cures do occur. Tuberculous conditions tend toward arrestment. These may only amount to slight amelioration of symptoms, or to a distinct remission of greater or less extent which may terminate in a condition of arrestment, temporary or permanent. This tendency varies greatly in different tissues, that of the meninges being very slight.

Tuberculous meningitis is probably always secondary to active process in other tissues. The meningeal involvement may be general or localized, acute, subacute, or chronic. The gravity of the meningeal infection may be such that the primary focus may be quite overlooked or cease to be of importance from a prognostic standpoint.

It may accompany an attack of acute general miliary tuberculosis, in which the general condition is so grave that the final outcome may not be materially influenced by the meningitis, but the existence of meningeal involvement is always sufficient cause for grave prognosis. Sufficient numbers of cases, however, have been reported of prolonged arrestment of activity, or cures, to show that, while such termination is not frequent, it is possible.

George A. Crace-Calvert, London, reports four cases of recovery in the *Medical Press*, July 9, 1913. He quotes Martin, reported in *Brain*, Vol. XXXII., recording twenty undoubted cases of recovery since 1894.

Reichman and Rauch, abstract in the *Journal of the American Medical Association*, August 9, 1913, report two cases of recovery; one a child two years old, the other a robust young man. They collected eighteen other cases, more than half of which have been reported during the past five years.

Professor Rotch, in his work on Pediatrics, 1903, reports two cases of recurrent meningitis, stating these cases are rare, the disease being almost uniformly fatal in first attack. The first was that of a child, 21 months old, who died of subacute tuberculous meningitis, which gave a history of having suffered from symptoms of meningitis at intervals since nine months of age. Autopsy showed old tuberculous lesions in meninges, as well as those which produced the symptoms from which the patient died. This case showed tuberculous lesions in other organs both of a chronic and acute miliary character. A second case of Pott's disease developed symptoms of meningitis May 7, and continued 5 days, when it appeared well. Recurrence of symptoms for short periods followed by remissions for 25 days when remission of 2 months occurred, with symptoms for 2 days. Following this there were no symptoms for 10 weeks. Symptoms again recurred, followed by death in 4 days. The post-mortem showed recent tuberculous meningitis. In addition older large tubercles of brain and remains of previous attacks of tuberculous meningitis.

Fig. 3—Photograph showing the condition of patient L. W. Sept. 26, 48 days after first ocular symptoms were manifest. There had been improvement of general physical condition but steady progress of focal manifestations.

Professor Hutinol (*Presse Médicale*, November 15, 1912) suggests caution against mistaking a remission for recovery, and cites case of girl, 9 years of age who, in 1874, had tubercular meningitis producing hemiphlegia. She recovered from all symptoms only to die 25 years later of tuberculous meningitis. I think we would be justified in classifying this case as an arrestment.

The following cases have been reported:

Phipps Institute reports:		
3-8 years, inclusive	5	
9-20 years, inclusive	5	
21, over	4	
Total age limit stated	14	
Age not stated	18	
Total		32

Cases reported as undoubted cures (arrestments):		
Martin collected	20	
Crace-Calvert reported	4	
Reichman-Rauch reported	2	
Reichman-Rauch collected	18	
Total		44
		76
Following cases		4
Grand total		80

Some of these may be duplicated, but probably others which have been reported are not included. Even the most sanguine must conclude that recoveries are rare. These are sufficient to encourage me to report the following cases:

CASE I.—In July, 1885 (29 years ago) I was called to see A. R., near Carthage, Ill., age 4 years, whose parents had died of tuberculosis before she was one

FIG. 4—L. W., photograph one month later than Fig. 3. Note improved general condition. Less spasm of muscles of neck and back. Still pronounced ptosis, flatness of left side of face, limp condition of right hand and foot.

year of age, both having an active tuberculous condition before she was born, she having been cared for in a small house with them until their death. The patient had had, and still had at the time of the present illness, enlarged cervical lymphatic glands. The signs and symptoms were those of acute meningitis. The case ran the ordinary course of this disease for about 4 weeks, during which time three physicians saw her in consultation with me. All agreed that it was probably a case of tubercular meningitis. At the end of the fourth week the symptoms began gradually to subside, a tedious convalescence terminating in apparent recovery. After about a year the patient passed from my observation and was not seen again until 2 years ago when she moved to California from Illinois and came to my office. Her health was apparently good, she having had no return of former symptoms. At last account she was teaching school in one of the counties in the central part of the state.

FIG. 5—L. W., fifteen days later, improvement continues. Ptosis much improved, improvement less marked in left eye. Note storm on right side of face and calm on left

I am quite aware that this case lacks the scientific data which would be required at this time for diagnosis of tuberculous meningitis, and were it

FIG. 6—L. W., eleven days later. Continued improvement. Note healthy appearance of brothers—the other two children in the family.

not that other cases have been reported of which there could be no doubt of the nature of the illness, I should regard the diagnosis in this particular case as probably incorrect. I report it at this time, leaving persons interested to draw their own conclusions.

CASE II.—H. G., age 18, domestic, entered the County Hospital (via ambulance) May 12, 1912.

Family History.—One paternal and one maternal grandparent died of tuberculosis, otherwise history was negative.

FIG. 7—L. W., showing condition Jan. 6, 1910, eighteen days following onset of measles.

Past History.—Patient gave a history of poor health all her life. She had had all the children's diseases in severe form, also typhoid fever and pleurisy, the latter in 1911, six months previously. Menstrual periods began at 13, had always been scanty, irregular, and extremely painful. There was an indefinite history of "heart trouble" in 1911.

Present Illness.—Began 4 days before entrance to hospital when patient states she "became cold and stiff." For some time previous there had been some loss of weight, fever, cough and expectoration (mucopurulent), night sweats and shortness of breath. Patient complained of severe abdominal pains, loss of appetite and obstinate constipation.

Physical Examination.—Of the chest revealed evidence of active pulmonary tuberculosis in both upper lobes. Temperature irregular, 97°-101°, frequently from 98°-99.5°; pulse 70-100. Heart sounds weak and irregular, mitral regurgitant murmur.

Vaginal Examination gave extreme tenderness and mass on right side.

Laboratory Examination.—Urine was negative. Sputum showed slight mixed infection. No tubercle bacilli. Cutaneous test actively positive.

Operation on June 7, 1912, 26 days after entering hospital, which consisted of an appendectomy, plastic work on both ovaries, and a curettage.

The clinical-pathological report was as follows: Sclerotic condition of ovaries and endometritis—evidence of tuberculosis in appendix and ovaries.

About the middle of July patient began to complain of headache, which soon became persistent and gradually increased in severity, with some remissions and exacerbations. The temperature range was generally low, frequently 97°-98°, occasionally taking a sharp rise to 100°, 101°, or over, for a short time. The pulse was erratic, varying from 70 to 150. Is reported to have had some rigidity of muscles of neck for short intervals early in August. On August 12, had severe opisthotonos, convulsive seizures, loss of consciousness and retention of urine. Pulse ran to 150, temperature 99°. Noguchi test for butyric acid in spinal fluid positive. Pulse dropped to 100 and temperature to 98° following withdrawal of fluid. About ten days later symptoms again became active. Removal of fluid failed to give relief. Succinamide of mercury, gr. 1, given August 28. Apparently slight relief from symptoms. Repeated with 1.2 grains August 31. This was followed by marked relief of symptoms. With slight show of return of symptoms this was repeated Sept. 7, gr. 1, and 16, gr. 8. Patient left hospital Sept. 17, 1912. At last report was without marked return of symptoms.

This was apparently a case which was subacute from the beginning, the first symptoms having become manifest about six weeks following operation on tuberculous organs.

CASE III.—E. M. W. Referred from the office of Dr. H. G. Brainerd by Dr. Stephen Smith. The following is abstract of history from Dr. Brainerd's office: Dec. 30, 1910. E. M. W. Female. Single. Age 32. Bookkeeper. Normal weight 140 pounds. Has lost weight rapidly of late, most during the past three weeks.

Complains of weakness, numbness of left hand, and "nervousness."

History.—Always delicate. Severe malaria in childhood. Suffered severely with facial neuralgia for several years. Lupus of face for 12 years—three foci. Treated with *x*-ray and Finsen Light. Remains well after 9 years. Typhoid fever, 1908. Pulmonary hemorrhage, 1909, one year ago. Weight reduced to 122 pounds. Improved, some gain in weight, slight cough, no fever until about 3 weeks ago, when began to lose weight rapidly.

About three weeks ago, Dec. 10, stooped over, and was unable to arise without help. Soon felt better. Next morning sister (who is nurse) found her lying with arms extended and rigid, fingers clenched around thumbs, was very restless and nervous. Four days later loss of consciousness accompanied by mumbling and heavy breathing, no twitching. After two weeks right arm relaxed, but the hand is numb and weak with some pain along back of hand. Left arm less improved, much tenderness inner side of left arm; numbness and weakness much more pronounced in left hand than right.

Mental condition impaired since present exacerbation began three weeks ago. During this time has had chills at irregular intervals and fever reaching as high as 101 degrees. Appetite abnormally great, bowels regular, sleeps poorly.

Present Condition.—Dec. 30, 1910. Much demented. Tests of sensation not wholly reliable on account of mental confusion, but all seem to be more blunted in left arm and hand than right, station fair, co-ordination very poor. Same is true in less degree of left leg and foot. Wrist and elbow jerk greater on left side than right, also knee and ankle jerk greater on left side, but less than in upper limb.

FIG. 8—L. W., photograph taken May, 1910, five months after recovery from the active symptoms of measles; eight months after beginning treatment. Note slight strabismus and ptosis of left eye.

According to notes, the above conditions appeared to

increase slightly with remissions and exacerbations until Jan. 15, 1911, when patient was taken with hiccough. Right eyelid dropped. Left eye turned in. Conscious. Muttering speech. About fifteen minutes following onset of these symptoms patient fell asleep for a time followed by increased mental dullness, with increased impairment of left hand, arm, and lower limb—intensity being in the order named. Slight amelioration of symptoms after twenty-four hours.

Similar attacks occurred on the 19th and 31st inst., the last one being preceded by metallic taste in mouth.

Jan. 25. Wassermann test by Dr. Warden reported negative. Feb. 13. Paresthesia around mouth, talks with difficulty, tongue thick. Drinks with difficulty. Feb. 20. Very restless, distressed, and depressed. Growing weaker. Weakness more pronounced on left side, most left hand. Paresthesia around mouth more troublesome. Talks thickly. Sleeps with mouth open. Temperature variable, but subnormal most of the time, 97°-98°. Pulse 90-100. Believed to be tuberculous.

Nov. 11, 1911. About three months after beginning of symptoms of present attack, she presented herself at my office, accompanied by sister. She was much depressed mentally; would sob and tears start when I attempted to obtain history from her, and appeared to be incapable of answering questions intelligently. Complained of numbness in hands, arms, and lower limbs, most pronounced on left side—would rub left hand and say "It has gone away." There was some ptosis. Her facial expression was blank and stupid; would wander away if not watched. Muscle power was much reduced in both hands, almost absent in left; gait unsteady, imperfect use of both lower limbs, the use of left limb being much more impaired than right. Would fall easily, if not assisted while walking. Reflexes as given above. Weight 137 pounds; loss of 16 pounds during three months. Temperature range, oral, 97°-98°. Pulse 80-90. Physical examination of chest showed evidence of fibrosis in the upper lobes of both lungs, most extensive in right where cavity signs were apparent about second and third ribs. Cutaneous tests promptly positive, lumbar puncture not made.

FIG. 9.—L. W., in good health after 4½ years. Slight external strabismus still exists, the only remaining manifestation of the disease.

Watery extract of tubercle bacilli was used, beginning March 6, with .001 mg. doses, which were gradually increased to .01 mg. in about two months. Focal reactions were easily excited, as evidenced by temporary exacerbations of symptoms and signs of increased degree of paralysis. The symptoms and signs began to improve and continued uninterruptedly until at the end of two months her muscular impairment of function and mental condition were greatly improved, and she had gained about 10 pounds in weight.

May 4, referred to Dr. Brainerd for examination. The following is from his record: "May 4, 1911. Patient has been taking tuberculin treatment under Dr. Browning. Weight has gone up to 145 pounds. Mentality and spirits greatly improved, pain in arm better. Condition and use of arm better. Sleeps well. Some recurrence of symptoms after several of the injections of tuberculin. Patient looks cheerful and bright, talks well. Very little difference in reflexes on the two sides."

She continued under treatment for a year, with steady improvement, until by the end of six months she could come to my office alone. Her muscular system never entirely regained its former condition, but she walks well enough to get around without danger or attracting marked attention. Temperature gradually approached normal—97.6°-98.4°, and her weight increased to 157—gain of 20 pounds. No forced feeding. She gradually lost her sensitiveness to tuberculin and felt much better for about five days following a dose, which was 10 mgs. of watery extract. The interval between doses was gradually increased, she being instructed to return whenever she felt toxic. This she did, returning at intervals of from one week to three weeks for another year, until treatment ceased, she having nearly regained her normal condition, and so continues to the present time, about 3 years later.

This case apparently was a moderately acute meningitis terminating in a chronic form, followed by an arrestment.

CASE IV.—Sept. 22, 1909. L. W. Female. Age 2 years 9 months. *Family History.*—Youngest of family of three children. Maternal grandmother died as result of accident, other three grandparents living and well—ages 61, 63, 67. Father and mother aged 39 and 37 respectively, two brothers 4 and 7 years. Patient well until "severe cold on lungs," Jan. 18, 1909—two years of age. Coughed very hard, recovery incomplete. July 7, 1909, went on picnic, became exhausted, and grew progressively weaker, appetite poor, cough aggravated, had fever and night sweats.

Aug. 9. Mother states left eye disappeared, "went up and out." Consulted oculist. Systemic symptoms grew progressively worse, but eye made some improvement; external strabismus continued. Aug. 13. Mother noticed she was losing use of right hand, and that she fell frequently when attempting to walk; soon noticed dragging of left foot, followed by abandoning all efforts to walk. Used electricity for a few days, when noticed "both eyes began to close." Aug. 20. Taken to clinic, seen by Drs. Dudley (oculist), Chas. Lewis Allen and Ross Moore (neurologists). Ptosis both eyes, more pronounced in left, with marked degree of paralysis in right arm and hand, slight in left hand, with marked paralysis in lower limbs, was observed. There was evidence of lesion in apices of both lungs, and continuation of symptoms noted above. Syphilis was believed to have been eliminated, and after careful observation of symptoms and signs until Sept. 22, the case was referred to me as probably tubercular meningitis.

Examination showed enlargement of cervical glands, evidence of tubercular involvement of both apices, more marked in right. Moro and von Pirquet tests promptly and very actively positive. Began the use of watery extract of tubercle bacilli in doses of .000,001 milligram, which was cautiously increased. Several times evidence of focal reaction was observed as noted by temporary exacerbation of physical signs during course of treatment. Marked improvement was manifest at once, as shown by amelioration of symptoms and rapid improvement of signs.

Dec. 19, 1909. The child had an attack of measles, and soon the former signs began to manifest themselves.

The signs gradually disappeared however. Maximum dose of watery extract given was 2 mgs.

May 5, 1911. Continued good health after two years.

The temperature in this case was taken per rectum, and was somewhat erratic. At times it would reach 102°, but more frequently was subnormal. The daily range generally did not exceed one and a half degrees.

1004 STORY BUILDING.

SYPHILIS OF THE LUNGS SIMULATING PULMONARY TUBERCULOSIS.

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SYPHILIS of the lungs occurs more frequently than generally appreciated. It is quite often treated as phthisis and its frequent association with pulmonary tuberculosis renders its diagnosis more difficult.

According to J. K. Fowler the following four conditions are necessary for a sure diagnosis of the syphilitic nature of a lung lesion: (1) The case must be complete, that is, the symptoms observed during life must be considered in connection with the lesions described in postmortem findings, when such are available; (2) evidence of syphilitic infection must be undoubted; (3) repeated examination of sputum invariably negative for tubercle bacilli and absence of tubercle from the lungs must be proved by postmortem examinations; (4) syphilitic lesions, about the nature of which there can be no doubt, must be found in other organs.

With the exception of the postmortem findings, as our patient was fortunately cured with antisyphilitic treatment, all these conditions were met in the following case. The fact that the patient was diagnosed as pulmonary tuberculosis by competent clinicians before admission to the Montefiore Home Hospital, and was considered for a time as such in this institution, makes it worth while, I believe, to report the case.

Mr. G. J. H.—Born in United States, a traveling salesman by occupation. His father died of apoplexy at 62, and mother of carcinoma of the breast at 58; does not remember any diseases of childhood; has used alcohol in moderation and tobacco to excess (about fifteen cigars daily); has led more or less of an irregular life because of the requirements of his occupation. His appetite has always been good, bowels regular, and urination normal; had influenza two years ago; fistula in ano two years ago; gonorrhea at sixteen, complicated by a stricture, which was treated with bougies; syphilis denied. He married four and a half years ago a healthy girl of twenty. His wife and one child, four years old, are alive and well. No history of abortions or miscarriages.

Present Illness.—The onset was rather sudden, it dating back to about one year before admission when

FIG. 1.—Showing dense hilus infiltrations.

patient began to complain of cough, shortness of breath (especially on exertion), afternoon fever, night-sweats, and general weakness. He was losing weight in spite of remaining in bed on advice of his physician. During the following year the symptoms were gradually aggravated, and he lost altogether twenty pounds in weight. He then applied to this institution and was admitted on February 6, 1914, with the following chief complaints: Chills and fever, cough, night-sweats, general weakness, loss of weight (twenty pounds in one

FIG. 2.—Showing improvement following specific treatment.

year), pain in the back, in the calves of both legs, and in the lower part of the chest anteriorly.

Physical examination on admission showed a fairly well nourished and developed man; 145½ pounds weight. Height 5 feet and 7 inches. His best weight, one year ago, was 165 pounds; no edema, slight dyspnea, and cyanosis of both hands and feet; no gross anatomical deformities. Both pupils are regular and reacting to light and in accommodation; the left pupil is somewhat larger than the right; scar of a healed fistula in ano. His chest is barrel shaped, fairly symmetrical. Both infraclavicular fossæ are retracted, more marked on the right side; expansions equal on both sides. On percussion dullness was elicited over right apex anteriorly. Over both bases for three interspaces the resonance was defective, breath sounds diminished, and crepitant râles were heard on the right side posteriorly; percussion and auscultation of the heart negative, except for an accentuation of the second aortic sound. The maximum systolic pressure was 130. Physical examination of the abdomen showed an enlarged liver four fingers' breadth below the free costal margin; spleen and kidneys negative. The cervical and inguinal glands were palpable; the epitrochlear and others could not be felt. Two small round scars were present on the anterior surface of the left leg. His knee-jerks were exaggerated, but none of the abnormal reflexes was elicited. The urine analysis showed no albumin, no sugar, no casts. Fourteen examinations of the sputum, including three with antiformin, failed to reveal the presence of tubercle bacilli. The blood examination showed the following: Hb, 80 per cent.; red blood cells, 4.8 millions; white blood cells, 13,500; neutrophiles, 68 per cent.; lymphocytes, small, 19 per cent.; lymphocytes, large, 12 per cent.; eosinopnites, 1 per cent. The temperature varied between 101.4° in the afternoons to 98° in the mornings. The pulse 110 to 80, and respirations 30 to 20 per minute.

Unfortunately no *x*-ray plate could be obtained on admission, the radiographic laboratory not being complete on account of the recent moving of this institution to its new quarters. Two *x*-ray plates were taken by Mr. Scholtz, one about two weeks after treatment and another just before the patient left. It will be observed on the first radiogram that both hilus regions show very dense infiltrations, especially at the right side. The infiltrations seem to extend downward toward the base. The diaphragm on the right side is about one-half interspace higher than it normally should be. It also shows a bulging of its middle third, pointing to a pathological condition (gumma?). A slight dilatation of the aorta is also seen. That the lesions cleared up as a result of antisyphilitic treatment will be seen from the second radiogram. Both lungs appear to be much clearer. The infiltrations about the hilus and bases are less marked.

The patient was kept in bed. The afternoon fever and all the other symptoms mentioned above persisted in spite of the usual treatment. On February 25, 1914, a Wassermann test was performed and was found to

be triple positive. The patient was then again questioned as to his venereal history, and he admitted that about seven years ago he had a small round sore on his lower lip, which was diagnosed at a hospital as a chancre. He received antisyphilitic treatment for only one week and gave it up on account of a bad stomatitis, and as no symptoms of secondary syphilis appeared he forgot all about it. Antisyphilitic treatment was now begun, consisting of one grain of mercury salicylate intramuscularly administered weekly and increasing doses of potassium iodide. It was found that he could not tolerate more than 20 grains a day of the latter. However, this treatment was immediately effective. The afternoon fever subsided, the night-sweats stopped, the cough and pains disappeared. Within two weeks the patient, completely afebrile, was permitted to leave his bed. His general condition improved and he gained 17½ pounds in the two weeks following.

On April 10, 1914, another Wassermann test was performed and again found to be positive. An intravenous injection of 0.6 gram of salvarsan was then given. A rise in temperature and general malaise were observed for two days, but he soon recuperated and gained two more pounds in weight in the subsequent week. On May 7, 1914, a physical examination of the lungs showed them to be absolutely negative, and the patient was discharged cured.

Diagnosis.—The history of a chancre; the positive Wassermann reaction; the failure to improve on ordinary dietetic and hygienic measures; the gumma of the liver (as shown by *x*-ray); the symptoms and the pulmonary signs; the failure to reveal the specific microorganism of pulmonary tuberculosis on repeated sputum examinations, and the quick response to antisyphilitic treatment led us to believe that the case was one of pulmonary syphilis. The pulmonary lesions in this case being rather diffuse and confined mostly to the bases and around the hilus show it to be syphilitic pulmonary fibrosis.

A résumé of our experience in this case shows that with the exception of hemoptysis all the cardinal symptoms of pulmonary tuberculosis were present, namely, chills and afternoon fever, night sweats, cough, chest pains, and loss of weight. The physical signs, too, showed the presence of a rather moderately advanced lesion of the lungs. It is no wonder, therefore that this patient was considered tuberculous for over a year, and because no antisyphilitic treatment was administered, he continued to lose ground under the ordinary hygienic and dietetic measures that were taken. What made us doubt tuberculosis in this patient was the fact that the sputum continued to be negative for tubercle bacilli on repeated antiformin examinations, although the symptoms and signs progressed. Furthermore the pulmonary lesions situated at the base made us still more suspicious. There is no doubt that many such cases are often overlooked. If every case with basal pulmonary lesions and negative sputum were carefully studied, we would probably find that syphilis of the lungs is not as rare as it is considered at the present time.

In conclusion I wish to express my sincere thanks to Dr. Siegfried Wachsmann, our medical director, and to Drs. Maurice Fishberg and Lee Kessel, attending physicians to the tuberculosis pavilion, for their valuable suggestions.

Bilateral Harelip and Congenital Bilateral Mucous Fistula in the Lower Lip.—A. H. Todd reports the case of a healthy male infant aged three months, whose upper lip showed a wide bilateral cleft, with marked projection of the premaxilla, but there was no cleft in the hard or soft palate. The lower lip showed two small depressions, symmetrically placed, at a distance of about ⅛ in. from the midline; they were just large enough to admit the point of a small probe, and occasionally a bead of gelatinous secretion could be squeezed out.—*Proceedings of the Royal Society of Medicine.*

PREVENTION OF SCHOOLROOM DISEASE AND DUST.

By C. WARD CRAMPTON, M.D.,

NEW YORK.

DIRECTOR OF PHYSICAL TRAINING N. Y. SCHOOLS

THE annual recurrence of measles, diphtheria, scarlet fever, common colds, influenza, and the like among school children, causes an annual loss of uncountable days of absence. The financial and educational losses can be only estimated. It probably exceeds the cost of over 40,000,000 school days per annum.

The method of prevention of these diseases has in the past mainly developed along the lines of exclusion of those suffering from contagious diseases, members of the family and suspects who have been brought into contact with sufferers. While this is partially effective and there have been developed excellent methods for the regulation of exclusion, the general problem will not be solved without reference to the two most important factors in the transmission of diseases, which are (1)

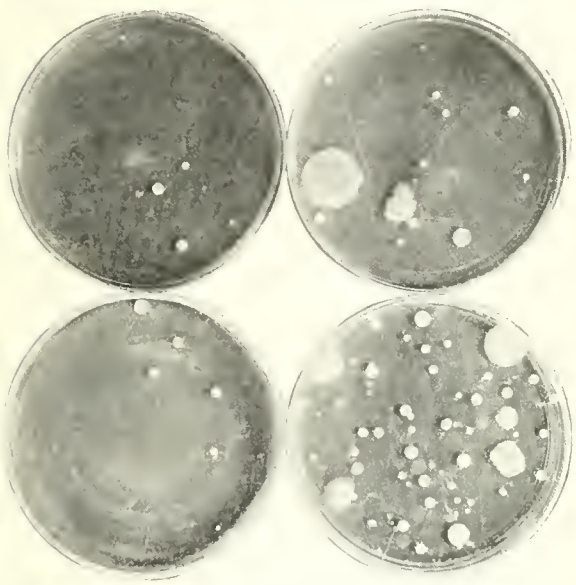

FIG. 1.—The two photographs on the left are from plates exposed in a room that has been treated with floor oil. The upper one before and the lower one after drills. The two on the right are from plates exposed in an untreated room, the upper one before and the lower one after drills.

an effort to prevent the dissemination of infectious material by coughing and sneezing; (2) the prevention of school dust.

Prevention of Coughing and Sneezing.—It is agreed that measles, diphtheria, scarlet fever, influenza and common colds are mainly transmitted by the expulsion of infectious material from the mouth and nose, in coughing, sneezing, and talking. At present, our school authorities have not arrived at the point of excluding every child from the classroom who had his first cough or sneeze, and it is at present doubtful if such a procedure would be warranted. The problem may be attacked very definitely by an effort on the part of the teacher to control coughing and sneezing in so far as it lies within her power.

A form circular was issued to the New York Public School Teachers, reading as follows:

"1. Scarlet fever, measles, diphtheria, influenza, and common colds are often spread by coughing and sneezing. This occurs frequently before the child appears to be ill.

"2. When a child coughs or sneezes he is apt to expel into the air visible droplets or an invisible spray containing bacteria and other germs which cause the diseases above mentioned.

"3. Children should be instructed as follows: (*a*) Each child should be urged to provide himself with a clean handkerchief. They should be carried conveniently so that they are available for immediate use. (*b*) Children should be instructed, when coughing or sneezing, to guard the mouth and nose with a handkerchief, so that none of the infectious material will be cast upon his associates or distributed throughout the room. The impulse to sneeze is often so sudden that this cannot be done. The child should, therefore, get into the habit, when he coughs or sneezes, of turning the head away from his neighbors and should guard the mouth and nose with the hand, but every effort should be made to make proper use of the handkerchief.

"The most recent medical investigations have demonstrated beyond doubt that the diseases mentioned above are transmitted by coughing and sneezing, and that these precautions against infection will do much to eliminate them."

It is impossible to tell exactly how much good this has done. Without implying a definite causal relation, it is interesting to note that the number of cases of scarlet fever reported from January 1 to June 14, 1913, is 2,724 less than the average of the preceding two years. The number of cases of measles for a similar period is less by 2,367.

Dust Prevention.—The definite causal relation of dust and disease has recently been disclosed in an endeavor to place before the medical and lay public the rôle of droplet infection.

The pendulum will not, however, swing too far in that direction in the minds of those who are familiar with the methods of classroom education. Most classrooms have wooden floors, which are (supposed to be) swept every day, and are scrubbed from two to ten times a year. The floor may be perfectly clean at the beginning of the school session and yet upon the entrance of the first pupil, it becomes dusty. Moreover, every movement of the child about the room during their physical training exercises and marching, causes the dust to rise in miniature geysers from the cracks which have not been reached by the broom of the janitor.

Immediately after the physical training exercises the air of the room is thoroughly saturated with dust which is breathed by the children and can be seen upon the handkerchiefs from blowing the nose shortly after the close of the exercise. Dirty dust is by no means a favorable lining for the nasopharynx, and none of the most enthusiastic of the adherents to the droplet infection theory (of which I am one) will claim that it is innocent.

It has been the good fortune of the writer to have been authorized to conduct a series of experiments of dust prevention in the New York public schools, for the purpose of ascertaining whether or not a sanitary oil floor dressing might be effective.

Five years ago the use of floor dressing was common. In many schools it has been discontinued because the careless use of large quantities, allowing a little oil to remain on the floor, dirtied the dresses of the teachers and made the floors slippery. In addition it was claimed that the oil-impregnated floors increased the fire hazard.

The opinion of the Bureau of Fire Prevention of the New York Fire Department is to the effect that any oil dressing may be used on the floors if the flash point is not more than 150° F. Accordingly this was taken into consideration and a dressing of a flash point of 300° was selected. In addition the experimenter used an applicator in the form of a small reservoir with a felt mop inserted at the bottom for the purpose of evenly distributing the material. The results in so far as teachers, janitors, and principals were concerned, were highly favorable. The results from the bacteriological standpoint are shown in the following bacteriological report from Wallace A. Manheimer.

(From the laboratory of the Department of Bacteriology, College of Physicians and Surgeons, Columbia University, New York.)

Tests were made:

1. Before and after conducting physical exercises, both in rooms that had, and in others that had not been treated with the oil.
2. Before and after these rooms had been swept.
3. On experimental boards (artificial floors) kept under controlled conditions in a large bell-jar.

Four rooms of like dimensions were selected for the tests. Two of these had been treated with the floor oil on November 28, 1913. The oil had been applied by means of a mop and added so that no excess of the oil remained on the surface of the floor after treatment. The other two rooms had not been treated, though they had been swept daily using sawdust soaked in the floor oil. The tests were conducted in Public School 42 on January 16, 1914, the oil having been in use since November 28, 1913, or 58 consecutive days without renewal.

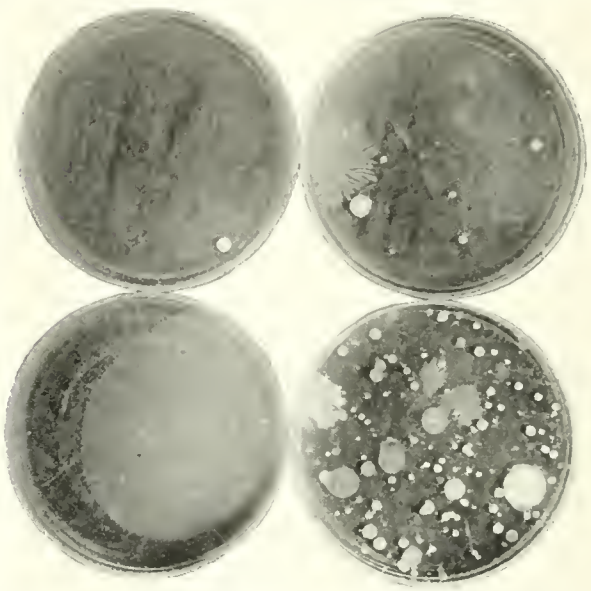

FIG. 2.—The two photographs on the left are from plates exposed in a room that had been treated with floor oil. The upper one before and the lower one after the room had been swept. The two on the right are from plates exposed in an untreated room, the upper one before and the lower one after the rooms had been swept.

Technique of Analysis.—Apparatus used. 1. Standard meat infusion agar petri dishes, sterilized in the autoclave for thirty minutes at 15 pounds pressure. 2. Quartz sand filters, sterilized in the hot-air oven at 160° C. for 1 hour. 3. Vacuum drum, the gave of which was calibrated. 5,625 c.c. of air were aspirated in all tests.

Plating and incubating. Exposure plates, and pour plates were incubated for five days at 20° C. Ten plates that had not been exposed were also placed under the same conditions. These plates were carried to the school, and from classroom to classroom, so that they would be actual controls. In these ten plates but one colony developed, so that the error in counting was 1/10 of a colony for each plate, a factor that is negligible.

The sand filters were emptied into 5 c.c. of sterile normal salt solution, rotated between the hands thirty times, and shaken with a rotary motion thirty times. One c.c. of this solution was then added by means of a delivery pipette to 9 c.c. of salt solution. The first tubes used contained in each c.c. one fifth of the number of bacteria that had been caught in the sand filters, while the second tubes contained one fiftieth of the number of bacteria. One c.c. amounts were then added to sterile petri dishes, and standard meat infusion agar poured over. Duplicate plates were made for both dilu-

tions. Three of the filters that had not been used were run through as controls. In no instance was there contamination, thus insuring the sterility of the filters, salt solution tubes, and culture media.

Tests: I. Before and After Drills.—A. Before drills. Students in the four classrooms (two treated with floor oil, and two untreated) were required to sit very still. Agar plates were exposed for five minutes in each room, and the dust contained in 5,625 c.c. of air caught in the sand filters. The sand filters and agar plates were held the same distance from the floor during all tests.

B. After drills. Identical tests as in A (above) were conducted after the floors were disturbed by physical exercises. In order to reduce the error introduced by drilling a large class of students, the following precautions were observed:

a. The same class of boys was used for drilling, both in rooms 204 (not treated with the oil) and 413 (treated with the oil), so that the results derived from these two rooms would be comparable. A different class of boys was used for both rooms 203 (untreated), and 414 (treated). Hence two sets of comparative data were collected.

b. Exercises that involved the feet only were conducted, *e. g.* springboard jumping, marching, etc., so that dust from the clothing of the students which otherwise would have risen into the air, was largely prevented from so doing.

c. The same drill was conducted in rooms 204 and 413, and a similar one in rooms 203 and 414. The same number of counts, same length of time, same exercises, etc., were used throughout. Hence the data of room 204 and that of 413 were comparable, as were those of 203 and 414.

TABLE NO I

Room No.	A. Before Drills			B. After Drills	
	Oil Used	Plate Exposure Count	Aspiration Count	Plate Exposure Counts	Aspiration Counts
204	No	3	5	74	90
413	Yes	2	10	18	14
203	No	8	25	108	105
414	Yes	6	12	17	20

(Note: By reading the table from left to right, the difference in air contamination before and after drills may be observed. By reading the table from above down, especially the second half, the efficiency of the floor oil may be readily observed as indicated by the difference between the counts when the oil was and when not used.)

By reference to the table (A section) it will be seen that the counts made from samples taken from the four rooms *before* the floor was disturbed by physical drills, were somewhat different. In the two rooms that had not been treated, the counts in the exposure plates were 3 and 8 respectively, and the counts on the pour plates, taken from samples collected from the same rooms, were 5 and 25 respectively. In the two rooms that had been treated the counts on the exposure plates were 2 and 6 respectively and on the pour plates 10 and 12 respectively. It will be seen that there was a little less dust in the rooms that had been treated than in the rooms that had not, even though the air had not been stirred.

By referring to the B section of the table and also to the accompanying photographs of the exposure plates, it will be seen that after drilling there was a marked difference in air contamination between rooms that had been, and those that had not been treated with floor oil. In the two rooms that had not been treated with the oil, the bacterial counts from plates exposed after drilling were 74 in room 294, and 108 in room 203, while in similar rooms that had been treated with the floor oil, using the same drills, etc., the counts were 18 and 17 respectively. It will be seen that under this rigid test 80 per cent. of the bacteria that would have arisen into the air were prevented from so doing by the floor oil. (Computation made as follows:

$108 - 17 = 91$, $\frac{91}{108} = 84$ per cent. and $74 - 18 = 56$, $\frac{56}{74} = 76$ per cent. $\frac{84 + 76}{2} = 80$ per cent.)

Moreover on the day the tests were made, the weather was quite damp, and therefore much moisture had been tracked in by the feet of the students. It is confidently felt that an even greater percentage of efficiency would have been obtained had the day been clear and dry. It must be borne in mind, also, that any dust from the clothing of students operated to increase the number of colonies on all plates alike. This introduces an error into the analysis which operates to increase the value of the denominator in the above fraction, thus lowering the value of the fraction as a whole. If a simple hypothetical case be selected this error can be made clear. Suppose the bacterial counts in the treated and untreated rooms were 30 and 100 respectively, exclusive of the bacteria that might have come from extraneous sources (*e. g.*, clothing of the students, etc.) over which the oil can have no control; and that furthermore the bacteria added to the plates from these extraneous sources amounted to 10 in both rooms. Computing the efficiency without adding this error factor, we have

$$100 - 30 = 70 \frac{70}{100} = 70 \text{ per cent.}$$

adding in the error factor, we have

$$110 - 40 = 70 \frac{70}{110} = 63 \text{ per cent.}$$

In other words, the error factor reduces the percentage of efficiency in this hypothetical case by 7. When dealing with small figures as in the above colony counts, this error must be large. Hence 80 per cent. is an underestimation of the efficiency of floor oil in preventing dust from rising from the floor.

In the tests made from the filters, where more accurate data were obtained, the efficiency computed as above was 82½ per cent. The same error factors enter here as in the above tests, hence the efficiency must be considerably greater.

II. Before and After Sweeping.—(Note. The tests made before sweeping were exactly the same as those before drilling, therefore they will not be repeated below.)

A. Before Sweeping	B. After Sweeping		
Omitted (See Table No. 1)	Room No.	Oil Used	Plate Exposure Count	Aspiration Count
	204	No	223	90
	413	Yes	23	15
	203	No	263	50
	414	Yes	33	5

Efficiency average on exposure plates 86⅓%
Efficiency average on aspiration plates ..... 84 %

The results here are particularly interesting, because less dust from extraneous sources, (*e.g.* the clothing of the children, etc.), was raised into the air. All the tests made were identical with those mentioned in the preceding section. The same sweepers were used in the four rooms and the time taken for sweeping was the same in each case. The untreated rooms were swept first, so that the amount of dust on the brooms and clothing of the workmen was less here than in the treated rooms. Thus the bacterial counts obtained were somewhat higher than they should have been. It is therefore evident that the percentage of efficiency as indicated in the above table and photographs, though high, is somewhat less than it should be.

In spite of these error factors, however, operating against the estimated efficiency of the floor oil, the tests here showed up favorably. From the accompanying photographs and the above table, it will be seen that the efficiency is high. In the untreated classrooms the counts were 223 and 263 respectively, while in the similar rooms that had been treated, the counts were 33 and 23 respectively. The computed averages in both sets of tests gave efficiency percentages of 84 and 82½. Hence the value of the floor oil is great, in protecting not only the health of pupils and teachers during the performance of the regular class work, but also that of the workmen employed in sweeping the floors after school hours.

III. Tests on Experimental Boards (Artificial floors). Two sterilized boards (8″ x 12″), one treated and the other not treated with the oil, were each painted with two cubic centimeters of an emulsion of *Bacillus prodigiosus*, and allowed to dry for seven days in wire baskets wrapped in paper. They were then

placed at different times in a large glass bell-jar and subjected for forty seconds to the draught of an electric fan. Plates were then exposed in the bell-jar, and aspiration counts made exactly as was done in the two tests above. After allowing the bacteria on the plates to grow for five days, the pigmented colonies were counted.

The results of this experiment are as follows:

	Exposure Count	Aspiration Count
Rooms not treated with floor oil	12	3
Rooms treated with floor oil	1	0

Hence it will be seen that the efficiency percentage varied from 91 per cent. to 100 per cent. when judged by tests made on experimental boards. Since the factors here were under control, and since no error factors entered, the results show the efficiency of the oil in preventing the raising of dust.

Summary.—No. 1. After the oil had been on the floor for 58 consecutive days without renewal, the following tests were made; these tests (made to determine the efficiency of floor oil in preventing the raising of dust before and after conducting physical drills, both in rooms that had been and in others that had not been treated with floor oil) showed:

(*a*) That there was less dust in the treated than in the untreated rooms even before the floors were disturbed, though the differences were not marked.

(*b*) That the oil was efficient in causing more than 80 per cent. of the dust to adhere to the surface of the floor disturbed by physical exercises.

2. Similar tests made before and after the rooms had been swept, indicated an efficiency of over 85 per cent. Thus the oil is valuable in protecting not only the health of teachers and students, but also that of workmen employed to clean the rooms.

3. Tests made on experimental boards (artificial floors) under controlled conditions, verified the above conclusions and indicated an even higher percentage of efficiency (91 per cent to 100 per cent.)

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OBSERVATION ON MALARIAL FEVER*

By L. SEXTON, B.S., M.D.,

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THE rational treatment of malaria of the tertian type resolves itself into ridding the red blood cells of the asexual *Plasmodium malariæ* injected into the blood stream by an infected anopheles mosquito.

No treatment of malaria is worth while that does not take into consideration the eradication of plasmodium in the blood, or protection of the patient against the anopheles mosquito.

Whenever a fever case is visited in a malarial section several blood smears should be taken during the first visit before the administration of quinine, so that with the clinical symptoms a positive diagnosis may be made at once. This is particularly true during times of typhoid and suspected yellow fever, as there is no differential diagnosis harder to make without the microscope than between the malignant forms of malarial, yellow, and typhoid fever. Many practitioners in the South very properly carry their microscopes along to the bedside to examine such blood before any treatment is begun.

In tropical countries an examination of the blood for malarial parasites should be made of all subjects suffering from coma, uremia, and dysentery, as the cause of the trouble found early, if malarial, may be the means of saving a life by prompt treatment at the proper time.

The crescent parasites of the pernicious form of malaria are hardly recognizable except by an expert microscopist, after staining, as the evidence is often only small specks of protoplasm with little or no pigment. When these sporulating plasmodia segment liberate a toxin which is the cause of the nervous explosion or chill, the severity of which depends upon the amount of toxin set free in the blood at the time of sporulation.

The remittent type of malaria is due to the estivo-autumnal form of parasite. The paroxysms are much longer in duration, running into each other so there is no cessation from fever. Such types may be mistaken for typhoid or yellow fever unless the discovery of the plasmodium in the blood or Widal should clear up the diagnosis.

Prevention.—Not within our generation need we expect the eradication of malaria, and this on account of the lack of education and the carelessness of the average physician and parasite carrier. It can be, and has been modified in many communities by the building of residences on the highest part of the farm or town and screening them. Residences should be removed from nearby pools of water and swamps; then by draining and oiling of ponds, or stocking the ponds with numerous fish; by using the essential oils and mosquito lotion on all exposed portions of the body, particularly after night, when the anopheles are most active, many outbreaks of malaria might be prevented. Exposure at night should be avoided, sleeping under a close mesh bar, taking three to five grains of quinine three times a day on alternate days, during the summer and fall months in malarial sections will reduce the infection to one-half or less of the present prevalence.

The night moving picture shows, the night court session, or any gatherings of rural people from malarial sections are among the most common sources of malarial infections.

Mosquitos prefer as a breeding place the small stagnant pool, tin cup filled with water, or borders of the river or lake fringed with weeds and grass to protect them. All these sources of breeding should be oiled in addition to screening and fumigating the infected house and screening the patient.

Drainage and sewerage lowering the water level, the abolition of cisterns in New Orleans has reduced the malaria in this city, until years may pass a busy doctor without having a case unless it is brought into the city or hospitals from the surrounding country.

Immunity to malaria seems to exist among natives and some of the children of the dark races who have been raised in malarial districts; many of these persons carry parasites in their blood, without having chills. Their immunity acquired or inherited exists against the toxins alone, not against the parasite. A probable explanation of this immunity is that on account of the peculiar odor of many of the black races mosquitos will not molest them. It is a known fact that the same odor will cause wasps to leave, and permit their nests to be robbed, as is a common practice among some of the dark races in the tropics where the young wasps are used for fish bait.

As said before, three to five grains of quinine on alternate days with meals, during the summer and fall months, is usually sufficient to prevent malaria, and in such small doses can hardly do any harm to those even with an aversion to the drug.

Quinine is germicidal to protozoa by first stimulating and then paralyzing them; from five to fif-

*Read before the Tangipahoa Medical Society of Louisiana.

teen grains daily according to the severity of the case is quite sufficient. Ten grains night and morning on the seventh, fourteenth and twenty-first days succeeding the last chill prevents relapses. One grain daily for each year of the child's age is a very proper dosage for children.

Quinine muriate is quickly absorbed, appears in the urine within fifteen minutes after it is taken into an acid stomach. Its greatest concentration in the blood is within three hours after its administration, hence, ten grains should be given from three to four hours before the expected chill in the adult so as to meet and destroy the young parasites when they are least resistent to its action.

Euquinine is the tasteless carbonized acid of quinine and may be given to children in chocolate, sugar, or milk, and is so insoluble in the mouth that it is almost tasteless in the above mixtures. Its action and the doses are the same as those of sulphate and muriate, only more time is required for its action on account of its insolubility. Warburg's tincture is a compound of quinine, rhubarb, aloes, gentian, camphor, and essential oils, but its chief ingredient is quinine, and its better effect is due (to the stomach that can retain it) to the quinine being in solution and perhaps more readily taken into the circulation on account of the volatile oils stimulating its absorption. Half-ounce doses repeated in three hours usually produce profuse perspiration. It is more applicable to the remittent than to the tertian forms. It can be retained only by the strongest stomachs aided by giving crushed ice and applying ice to throat and mustard to the stomach.

When in children, or because of gastric irritation in grow-ups, quinine cannot be retained by mouth, a cleansing enema is given, followed by double the mouth dose of quinine in warm solution held in the rectum by compressing the anus for an hour, or until absorption has taken place. Suppositories of quinine made with cocoa butter are also recommended when it is impossible to retain the drug by the stomach. A preliminary cathartic of some agreeable form should always precede the giving of quinine in malarial cases. The reason many cases hang on for a season, become chronic, and cause doctors to proclaim that quinine is not a specific, is the constant reinfection of these patients by working in the same swamps, environments, and fields infested by these infected mosquitos. The proof of this assertion is the fact that members of the family similarly affected who go away to the mountains, or out of the infected territory remain well after taking quinine on the seventh, fourteenth and twenty-first day after the last chill; while those who remain in the infected territory become reinfected unless kept screened and under the influence of quinine all the time.

In quinine we have a specific drug to destroy these plasmodia. In red blood cells fairly filled with these plasmodia we find the plasmodia destroyed or absent, with clinical symptoms gone after three days' administration of twenty to thirty grains of sulphate of quinine, provided the drug has been absorbed and given at the proper time. These are facts known and demonstrated wherever malaria is known to exist. There are several theories as to how the quinine accomplishes this result, viz.: (1) that it produces an edema of the sick red cells, destroying the plasmodium in situ, or (2) increases phagocytosis, raising the opsonic index, or (3) sterilizes the blood so that plasmodia cannot multiply, or (4) directly paralyzing the organism in the blood. We are not particularly concerned as to which of these theories is correct; the main point with us is to know just how to cinchonize the patient the quickest way, thereby eradicating these poisonous germs from the blood of the patient entrusted to our care.

Anemia of malarial and tropical countries is almost universal. Pale people is the rule and not the exception; chronic diseases, hookworm, climate, and food play their part, but the destruction of the red cell by the malarial plasmodium is the principal cause of so much anemia in our Southern country. The cells may run down to two million per c.c., leaving the patient weak and dyspeptic and with all the symptoms attendant upon impoverished blood. Such patient should be kept in bed so long as fever continues and cinchonization should be accomplished as soon as possible to destroy the ameboid parasites. Iron and arsenic, bitter tonics with the most nourishing and digestible diet, bathing, elimination by kidney, bowels, and skin are essential. The patient should be kept in bed, fed on the most digestible food and removed from malarial climate as soon as possible. The ability of arsenic (iron, red bone marrow, and other tonics) to help build up these red cells destroyed by the plasmodium, has caused arsenic to be ranked next to quinine in its curative properties for malaria; but it is the tonic and not the antimalarial property of the arsenic that accomplishes the good result. Any treatment that would build up red cells as promptly would answer just as well. Fowler's solution pushed to its physiological tolerance, arsenous acid 1 60 grain doses, cacodylate of sodium, two to three grain doses; even salvarsan introduced into the blood stream does not destroy the plasmodium, but they do help materially in blood reconstruction.

It is related of the workers in a mine in Mexico, where the laborers come from the malarial coast country, that though they suffer from arsenical poisoning after working in the mine for some time, they continue to have the chills and arsenical poisoning at the same time, unless quinine is given the chills continue. So in the treatment of acute malaria no time should be wasted giving arsenic when cinchonization is what is imperatively needed. As a matter of course, arsenic has its place in the after-treatment as a nerve and blood tonic to follow up the eradication of the plasmodia by quinine.

When quinine capsules are given by the mouth they should first be punctured with a needle and followed by some acid drink to insure immediate absorption. Hard compressed pills and tablets may pass through the stomach without absorption and thus cause a failure of cure to be credited to quinine.

There is no occasion in any case to give 100 grains of quinine daily, as it is neither absorbed nor required, and may be toxic in over thirty grain doses during twenty-four hours. Fifteen grains of quinine makes a 1 5000 solution in the blood of the average patient. Twice this amount is quite sufficient to destroy all the plasmodia (not crescents) if given three days in succession. The quinine acts better when given in two or three, seven to ten grain doses, preceding the expected chill time by three or four hours, so as to have the maximum saturation of the blood to meet the newly-developed plasmodia as they occur in the blood at their most susceptible age to the action of the quinine.

Contraindications to Quinine.—Persons with defective hearing, middle-ear disease, and those who are very susceptible and nervous should be given the

smallest amount of quinine capable of destroying the germ. Many people have an aversion to quinine and its effect, in others it produces urticaria or disagreeable tinnitus aurium, while others seem much depressed by its use. Such patients should take the quinine in smaller doses or in combination with bromide of sodium or phenacetine, or some other control; but of the evils, quinine effects or malaria, the latter is much more potent for evil to any patient suffering with the disease.

No one should be graduated or licensed to practise who is not thoroughly familiar with the means of cure and eradication of malaria. Boards of health not working on the malarial problem should be superseded by men who know and will combat our greatest enemy. State and National legislatures should be importuned to support liberally all means for the eradication and cure of malaria. Where hookworm or yellow fever has infected one, malaria has infected its thousand.

Our philanthropists can do no better than to help in the eradication of the anopheles mosquito and the drainage and redemption of the lowlands that harbor this parasite. Every drainage canal and reclamation conference is a tack in the coffin of the great malarial scourge of many portions of the United States, for it must be remembered that nearly all inhabitants of our country are liable to the infection of the anopheles mosquito. So it is not local but national in its sphere, and is an important enough subject to command the attention of our greatest national leaders in every State of the Union.

From an economical standpoint, the eradication and control of malaria is the most important subject that physicians, boards of health, and drainage engineers have to deal with, for no malarial country can be considered healthy.

124 Baronne Street.

STATE-PREVENTION AND PULMONARY CONSUMPTION.

By THOMAS J. MAYS, M.D.,

PHILADELPHIA, PENNA.

Disease-prevention is the science which deals with those forces of nature that make for the enhancement of health. If one were inclined to be seriously impressed with a great deal of the sanitary preachments of the day the conviction might easily be formed that most if not all the advancement in health matters was accomplished by legislative enactments, and that all the future protection against disease will have to come through the same channel. With all due regard for these sentiments it must not be forgotten, however, that in spite of all the benefits which have been bestowed on the human race by health-laws and health-boards, there is and has been a more powerful force at work in the conservation of human life and health than all the health commissions in the world, from those of the Hebrews, Hindoos, Egyptians, Greeks, Romans, and of our own times combined. This is the force of adaptation, or the power that adjusts the body to the unfriendly and destructive forces residing in its environment—a struggle that is coeval with life itself.

This is the force that shortens the stem of a tree in an exposed position and lengthens the same when it grows in the forest; that enlarges the muscles, blood-vessels, and nerves of the blacksmith's arm, and of the dancer's legs; that amplifies the heart muscle under excessive physical strain; that assigns white flesh to the wings of the domestic fowl, and dark flesh to the same organs of its wild congener; and that bestows a dark skin on the dwellers of the tropics, and a light skin on the inhabitants of the high mountains.

In addition to the modifications which natural influences impose on man, he turns around and modifies his environment and this in turn reacts and changes him.

Man's natural love of comfort and well-being, coupled with a knowledge that it is safer to be healthy and wise than to be sick and ignorant, are powerful incentives to good and healthful conduct. He begins to protect himself from the raw elements of nature by providing proper shelter, clothing, and food. His primitive lodgings are transformed into well-ordered dwellings, built in salubrious locations, provided with comfortable furniture, and supplied with baths, drainage, sewerage, and other sanitary essentials. These developmental changes in his domestic and social conditions are brought about by a course of self-education in the first place and in the next place the practical results of these changes soon demonstrate to him that civilized influences not only provoke greater happiness, but prolong life.

These phenomena constitute the so-called transitional reactions which with their stimuli act and react on each other in the early social economy of the human race. And while these changes long antedate the existence of organized health regulations, it is very obvious that after the application of such laws sanitation becomes greatly enriched by reason of their assistance.

Now, in the application of these principles of prevention to pulmonary consumption it must not be overlooked that health enactments are but artificial means to further this process, the function of which is to stimulate and enhance the natural principles of sanitation, which long precede them. This is their normal province and it is only when the former venture to go beyond this line that they become dangerous and injurious.

In view of these considerations it is of interest to trace the effects of each method in operating against this disease. In doing this it must be remembered that no organized or official prevention efforts had ever been launched against this disease, in this country, until up to about the late nineties, yet from statistical proof gathered from the cities of Philadelphia, New York, and Boston, for a period of one hundred years, from 1812 to 1911 (Hoffman), it is made clear that from the beginning to the end of this period the death rate of this disease had been gradually declining, unaided by any direct measures, except during the last ten or twelve years—barring the period immediately preceding, after, and during the civil war, when it increased, or only showed a slight reduction.

Moreover, this collection shows that its decrease was 1 per cent. greater from 1832-1851 (12 per cent.) than from 1892-1911 (11 per cent.)—the latter period marking the time when the restriction-movement held full sway. But the most unfavorable showing of these figures for the prevention crusade is the disparity in the decrease between 1882 and 1901 and 1911. During the former interval, when nothing special was done in a preventive way, the death rate decreased 26 per cent. over the previous equally long interval, while during the latter, when the preventive movement was in its

greatest activity, there was only a decrease of 11 per cent., or less by 15 per cent., than during the former interval.

Furthermore, it is a cause for encouragement to know that Dr. Karl Pearson, Galton Professor of Eugenics in the University of London, an unrivalled biometrician, in his volume on "The Fight Against Tuberculosis and the Death Rate from Phthisis," fully corroborates the observation that pulmonary consumption has been on a gradual decline in England and Wales, until within recent years. He analyzed the death rate of general diseases and phthisis in those countries separately, from 1835 to 1910—a period of seventy-five years. He shows that so far as general diseases are concerned the death-rate falls very slowly during the first-third of the whole period, during the second-third of the period the fall is more pronounced, and this is continued during the last-third of the period. On the other hand, the fall in the death rate of phthisis is quite pronounced during the first-third of the whole period, more so during the second-third, and during the last third there is a pronounced check in its decline. In other words, the death rate of general diseases continues to decline at the same pace as it did during the preceding third, while the death rate from phthisis increased in the last-third instead of decreasing as it did during the preceding two-thirds.

From the above it is quite apparent that a reduction in the death rate of consumption has probably been going on in most of the civilized world independently of any special legislative regulation; and that since the introduction of official legislation on health matters, the death rate of this disease has actually increased. This is hardly credible in view of the tremendous efforts which have been put forth and the millions which have been spent in its behalf during the last ten or twelve years, yet facts clearly sustain this statement.

Still greater surprise may be expressed at the failure of this movement when it is stated that a recent example demonstrated very emphatically the possibility of making a marked reduction in the mortality of this disease in the course of very few years. Thus, in the American occupation of Santiago de Cuba in 1898 active efforts were made by the United States Government to get rid of yellow fever in that city, which was said to have been the filthiest city in the world. The foci of fever were cleaned and disinfected, cesspools, latrines, manholes, and wells were cleaned; cellars, floors, ceilings, and walls of houses were drenched and scrubbed, and all nuisances were strictly prohibited. In three years the deaths from yellow fever sank to zero, the general death rate sank from 133.71 to 6.00 per thousand, and consumption was reduced 67.00 per cent. There was no special care of consumptives, nor any disinfection of their sputum, neither was segregation of consumptives practised.

The real reason, therefore, for the disastrous failure of the present legislative crusade to crush out consumption lies in the fact that instead of investigating the probable influences which reduced the mortality of this disease very markedly in the past, or of studying the particular methods which so successfully prevented the disease in Santiago de Cuba, it was thought wise to institute a legal prevention measure which had been employed in Italy about a century and a half ago, and which after being thoroughly tested in that country for more than fifty years, was discarded not only as being absolutely worthless for preventive purposes, but because it inflicted indescribable injury and suffering.

After all is said and done the stubborn fact remains that if well-proven measures had been employed for the purpose of preventing consumption in place of importing the plagiarized, valueless Italian method, no one would have to perform the duty of pointing out the melancholy fact that for the first time in a hundred years this country was compelled to apply a procedure which was not only powerless to hold the mortality of this disease to the point to which it had been reduced by the preceding ordinary measures, but failed to prevent a decided rise in the same.

1829 Spruce Street.

THE NECESSITY FOR PARENTAL COOPERATION IN THE EXAMINATION OF MENTAL DEFECTIVES.

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Brooklyn, New York.

Examiner of Mentally Defective Children, Board of Education, New York City.

THERE has always been a certain percentage of the pupils in our public schools who have, for various causes, been unable to make normal progress in school. These pupils were, to a great extent, allowed to shift for themeslves. Nearly everyone of us can recall how the dunce of the class was made the target for the ridicule of the others. It is only of recent years that our public school system has seriously concerned itself in the various etiological factors which are directly responsible for the retardation of normal development. As a direct result of this new activity, an important innovation was made, namely, the formation of ungraded classes for mental defectives in various schools throughout the city.

Before a child is placed in an ungraded class several important steps are taken. Whenever the teacher has reason to believe that impairment of normal school progress may be due to some physical or mental defect, such cases are referred to the principal who in turn reports it to the city superintendent. All such cases come under the supervision of the inspector of ungraded classes who assigns a physician to examine and determine the mental status of the child reported. The physician's examination consists of a complete family and personal history, school record, physical and mental examination. It is not the intention of the writer to dwell upon the physical or mental examinations (which are described in detail in our latest medical works) but to show the important relationship between a complete family and personal history, and a correct diagnosis of the case.

In order to have a thorough understanding of the case, not only the child, but its antecedents must be studied. Who but the parents can supply such information? Other reasons why parents should be present at the examination will be described later. The family history is very important as it frequently shows a direct transmission to the child of some hereditary taint. The history of the grandparents must be looked into. Were they normal individuals? Did they reach a ripe old age? Is there any trace of insanity, tuberculosis or alcoholism among the brothers and sisters of either parents? Is there any trace of insanity, tuberculosis, syphilis or alcoholism in either parent? Has there been any consanguinity in marriages? The

value of such information is obvious. Much tact must be used in framing the questions so as to adroitly draw out this information without causing embarrassment. Having obtained a fair conception of the remote family history, the immediate family history is then in order; the number of births in the family, the number that have died, the cause of the death in each case, the educational attainment of each child. Such information will give the examiner an idea as to whether there are any inherent defects in the family.

The personal or developmental history is of utmost importance in studying the child. The mother usually can give valuable information, not only from the date of birth, but during the prenatal period. Frequently a mother will volunteer the information that at a certain period during pregnancy she was subjected to a fright or fall. Prenatal influences play an important rôle in studying the development of the child. The history of the child during labor should be ascertained. Was labor normal or was the delivery instrumental? If the latter, what damage, if any, was done to the child? If labor was protracted how did it affect the child? Was it necessary to resort to artificial respiration? It is important to ascertain the physical condition of the child at the end of the first year. Did the mother notice any peculiarity at that period? Did the child differ from other children at that age? Did the child begin to cut teeth, walk, and talk at the usual periods? One can readily appreciate the importance of such information obtained from the mother who has watched the child day by day. The diet during the first year is very important. Was the child nursed or bottle-fed? If the former, was the mother in good health? If the latter, what were the ingredients? The general health of the child during infancy must be ascertained. Did the child have any of the infectious or contagious diseases? Were there any complications and if so how did these affect the child? We all know that environment has a molding effect upon developing brain. The examiner must make inquiries about the home conditions. What are the environments at home? Are the sanitary conditions favorable to the normal development of the child? Does the child receive the proper hygiene? Is the child receiving a nutritious diet? Does the diet include harmful stimulants? With whom does the child associate? How does the child behave at home? The mother usually can describe the idiosyncrasies, if such are present, and which go to complete the picture of the child's development.

Aside from the fact that the parent can give a history of the case, the presence of the parent at the examination gives the physician an opportunity to study his or her mental caliber. Frequently the neurotic tendencies in the child are displayed by the parent at the examination. In many instances the examination of the child reveals certain physical defects which need correction. Certain errors in diet or hygiene which need adjustment. It is a simple matter for the physician to make these findings known to the parent with a view to ultimate correction. In order to have the cooperation of the parents, it is not only necessary to say "Your child has enlarged tonsils and adenoids," but to explain how this obstruction mechanically may be responsible for the mental sluggishness of the child. Parents must be educated and it lies within the domain of the examining physician to enlighten them on matters which are of vital importance. The presence of the parent at the examination seems to put the child at ease and within a few minutes the apprehensive and evasive child recovers his equilibrium. This is particularly the case when the child is of the neurotic type and shows the characteristic lack of emotional control. To gain the confidence of the child is by no means an easy matter unless the parent is there with a cheering word.

From the foregoing it can readily be seen how important it is to obtain the cooperation of the parents. Are the parents willing to cooperate with the examining physician in the interests of their children? Unfortunately it has been my experience in examining the child in the public schools of Greater New York that quite a number of the parents are, for various reasons, indifferent to the school progress of their children. This is particularly true where great poverty exists and where both parents are the bread earners. In other cases I have learned that owing to the large number of children at home, the mother is unable to spare the time to accompany the child to the examination. In a very small percentage of the children examined in the public schools are the parents present whereas those children examined at the clinics held in the New York and Brooklyn offices generally are accompanied by their parents. This is simply due to the fact that notices are sent from the office of the Inspector of Ungraded Classes, urging the parents to be present at the examination. Were similar notices sent by the principals to the parents urging their presence, I feel certain that the results would be gratifying. Not only should written notices be sent out, but in smaller schools the teachers should be asked to make personal visits to the homes and explain the necessity for parental cooperation.

During the past year it has been my pleasure to have the assistance of the social workers connected with the Department of Ungraded Classes. In cases where poor home conditions prevented the mother from attending the examination, also where certain characteristics of various members of a family were to be studied, I have found the social worker's report invaluable. With such information at hand the examination of the child becomes comparatively simple and a correct diagnosis is easily obtained.

What steps, if any, can be taken to insure the cooperation of the parents with the school authorities? The importance of the parent's presence at the examination should be impressed upon the principals of the various schools. The era of indifference has gone by, and it is to them that we now look for assistance. It is through them that the teachers can be made to understand that a developmental history is far more important to the examiner than a school record. It is through them that the parents must be urged to cooperate. Social workers should be encouraged and their number increased. No child should be brought up for diagnosis unless a complete developmental history is available.

199 Hart Street.

Practising without a License—Separate Offenses.—Under the Texas statute, Pen. Code 1911, §756, providing that any person practising medicine in violation of law shall be punished, and that each day of such violation shall constitute a separate offense, a conviction of unlawfully practising medicine on a day in March is no bar to a prosecution for practising medicine upon another person on a day in May.—Byrd vs. State, Texas Criminal Appeals, 162 S. W., 363.

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THE THERAPEUTIC USES OF SUGAR.

WITHIN recent years there has been a growing recognition not only of the dietetic but also of the medicinal value of sugar. As a quickly assimilable nutrient during the exhaustion following severe exertion and during fatigue, sugar constitutes an important article in the dietary of the artisan and of the soldier. Moreover, it has won a distinctive place in therapeutics, particularly in the treatment of shock, of postoperative acidosis, and of cardiac weakness; it has also been extolled as a local application in the treatment of ulcers.

Many observers have proven experimentally that the intravenous injection of a highly concentrated hypertonic solution of glucose causes an immediate and pronounced diuresis by virtue of the dehydration of the body cells, and that the injection of solutions containing from 25 to 33 1 3 per cent. of sugar in doses of 15 grams to every kilogram of the animal's weight is a safe procedure. E. Enriquez in the *Presse Médicale*, February 14, 1914, points out that this diuretic action is not the result of any special property of the sugar but is evoked similarly by all hypertonic solutions. Starling has shown that the injection of concentrated solutions of glucose is followed by an increase in the total volume of the blood, resulting from the attraction of water from the tissues, which increase is gauged by the diminution in the percentage of hemoglobin. There are likewise an increase in the arterial pressure and an increase in the volume of the kidney. These three phenomena are accompanied by an augmented urinary outflow.

Fleig first called attention to the feasibility of replacing the ordinary saline solutions by isotonic solutions of glucose, lactose, saccharose, or mannite. These solutions had a strength of about 5 per cent. Furthermore, he demonstrated clinically the diuretic power of hypertonic solutions containing 300 grams of sugar per kilogram. Enriquez essayed the use of intravenous injections of such solutions in fifty patients, in some of whom as many as thirty injections were given during the course of their disease. The solutions which were carefully sterilized were injected slowly into a vein at the bend of the elbow, one hour being taken for the injection of 250 to 300 cubic centimeters. There was no evidence of any intolerance on the part of the organism: there was, for example, no hemolysis as evidenced by the development of icterus. This benign effect is attributed to the slowness of the injection, and to the rapid transformation of the sugar into glycogen which is deposited in the liver, the muscles, and the myocardium. Under these conditions the proportion of sugar in the blood is kept within normal limits. Only very small quantities of the sugar, four or five grams at the most, pass into the urine, and that within the first two hours following the injection. It is suggested that *a priori* the injection of a large quantity of sugar into the blood of an individual suffering from a hepatic disorder would be followed by an immediate and a marked glycosuria. But actual experience proved otherwise: in two cases of alcoholic cirrhosis with ascites the introduction into the blood of 150 grams of sugar at one time caused no more pronounced or persistent glycosuria than that which followed in the average case. Besides, examination of the blood did not show any change in the red blood cells.

The value of intravenous injections of hypertonic solutions of glucose was demonstrated in a large number of cases of infectious diseases in which there was a partial suppression of urine. In these cases a pronounced diuresis was produced. A severe case of carbon-monoxide poisoning was apparently rescued by the use of this measure. Similarly in cases of inanition resulting from stenosis of the esophagus or pylorus, in cases following prolonged anesthesia, in cases of oliguria secondary to cardiac weakness, and in cases of chronic nephritis, the injections of glucose produce good results. The chief value of glucose lies in its tonic action on the heart muscle and in its diuretic power.

THE PULSATING PLEURISIES.

ALTHOUGH of rare occurrence the phenomenon presented by a pulsating pleural exudate is of sufficient interest to merit more than ordinary attention. Very brief mention is accorded to this condition in the various textbooks, and then only in connection with the differential diagnosis of thoracic aneurysm. A comprehensive discussion of the subject of pulsating pleurisies is contributed by M. Paillard and J. Quiquandon in the *Gazette des Hôpitaux*, June 13, 1914. It is pointed out that in most instances the pulsating exudate is on the left side, voluminous, of a purulent character, and accompanied by pneumothorax. None of these characteristics, however, is essential. Two groups of cases may be distinguished: In the first, the pulsation is perceived without the existence of any external tumor. In the second, there is a so-called empyema necessitatis; in other words, the purulent exudate has perforated the chest wall with the formation of a subcutaneous abscess. The perforation in these cases is often signalized, as first noted by Dieulafoy, by the occurrence of intense pain in the posteroinferior part of the thorax, which pain is increased by cough and by palpation of the region affected. A tumefaction rapidly appears and develops into a small circumscribed or into a large diffuse tumor. The peculiar character of this

tumor is its pulsation which in its sudden systolic character resembles that of an aneurysm, but in which a thrill is absent. There is some difference of opinion as to the expansile nature of the pulsation. The mass is frequently reducible, at least in part. On auscultation no murmur is detected; this is a point of considerable importance in differentiating the condition from an aneurysm of the aorta. The primary cause of a pulsating pleurisy is tuberculosis or pneumonia. In the diagnosis, apart from the points of differentiation from aortic aneurysm already alluded to, in which differentiation the *x*-rays offer considerable aid, one must also bear in mind the possible occurrence of a pulsating cold abscess in the precordial region, of an extensive aneurysm of the descending portion of the arch of the aorta, or of an aneurysm coexisting with a pleural exudate. In the treatment incision and occasionally mere puncture are effective in the acute pneumonic cases, while in the chronic tuberculous cases puncture alone is the method to be employed.

As regards the origin of the pulsations most authors attribute these to the impact of the heart, while others have alluded to the possible rôle of the pulsations of the aorta, or even of the lung. The pleural contents are always under considerable tension. The thoracic wall is thickened and of diminished elasticity. From these facts one may readily conceive how the pulsations of the heart may be transmitted through the retracted lung and its surrounding exudate to the extrathoracic mass. Rummo was the first to demonstrate the mechanical factors in these cases. He showed by means of manometric studies that in the case of certain pleural exudates even without the presence of any external mass there is a pulsation. This endopleural pulse is synchronous with the movements of the heart. The *x*-rays reveal these pulsations unmistakably. On the basis of Rummo's original observations one may now classify the cases of pulsating pleurisy as follows: (1) those presenting an endopleural pulse without any visible external pulsation; (2) those in which an external pulsation may be detected although there is no extracostal purulent accumulation; and (3) cases of pulsating empyema necessitatis with a pulsating mass on the outside of the thorax.

IS BOVINE TUBERCULOSIS PROTECTIVE TO MAN?

Much difference of opinion exists with respect to the manner in which infants become infected with tuberculosis. German medical authorities, as a rule, ascribe to the human type of tubercle bacillus infection of both children and adults, while a large number of well-known British investigators are of the opinion that the bovine tubercle bacillus is responsible for perhaps most of the cases of tuberculosis which occur in various forms in the young. Statistics bearing on the matter appear so conflicting that the solution of the problem seems still a long way off. German figures lead to the conclusion that bovine tuberculosis is a negligible quantity so far as dangerous infection of infants is concerned, and British statistics, especially those from Edinburgh, are of quite an opposite character and seem to supply more or less conclusive evidence that bovine tuberculosis is a great menace to infant health and life.

At the British National Conference on Infant Mortality held recently in Liverpool, Dr. Clive Rivière read a paper on the subject in which he reviewed exhaustively the existing situation and advanced certain conclusions of a somewhat original nature, which will probably not altogether commend themselves to the majority of those who have made a study of tuberculosis in its relation to infant mortality. Rivière again propounded the question, which he asked a few months ago, as to whether bovine tuberculosis was not at the present time doing useful work in protecting the community against the more virulent variety of tubercle bacillus, the cause of phthisis and of most fatal forms of tuberculosis. In partial corroboration of this suggestion, it was pointed out that in Edinburgh, where bovine infection of infants and children was very common, the phthisis mortality was only one-third of that of Vienna, where bovine disease was rare. Indeed, according to Rivière, a similar incidence of bovine infection and low phthisis mortality might be claimed for Great Britain as a whole in comparison with other countries of Europe.

If Rivière's views are correct it is better that infants become infected with the bovine tubercule, for thus they acquire a considerable degree of immunity against the human type and mortality is consequently lessened. A logical suggestion would therefore be that it would be better to take measures to secure a mild bovine infection instead of leaving our children to risk a first encounter with the infinitely more virulent human organism. The speaker also laid great stress on the fact that no amount of precaution would protect young infants in tuberculous households and that they should be removed as soon as possible from such dangerous surroundings.

There is possibly some truth in Rivière's views, but the matter will require much more investigation ere they can be accepted in toto. Perhaps raw cow's milk may not be so dangerous as is generally supposed. On the other hand it certainly has been known to spread disease. Besides, there are many whose opinion carries weight who hold that the bovine tubercle is responsible for dangerous forms of tuberculosis in children, and it will be difficult to disprove this contention. Until several moot points have been absolutely cleared up, it will be wise to pasteurize milk and to take every precaution to prevent the spread of tuberculosis by that medium.

War and the Progress of Medical Science

It may be premature to attempt to prophesy the ultimate effects of the insane struggle in Europe upon the progress of medical science, but there can be no doubt that in Europe, where the torch of science has been carried high, the economic losses resulting from a long continued war would dim its radiance for many years to come. Attainment in science and in the liberal arts is favored by unre-

stricted leisure and freedom from the stresses and cares of daily life, and the dissipation of a country's resources cannot but react unfavorably in halting the onward march of science. In addition to the diminishing endowments for research which will presumably follow the war, there is another important factor that will hamper medical investigation. The mobilization of the large European armies must drain the laboratories and the clinics of their brilliant young workers, who as reservists, volunteers, or members of the Red Cross, will be added to the medical corps of the respective armies. On the other hand, these men, or such of them as survive, will return with an experience which may perhaps more than compensate for the interruption in the orderly prosecution of research; but even research is not altogether paralyzed by war. In addition to the surgeons attached to the armies in the field there are medical men detailed at headquarters or at the base of supplies who carry on important investigations in connection with the hospital work of the medical corps. During the Russo-Japanese war, while the Russian army was engaged in Manchuria, there were being carried on in the army headquarters at Moscow important bacteriological investigations as to the nature of so-called Manchurian typhus, and the story need not be retold of the wonderful achievements of the Japanese in camp sanitation. Even on the battlefield progress may be made, for tradition has it that it was there that Ambroise Paré flung aside the cautery to demonstrate the superiority of the ligature in the treatment of wounded arteries.

Arsenization in Yellow Fever.

During the yellow fever epidemic in New Orleans in the summer of 1905 there was for a time much said in the newspapers regarding the use of small doses of arsenic in the prophylaxis and treatment of that disease. A popular experiment on a large scale was made in response to a letter written by Dr. R. B. Leach to a citizen of that town and published in the *Times-Democrat* of August 3, in which he stated that a dose of 1 100 grain arsenous acid, taken at first three times a day and later once daily, would protect against yellow fever. The publication of this letter was beneficial to the drug trade at least, for it is stated that over 15,000,000 tablets of arsenous acid were sold in New Orleans within a little over three weeks. Whether the results were equally beneficial to the partaking public is a matter of dispute. Dr. White of the Public Health Service, who was in charge of the epidemic, was unable to find evidences of any preventive action, but Dr. Leach contended that it was the wholesale arsenization of the population of the city, rather than the anti-mosquito crusade, that put an end to the epidemic. There the matter rested and the material being exhausted there was no opportunity for further experimentation. Dr. Leach, however, is still convinced of the prophylactic value of arsenic and he has appealed to Congress, in a memorial presented by Senator Sheppard, to pass a resolution requesting the President to appoint a commission to visit communities where yellow fever is in evidence and therein to test the arsenization prophylaxis of yellow fever, so that its value may be proved or disproved incontrovertibly. The theory is based upon the principles of homeopathy, the "symptoms" of arsenic poisoning being similar to those of yellow fever. A year ago the American Institute of Homeopathy suggested to the American Medical Association that a trial be made by a joint committee of the doctrine of similars. The suggestion was courteously received, but we have not heard that it has ever led to any practical results. If Congress should adopt the resolution offered on behalf of Dr. Leach, it would be opportune to appoint one or more homeopathists on the yellow fever commission and thereby a beginning could be made of a joint test of the doctrine of Hahnemann as well as of the theory of Leach.

The Law Regarding Revocation of the Medical License.

Complaint is sometimes made in this city that the County Medical Society is not sufficiently active against quacks and particularly against lawbreakers in the ranks of the profession. One very good reason for this apparent laxity, especially as regards the latter class, is that the law officers of the society are not omniscient and often obtain the information necessary to proceed against an offender only by chance. Those who complain appear to be ignorant of the fact that they have the remedy in their own hands and that all that is necessary is for them to call the attention of the proper authorities to the offense in any particular instance. The license to practise medicine may be revoked in any of the following cases: A practitioner of medicine who (*a*) is guilty of any fraud or deceit in his practice, or who is guilty of a crime or misdemeanor, or who is guilty of any fraud or deceit by which he was admitted to practice; or (*b*) is an habitual drunkard or habitually addicted to the use of morphine, opium, cocaine, or other drugs having a similar effect; or (*c*) who undertakes or engages in any manner or by any ways or means whatsoever, to procure or perform any criminal abortion as the same is defined by section 80 of the penal law; or (*d*) who offers or undertakes by any manner or means to violate any of the provisions of section 1142 of the penal law. (This section provides punishment for those convicted of promulgating indecent articles or supplying others with means for the prevention of conception.) Proceedings for the revocation of a license are begun by filing written charges against the accused. The papers should be made out in duplicate, one copy to be filed with the Commissioner of Education, the other with the Secretary of the State Board of Medical Examiners, Education Building, Albany, N. Y. Charges may be preferred by any person.

News of the Week.

Decrease in Infant Deaths.—During the first week of August the number of deaths of infants under one year of age was 331, or 50 less than the number for the corresponding week of last year. The decrease occurred largely in Manhattan Borough.

Vital Statistics and War.—The Department of Health of New York has recently issued a compilation of statistics which "explain why the Kaiser is able to put so large an army of young fighters into the field, and perhaps also indicate why Germany preferred fighting now to postponing the conflict." In 1880, it is stated, Berlin had the highest birth rate of the large European cities, 40 births per 1,000 of population. This lead it held from 1880 until 1893, at which time London

took the lead. The following year the birth rates of both London and New York were larger than that of Berlin. "It is clear," says the *Bulletin* of the Department, "that the enormous birth rate between 1880 and 1893 still shows its effect in the present German army, for all of these individuals are now between 21 and 34 years old and therefore constitute the flower of the fighting force. With the decline in the birth rate, and especially since Berlin was passed by London in 1893, it must have been clear to the Kaiser that the prospects for a continuation of an overwhelmingly large army were becoming dimmed." In 1913, the birth rate of New York was 26 per 1,000 of population; of London, 23; of Berlin, 20; of Paris, 17; and of Brussels, 16.

Periodical Physical Examinations.—The Department of Health of New York City last May adopted a plan for the examination at regular intervals of employees of the Department, since it was believed that such examinations would promote the health of the employees, prevent the development of disease, and ultimately reduce the total number of absences from the department because of sickness. Although the examinations were officially instituted, they were entirely voluntary, and employees were permitted to choose as to whether they would submit to examination or not. At the same time they were assured that the records would be treated with strict professional reserve, and would not be used in any way to affect injuriously the efficiency ratings. The following report of the conditions found in the first 300 examinations has recently been made: Six errors of nutrition, based on decided variations from normal weight in proportion to height. Seven decided defects of hearing, and one instance of suppurating otitis. Six instances of uncorrected defects of vision. Ten instances of marked disorders of digestion, chiefly such as affect sedentary workers. Thirteen instances of defective teeth needing dental care. Fifteen minor defects of the tonsils, throat, and upper respiratory tract. Twenty instances of appreciable defects of heart action, among which appeared five needing particular precautions in regard to manner of living. Fourteen instances of pulmonary defect, of which three were healed lesions resulting from pulmonary tuberculosis; two were instances of early processes put under medical care; and the remainder were minor and temporary affections. Two instances of anemia needing care. Two cases of high blood pressure needing medical treatment or alteration in manner of living or personal habits, and associated therewith errors in kidney functions. The following minor variations from normal were found, which did not appear to affect the health of the individual: Palpable spleen, three cases; palpable kidney, one case; enlarged thyroid, one case; subacute skin affection, one case. Alimentary glycosuria was found in one case, but on re-examination had disappeared. A moderate albuminuria was found in a number of cases but not to an extent to indicate pathological conditions, except in the two cases above referred to which were associated with arterial hypertension. One severe disorder of the nervous system which should respond to appropriate medical treatment, was found. The department believes that examinations of this kind represent an instrument for good and should be generally used.

Personals.—Dr. ALEXIS CARREL of the Rockefeller Institute, New York, who has been spending the summer abroad, is reported to have offered his services as a surgeon to the French army, and to have gone to the front. Dr. Carrel is still a citizen of France, although he has carried on his work in the United States for nearly ten years.

Dr. JOSEPH A. BLAKE of this city is a member of the American Ambulance Corps recently organized in connection with the American Hospital in Paris.

Dr. A. I. RINGER, instructor in physiological chemistry in the University of Pennsylvania, Department of Medicine, has been advanced to the position of assistant professor of physiological chemistry in the University.

Dr. NATHAN S. YAWGER of Philadelphia has been appointed assistant neurologist at the Philadelphia General Hospital, in the service of Dr. William G. Spiller.

Call for Nurses.—The first call for enrolled Red Cross nurses to join the relief expedition which the American society is to send to Europe went out on August 15. It is planned to procure for this work as far as possible physicians and nurses who are native Americans, in order to make sure that none of them shall be in any way biased.

Plague in New Orleans.—Two additional cases of bubonic plague were discovered in New Orleans on August 13, making seventeen in all since the discovery of the first case on June 27.

James City County (Va.) Medical Society.—At a meeting in Williamsburg, Va., on August 8, this society was organized, the following officers being elected: *President*, Dr. David J. King of Williamsburg; *Vice-President*, Dr. John C. Cutler, Norge; *Secretary-Treasurer*, Dr. Susan A. Price, Williamsburg.

The National Medical Association.—The sixteenth annual meeting of this association will be held in Raleigh, N. C., August 25-27, 1914, under the presidency of Dr. A. M. Brown of Birmingham, Ala. The general secretary of the association is Dr. W. G. Alexander of Orange, N. J.

First District (Georgia) Medical Society.—At the mid-summer meeting held in Savannah on July 27, the following officers were elected for the ensuing year: *President*, Dr. Herman W. Hesse, Savannah; *Vice-presidents*, Dr. G. W. Elarbee, Daisy; and Dr. Wm. Walker Evans, Halcyon Dale; *Secretary-Treasurer*, Dr. Charles Usher, Savannah.

Obituary Notes. — Dr. ELMORE FERDINAND ARNOLD of New York, a graduate of the New York University Medical College in 1885, died at Londonderry, Vt., on August 11.

Dr. FREDERICK C. BEALS, of Salamanca, N. Y., a graduate of the University of Buffalo, Medical Department, in 1875, city physician of Salamanca, surgeon to the Salamanca Hospital, and a member of the New York State and Cattaraugus County Medical Societies, died at his home, after a long illness, on July 25, aged 62 years.

Dr. CHARLES THOMAS BUFFUM, of New York, a graduate of the College of Physicians and Surgeons, New York, in 1877, and for some time a member of the staff of the Department of Health of New York, died at the Presbyterian Hospital, New York, on July 28, aged 61 years.

Dr. HERBERT FORREST WILLIAMS of Philadelphia, a graduate of the Hahnemann Medical College and Hospital, Philadelphia, in 1896, died at his home, from pulmonary tuberculosis, on July 26, aged 42 years.

Correspondence.

THE NOTIFICATION OF VENEREAL DISEASE.

To the Editor of The Medical Record:

Sir:—A great many inquiries have been addressed to me since the publication of my article, "Should the Sanitary Control of Prostitution be Abandoned?" in your issue of June 13, asking what system I would advocate for reporting cases of venereal diseases to the health authorities. In order to satisfy these past, and possibly future, requests for information on this point, will you kindly grant me space in the columns of the Medical Record?

I would propose the enactment of a law requiring physicians to report, by number, every case of venereal disease to the health departments of their municipality and State. The physician is further required to inform the health department of the subsequent history of this case.

The procedure should be in more or less the following manner: The treatment should commence with handing the patient a brief circular, which he is to read and sign in duplicate, and which should remain provisionally in the record files of the physician. This circular contains information about the severity of the disease and the precautionary measures required to insure the patient's safety and that of others, and on the absolute necessity of continued medical observation and treatment till cured. It should contain at the end the assurance that as long as the patient remains under the eyes and in the hands of a recognized practitioner absolute secrecy will be guaranteed him; should he, however, disobey or stop treatment, the patient then becomes a menace to public health, and as such will be made known to the proper authorities by name and address.

The circular should contain the following information: (1) Whether treatment has been completed and cure effected. (2) Whether, still suffering from disease, patient has passed into the hands of other physicians, and whom. (3) If, still affected with disease, patient passed out of hands of first physician, subsequent steps unknown. (4) Whether case has given up treatment before having been cured. (5) If of fatal issue.

It is easily understood what steps are to be taken according to the patient's compliance with the conditions specified in the circular. Affirmative answers to 1 and 2 (which always have to be forwarded to the health authorities in order to enable them to register the complete history of every case number), will secure to the patient the privilege of the strictest discretion, like any other private patient, as to the nature of his ailment, but the same to 3 and 4 are immediately followed by a report of the case with name and address to the health authorities and accompanied by one of the signed circulars. The refractory patient receives a notice from the health department requiring an immediate response. This notice may simply state that paragraph 3 or 4 of the circular handed to, and signed by him, at the beginning of treatment, needs immediate attention. In either case, the information that the patient has put himself under the care of another reputable physician, whose name and verification of this fact must be furnished, frees from further trouble just as long as the regulations are respected. Should, however, no such action follow the notification, the patient is required to appear before the examining health official, and positive evidence of infection with venereal disease being found, is ordered to appear for treatment in the health department's free clinic for the treatment of venereal diseases, until cured.

The law must further provide that patients who do not obey these regulations shall be taken to a public hospital and kept there until cured. This premises the existence of a free municipal clinic for men and women for the treatment of venereal diseases and for a sufficient number of hospital beds to accommodate those who require hospital treatment, for either intractability or indigence, or in consequence of the severity of their illness. That institutions providing such care should be present in every community that advances any claim to the preservation of public health, is just as true as that in the vast majority of American communities, large, medium, and small, they are conspicuous by their absence.

Either special hours or special quarters of the free clinic should be reserved for the regular compulsory examination of prostitutes on lines fully defined in former papers,* which exhaustively illustrate and explain the necessity of that provision for the effectual struggle with the great spread of venereal diseases.

Julius Rosenstirn, M.D.

126 Stockton Street, San Francisco.

OUR LETTER FROM THE PHILIPPINES

(From Our Regular Correspondent.)

PUBLIC HEALTH LECTURES IN THE PROVINCES—ASCARIS LUMBRICOIDES IN THE COMMON GALLDUCT—THE PLAGUE—RAT-PROOFING ORDINANCE IN MANILA.

Manilla, P. I., June 29, 1914.

The Bureau of Health is meeting with a most hearty response from the public in the provinces on account of the public health lectures which are at present being given, in which moving pictures and lantern slides are used in order to illustrate health subjects. Illustrated health lectures have received much attention in the Philippines during the past three or four years, but the efforts were much handicapped because the apparatus for generating the electric current necessary to operate a suitable lantern was so heavy as not to be readily portable in the more remote districts. After several years of experimenting an apparatus has now been secured the total weight of which, including the dynamo, lantern, slides, and accessories, is only 361 kilos. It can be readily set up, and it is quite practicable to make one night stands with it. The attendance at the lectures is far beyond expectations. A curious incident in connection therewith is the fact that numerous requests have been received from the inhabitants of many towns to lengthen the lectures from one hour to two hours. On account of the steady increase in the number of typhoid cases, special stress is being laid upon this disease in the lectures.

A case recently came to autopsy in Manila which during life presented practically all of the symp-

*The Municipal Clinic of San Francisco, Medical Record, March 15, 1913; Transactions of the Fifteenth International Congress on Hygiene and Demography, Washington, D. C., Sept. 23-28, 1912. Our Nation's Health Endangered by Poisonous Infection Through the Social Malady; the Protective Work of the Municipal Clinic of San Francisco and Its Fight for Existence. Town Talk Publishing Company, San Francisco. Should the Sanitary Control of Prostitution Be Abandoned? Medical Record, June 13, 1914.

toms of acute gallduct obstruction. The post mortem showed that the common duct was obstructed by an ascaris lumbricoides.

A case of plague developed among the suspects of the S.S. Linan, which arrived in Manila from Amoy on June 13. This is the third ship which has conveyed human cases of plague to Manila during the past few weeks. Several weeks ago the naval authorities reported the presence of a plague infected rat at Olongapo. Investigation showed that the rat came from a lighter used in Olongapo Bay. An anti-rat campaign was immediately started, but so far no further plague infected rats have been found. It has been surmised that in view of the fact that some of the vessels at Olongapo have been on duty in China on the Yangtze-Kiang and West Rivers that they may have taken the infection aboard through rats which came from the shores of these rivers. Steps are now being taken to fumigate all the water craft at Olongapo and the anti-rat campaign is being extended from the Naval Station proper to the adjacent village.

Last week a case was sent in to the Philippine General Hospital as acute meningitis, which upon autopsy proved to be a case of septicemic plague.

The efforts of the Bureau of Health to have a rat-proofing ordinance passed by the Municipal Board have at last borne fruit and the following essential provisions have been enacted into law:

"Section 1. All buildings hereafter to be erected within the city of Manila shall be so designed, planned and constructed that they will not have hollow walls or partitions, hollow ceilings, hollow stairs, hollow floors, nor hollow columns or other hollow structural parts which may serve or tend to harbor, shelter, or provide access or entrance to, rats or other similar vermin. All walls, with the exception of solid wood framing and of partition walls not extending below the floor surface, shall be of concrete, brick, stone, mortar, or other material proof against the incursion of rats to a height of one meter from the ground and shall extend below the ground to a depth of at least twice the thickness of the wall. Nothing in this ordinance shall be construed to prohibit the construction of double concrete, masonry or steel walls, or hollow steel, iron or concrete columns, provided that no entrances to hollow spaces are allowed.

"Sec. 2. All buildings hereafter undergoing repairs to parts having hollow spaces shall be repaired in such a manner as to remove such hollow spaces as are reached by the repair work, provided the safety of the building permits such removal.

"Sec. 3. It shall be unlawful for any person to construct or to cause or undertake the construction of any building or part thereof, or to repair or to cause or undertake the repair of any building or part thereof, which construction or repair shall not be designed so as, or shall fail in any respect, to conform to any of the requirements of this ordinance.

"Every violation hereof by any person shall be punished by a fine not exceeding two hundred pesos, or by imprisonment not exceeding six months, or by both such fine and imprisonment, in the discretion of the court. The word 'person,' as used in this ordinance, shall be construed to import both the plural and the singular, as the case demands, and to include copartnerships or other commercial associations and corporations. When construing and enforcing the provisions of this ordinance, the act, omission, or failure of any officer, agent, or other person acting for or employed by any copartnership or other commercial association or corporation, within the scope of his employment or office, shall in every case be also deemed to be the act, omission, or failure of such copartnership, association or corporation, as well as that of the person."

CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA.

(From Our Special Correspondent.)

EVERY session of this congress was well attended, the large banqueting hall of the Hotel Cecil being filled each evening while the meetings, which took place in the Savoy Hotel at the same time, attracted almost as large an audience.

On the evening of July 28 three papers of considerable interest were read. The first paper discussed suture of the levator ani muscle in perineorrhaphy operations and was contributed by Dr. Henry Jellett, master of the Rotunda Hospital, Dublin. The following were Dr. Jellett's conclusions as to the value of this procedure: (1) Routine suture of the levator ani was an essential part of perineorrhaphy. (2) Routine suture was always practicable, except when the muscle was wanting owing to atrophy after injury. Such absence was very rare, and when it occurred it was impossible to reconstitute the perineum satisfactorily. (3) The exposure and suture of the levator ani were neither difficult nor dangerous.

The next paper read was one of the best of the meeting. It was by Mr. Robert Jones of Liverpool and was entitled "Internal Derangements of the Knee." Mr. Jones said in part that he had chosen the subject because comparatively so little had been written about it in America, and this had always been a matter of great surprise to him, for American games like English games were rough, and England knew to her cost that American youth were very skilled and very strenuous. He had been credibly informed that the anatomy of their knee-joints differed but little from the English, and he was forced to conclude either that their cartilages were more securely placed than the English, or, which was most unlikely, that the condition was not so generally recognized as it should be. It was pointed out that by far the most common derangement of the knee was injury to the internal semilunar cartilage. It occurred eight times more often than did injury to the external meniscus. The internal cartilage was more firmly fixed and was not allowed the give-and-take movement vouchsafed the external, and in addition it bore a greater strain during the normal movements of the joint, becoming thinned and frayed along its inner margin. The most constant symptom of a displaced or fractured semilunar was a sudden inability to extend the knee. The most frequent cause of the displacement or fracture was strain thrown on the internal lateral ligament while the knee was flexed and the tibia rotated outward. In rare instances Jones had known a displacement occur while the knee was fully extended. The force necessary to cause the derangement in a first injury was usually severe, and the pain was acute. If an injured semilunar was rationally treated after its initial displacement it stood a good chance of being completely cured. The first displacement was not often accompanied by a degenerative change; reduction, however, must be absolute. All movements of the cartilage must be prevented until union of the torn structures was

complete, and no lateral strain must be allowed until the lateral ligament, so often injured, had had time to effect a recovery. There were many ways of reducing a cartilage, but, if no anesthetic were used, the speaker had always thought it wise to summon the assistance of the patient himself. The knee was first fully flexed and rotated inward, and the patient was then told at the count of three to forcibly extend his own knee while he was assisted by pressure from above. Jones had often in this way reduced displacements of several weeks' duration and the reduction could usually be felt by the surgeon. If the displacement were corrected the patient usually knew definitely and at once, and the surgeon if wise would abide by the verdict. The knee should remain fully extended after reduction in all recent displacements. If a knee did not voluntarily remain completely extended the displacement was not corrected. Such a joint with a clear history of semilunar injury and strained or ruptured internal lateral ligament should be treated by complete rest in full extension for four or five weeks and so long as the effusion lasted the patient should be recumbent. Prolonged effusion relaxed by elongation all the protective structures of the joint; and aspiration should be done if absorption were retarded. Massage could be employed while the knee was being tested in extension, and it was still more valuable to encourage the patient to practice contracting his quadriceps without flexing the joint. When the patient was up his internal lateral ligament should be guarded from strain during walking by directing him to walk with the toe slightly turned and his foot inverted. This was made easy by raising the heel of the shoe a third of an inch on the inner side to deviate body weight from the inner to the outer lateral ligament, just as would be done in an early case of knock knee. As cases were generally seen after the acute symptoms had subsided or when several recurrences had taken place, the history, which was usually definite enough, must be depended upon. Locking of the knee was the most definite and reliable symptom, and unless it occurred an element of doubt must always remain. Occasionally it was impossible to diagnose correctly without operation. Among the unexpected findings which operation had revealed were fringes and lipomata and pedunculated semi-detached bodies and Jones had had sometimes even to close his wound without having remedied any defect. The various symptoms of recurrent cases were then detailed and the statement made that operation was never performed immediately after the first displacement as so large a proportion of cases got well under appropriate treatment, nor was operation encouraged in cases where the recurrent trouble was painless and was never followed by effusion in the joint. Operation was strongly advocated where the recurrence was sometimes followed by effusion in the joint and it was encouraged in all recurrent cases where a strenuous active life was a means of livelihood or a physical necessity. Operation was a positive necessity in the case of men who worked among moving machinery or stood in positions where a yielding knee might mean disaster. An argument in favor of operation was the occurrence of tubercle and so-called rheumatoid trouble as a direct result of the irritation of a displaced cartilage.

If operation were decided upon Jones preferred to do so with the knee flexed to right angles, so that it need not be further flexed during the operation. He had a very real dread of accidental infection of the knee joint, for it might mean the loss of the limb. Further he considered a knee which had been the seat of trauma as very susceptible to infection, and was therefore careful not to operate during the presence of effusion nor to move it during operation for fear of the ingress of air or dust. The most convenient way was to have the limb hanging in flexion over the end of the operating table. Minute details of the operative procedure followed by Jones were then entered into and the paper was concluded by the exhibition of slides demonstrating the condition of joints of patients upon whom operation had been performed for various joint derangements.

In the discussion which ensued Mr. A. H. Tubby of London said that he decided to operate on following grounds: (1) Where the patient was unable to give the necessary time and had not the means to afford the apparatus required for mechanical treatment. (2) Where the patient was unable to obtain his livelihood shackled by a splint. (3) In the case of those who went up ladders, worked on scaffolds, or among machinery, where a sudden and unexpected fall might be fatal. (4) Where a support had been faithfully tried and had failed. In every case of operation its risks and results should be explained to the patient. He decided not to operate: (1) In any case of primary displacement. (2) Where a patient was content to wear an apparatus for a lengthened period. In his private practice Mr. Tubby operated on only 5 per cent. of his cases of internal derangement of the knee joint and laid special emphasis on the fact that the method of disinfecting the skin by means of acetone and iodide was insufficient when the knee was the site of infection.

Mr. Robert Milne of London said that the first thing to be done was to find out exactly what was wrong with the knee joint. He then gave his experience as to pathological conditions of the internal semilunar cartilage. He enumerated among such conditions longitudinal splitting of the cartilage, complete separation of the anterior end of the cartilage, a transverse tear and separation of the posterior end of the cartilage. The chief cause of displacement was rotation of the tibia inward on the femur, and the cardinal symptoms or "tripod" were three, viz., pain, effusion or locking of the joint.

The next paper read was by Professor Tuffier of Paris and dealt with transplantation of the ovaries. He said that he desired to present his experience in the transplanting of the ovaries after salpingitis and in case of fibroids of the uterus. In recent years he had done 204 such transplantations. In the hetero grafting of these organs, that is, transplanting from one subject to another, there had been 24 operations, and they were not successful. There had not been a single good result in an operation of this kind. The ovary had decreased in size, but he thought that with improvement in technique the operation might be performed successfully. Now the various elements of the body were attacked by the macrocytes. When we were able to find some chemical substance to protect the grafted organ the operation might be done. The other form of operation was autografting, that is, the grafting of the ovary from the woman's own body. Professor Tuffier had done this 145 times. After hysterectomy the implanation of one or two ovaries would overcome the symptoms of the change of life. In such cases the graft took and there was no change in the patient's after condition. He had removed the uterus and the salpinx from one or two sides and had then grafted

the ovary deep in the fatty tissues in 65 cases. This procedure had been shown to give great relief to the patient after salpingectomy, when the ovary was grafted near the uterus or in some other tissue. With regard to technique in chronic salpingitis the abdomen was opened, the ovary and tubes were held in the finger, the pedicle cut, the ovary taken in sterilized forceps and imbedded deep in the fatty abdominal tissue. After this operative measure when the broad ligament was normal the abdomen was closed. If in such an operation the ovary appeared septic it was dipped in iodine. The after results of this sterilization with iodine were that the ovary did not functionate and the patient did not menstruate for a considerable time. In these cases the ovary appeared nodular and lay dormant for three to four months, it was tender, the patient had symptoms of change of life, but after the sixth month the ovary increased in size and menstruation reappeared. The operation presented was not especially dangerous and he had never lost a patient as a result of its performance.

In thirty-four cases of grafting after hysterectomy thirty-two patients had normal periods. The other two cases were septic cases. In twenty-eight cases of grafting of both ovaries nineteen patients had regular menstruation, but after forty years of age the grafting had little or no effect. The question might possibly be raised as to whether the renewed menstruation could be due to portion of the gland that had been left in at the time of operation. Such a portion had not been found to produce function and if the ovary were grafted the ovary produced function soon after grafting. Professor Tuffier thought that ovulation and internal secretion of the ovary were not so important as had been believed. His experience had led him to formulate a new theory of the function of menstruation. He was of the opinion that every month the female organism secreted internally a chemical substance which was sufficient to act on the ovary. This chemical substance was eliminated by the menstrual flow and if it was retained by the body it caused an autointoxication. He had been able to produce menstruation by infection of defibrinated blood from a female about to menstruate into a female in whom the menses were suppressed. A sufficient dose of this serum had caused menstruation in patients who had not menstruated for two years after confinement. The flow appeared in from two to six days.

Resection of the uterus might be done without causing the symptoms of change of life. How much of the uterus might be taken in such conditions it was impossible to say, but according to his experience one-third of that organ might be safely removed. In cases of adhesions between ovaries and pelvis this operation was not so satisfactory. It was especially helpful in the case of young and nervous patients with excessive thyroid secretion.

Progress of Medical Science.

Boston Medical and Surgical Journal.

August 6, 1914.

1. The Problem of Infection in Tuberculous Families. J. B Hawes.
2. Something about Summer Diarrheas. I. D. Steinhardt.
3. The Modern Treatment of Inebriety. I. H. Neff.
4. Occupation Therapy in Organic Diseases. H. J. Hall.
5. A New Method of Treatment of Chronic Dacryocystitis. C. M. Cobb.

1. The Problem of Infection in Tuberculous Families.—J. B. Hawes states that tuberculous infection takes place chiefly in childhood years in the intimate contact of family life. There are three classes of consumptives who are the chief sources of family infection—the unknown case, the known case treated in his own home, and the returned sanatorium or hospital patient. The last class of returned sanatorium patients is the most important one and best repays one's efforts. The responsibility of the State towards its patients does not end when the patient is discharged, nor does the responsibility of the municipality end when the patient leaves for a State sanatorium. Co-operation between State and local forces must be constantly striven for. Tuberculosis is primarily a local problem. The State may well direct and advise, but not replace local work. The results obtained in Massachusetts as based on 600 discharged patients show that much can be accomplished in preventing family infection.

3. The Modern Treatment of Inebriety.—I. H. Neff outlines the following scheme which represents the system adopted by Massachusetts in the treatment of inebriety: (1) A State hospital for inebriates developed on the colony plan with a sufficiently ample and flexible equipment for the different types and grades of cases of habitual drunkenness. (2) An out-patient department with broad and well-defined duties. (3) Detention hospitals serving as adjunct institutions to the central hospital. These hospitals are to be situated in the cities and towns of the commonwealth. The hospital need not be especially built for the purpose, but should have special features for the care and treatment of acute alcoholism. Briefly defined, the purpose of these hospitals would be as follows: (a) For the treatment of delirium tremens. (b) To serve as an observation and receiving ward for the parent hospital. (c) To provide a clinic for incipient cases of inebriety. (d) To serve as sub-offices for the out-patient department of the main hospital. (e) To provide medical officers to visit prisons, to examine cases arrested for drunkenness, and to determine their fitness for treatment of the hospital.

4. Occupation Therapy in Organic Diseases.—H. J. Hall states that it has come to be a well-recognized fact that occupation of the body and mind is indispensable in the treatment of the functional nervous diseases. So far it has not been made clear enough, however, that the organic diseases, the chronic, partly disabling conditions may be made more bearable by the use of work especially adapted to the limitations of the individual. The symptoms of chronic spinal disease, for instance, are depressing in the extreme. A most evident and trying thing in the spinal cases may be incoordination in walking. For a good many years the Fränkel exercises have been used to improve the gait of the ataxic. There is no well-regulated nerve clinic or sanatorium without the familiar footsteps on the floor. But people get very tired of following in those footsteps, which seem to lead no whither. Many a man idle throughout a prolonged illness of this kind might be wonderfully developed if he could get in touch with the world through work. The author cites the case of a woman, apparently doomed to progressive disease of the spinal cord. With great difficulty she was persuaded to undertake hand weaving, a process which properly done requires very careful coordination of foot, hand, and eye. Before she knew it she was interested, and in a few weeks' time she had acquired the necessary skill which involves finding and correctly using from two to six foot pedals besides the dextrous throwing of a shuttle at the right time. The training thus received, together with the elation of accomplishment, raised this woman from the ranks of the hopeless and despondent to another kind of life altogether.

It is easy to understand what a boon to the poorer classes would be the teaching of adequate trades which could be carried out in the homes or in hospital workshops. There are many cases of progressive blindness in people along in years, or even in the middle life. If, while the blindness is coming on, a trade could be acquired it would mean pleasure and profit. Some of the chronic arthritis cases given up as hopeless yield to cleverly adapted work. Perhaps the most striking and inspiring work is being done in some of the hospitals for the insane. At Gardner, Mass., for instance, the State colony, with its 1,200 patients, keeps practically everybody at work. Under the direction of skilled people the patients for several years have made all their own clothing, the woolen part of which is manufactured from beginning to end, from the raising of the sheep through the processes of carding, spinning, and weaving, to the cutting and sewing of the garment ready for wear. This colony also raises all its food supplies, reclaims land, makes roads, and builds new dormitories. This is a most refreshing change from the days when the insane were almost universally kept in idleness and restraint.

New York Medical Journal.

August 8, 1914.

1. Lane's Autointoxication Complex and the Manifestations of Senility. I. L. Nascher.
2. Conservatism in the Operative Treatment of Simple Fractures. G. Woolsey.
3. The Treatment of Diabetes Mellitus with Bacillus Bulgaricus. P. Horowitz.
4. Fractures of the Upper End of the Humerus. J. M. Hutzrot.
5. The Autoserum Treatment of Dermatoses. W. S. Gottheil.
6. A Gram Negative Streptococcus Pathogenic for Guinea-pigs. J. G. Drennan.
7. Some Signs of Danger in Labor, and How to Meet Them. J. O. Arnold.
8. Frederick Forchheimer. O. Juettner.

1. Lane's Complex and Senility.—I. L. Nascher believes that every one of the seventeen symptoms of autointoxication presented by Lane appears as a physiological manifestation of senescence or as a pathological condition to which the aged are especially susceptible. If one accepts Lane's statement that these symptoms are due to autointoxication, and to nothing else, then one must accept the autointoxication theory of senescence. Lane says these symptoms are so due in most cases; of but few does he say they may be or appear to be. As applied to the aged, few are clearly due to autointoxication. Autointoxication from intestinal stasis or from constipation due to lessened peristaltic activity undoubtedly plays a contributing part in the process of senescence. The aged are usually constipated, and indican is generally found in the urine, and yet one occasionally finds aged individuals who have never taken a laxative, who have no indicanuria, none of the symptoms one usually finds associated with autointoxication, yet who present early marked signs of senility. The secondary results of autointoxication, according to Lane, include greater susceptibility to infections, yet the aged are more resistant to infections, and some of the infectious diseases of early life rarely or never occur in the aged. Kinks and adventitious bands and membranes are frequently found in the aged without producing symptoms of stasis; ptoses of the abdominal viscera are the rule; and chronic constipation, with delayed passage of feces through the intestines due to diminished peristalsis, is usual. This last should produce the same results as stasis from gravity or kinks, but they do not follow. One must therefore assume that Lane's symptom complex does not hold good in the aged or else that Lane has accepted the autointoxication theory of senescence, and ascribes the various senile changes to autointoxication. This theory is not accepted as the basic cause of senescence.

2. Operative Treatment of Fractures.—By G. Woolsey. (See MEDICAL RECORD, May 16, 1914, page 914.)

Journal of the American Medical Association.

August 8, 1914.

1. Experimental and Clinical Studies of Colon Stasis. J. R. Eastman.
2. The Condition of a Few Patients Two Years after Ileosigmoidostomy. C. L. Bonifield.
3. Resection of the First Portion of the Large Intestine and the Resulting Effect on Its Function. W. J. Mayo.
4. The Redundant Sigmoid. C. A. L. Reed.
5. A Statistical Study of Syphilis. The Relation of Its Symptoms to Subsequent Tabes Dorsalis or General Paralysis. C. J. White.
6. Syphilis in the American Negro. H. H. Hazen.
7. Observations of the Pathology of Syphilis. H. J. Nichols.
8. Hemorrhage from the Superior Petrosal Sinus as a Complication in Operations on the Lateral Sinus. J. R. Page.
9. Studies on the Absorption of Drugs. R. A. Hatcher and C. Eggleston.
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11. Pituitary Extract. An Examination of Some Commercial Preparations Made from the Posterior Lobe of the Pituitary Body. G. B. Roth.
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1. Experimental and Clinical Studies of Colon Stasis.—By J. R. Eastman. (See MEDICAL RECORD, June 27, 1914, page 1191.)

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4. The Redundant Sigmoid.—By C. A. L. Reed. (See MEDICAL RECORD, June 27, 1914, page 1191.)

7. Pathology of Syphilis.—H. J. Nichols notes that in syphilis the spirochetes localize during the early septicemia and probably do not localize in the later stages. All strains probably localize indifferently in certain organs. In addition certain strains probably have an especial localizing power. Various strains of *Treponema pallidum* exist which differ in pathogenic properties. These strains are probably permanent variations. A strain isolated from the nervous system has shown a marked power of generalization in the rabbit. Early localization in the testicle has been demonstrated experimentally, and the determination of a latent infection may be feasible as a clinical procedure. An active lesion in one part of the body tends to inhibit the development of potential lesions in other parts of the body.

9. Drug Absorption.—R. A. Hatcher and C. Eggleston determined the ratios of absorption from the four common channels of administration of drugs in five mammals, and recorded certain observations with regard to the ratios of absorption in man. The drugs used included representatives of several different chemical classes, such as alkaloids, glucosides, neutral principles, etc. Each drug is a law unto itself with respect to the ratio of absorption from the different channels of administration in any animal. In general, the subcutaneous and oral doses lie nearer to the intravenous dose in the cat and dog than in the rodents. The guinea pig in general seems far more resistant to the absorption of most vegetable drugs from the alimentary canal than is the rabbit, and vastly more so than are the cat and dog. Certain drugs, very soluble in water, are absorbed slowly, or occasionally not at all, from the gastrointestinal tract, this being especially marked in the case of the white rat and the guinea pig. Certain vegetable drugs, insoluble in water, are absorbed readily

from the alimentary canals of the cat and dog, and relatively so from the rat and guinea pig. No rule can be formulated for the calculation of the appropriate dose by one mode of administration from the dose by any other mode of administration. Such determination can be made only by experiment.

11. **Pituitary Extract.**—G. B. Roth calls attention to the wide variability that exists in the activity of commercial pituitary extracts. The use of beta-imidazolylethylamine hydrochloride in 1:20,000,000 dilution is suggested as a standard for use on the isolated uterus of the virgin guinea pig. The blood pressure method shows a wider range of variability than does the isolated uterus method for the comparison of the relative activity of the pituitary extracts and is not applicable to all preparations.

Berliner klinische Wochenschrift.

July 27, 1914.

Ereuthophobia (Erythrophobia).—Bernhardt implies by this term morbid blushing, or the fear of blushing. Letters are quoted from a patient in which he complains that fear of blushing thwarts all his efforts to make a living and causes him to think of suicide. Aronsohn, one of the authorities on this phenomenon, who has seen many cases, pronounces it an independent affection. It has some connection with sexual life, as it occurs in onanists and the impotent. The author does not accept the sexual as the sole causal element, and insists that a neurasthenic component is present. Von Bechterew, who records himself as advocating the sexual nature of the phobia, mentions a neurasthenic inheritance. Friedlander regards the phenomenon as a mere symptom of neurasthenia. The victims naturally betray this fear in the presence of others. They have the obsession that some one will recognize by their look that they have at one time or another committed some immoral or unjust act. Naturally the vasomotor system must be extraordinarily excitable. Alcohol is able to overcome this state, although the patients have been found prone to abuse the remedy. Ever since Casper first described this condition (in 1846) the suicidal tendency has been remarked in certain cases. Imperative concepts were noted in the author's case.

Successful Removal of a Tumor of the Brain.—Alexander and Unger report that a young man had an attack of nocturnal epilepsy after alcoholic abuse. Other attacks succeeded and were recognized as examples of typical epilepsy, beginning, however, in the left side, the facial muscles being first involved. Diagnosis: pseudo-Jacksonian epilepsy; interned at Wuhlgarten as a genuine epileptic; about two years later, while still in that institution, he developed the syndrome of brain tumor. The convulsions were held to be due to irritation of the central convolution, as a result of the presence of a tumor in the white matter beneath the latter, which in its outward progress had probably destroyed the cortex at this point. The diagnosis was confirmed by the *x*-ray. The evidence showed that the mass had been growing for at least four years up to the time of operation. The tumor extended from the cortex to the lateral ventricle. It was extirpated under local anesthesia. The pressure symptoms were relieved and were replaced by certain motor and sensory disturbances due to the operation. A severe epileptic seizure occurred about two weeks later. The prognosis is good concerning recurrence because the growth had been encapsulated. The possibility of a scar epilepsy must be borne in mind, in addition to the genuine epilepsy.

Early Diagnosis of Pulmonary Tuberculosis.—Stern, in a joint review of this subject, gives some practical points as follows: Early diagnosis comprises recognition of tuberculosis of the bronchial glands by means of a combination of subjective and objective symptoms, including anemia, dyspeptic disturbances and diarrhea stools; in the circulatory system we see tachycardia and paroxysmal tachycardia, while the cardiac dullness is slightly amplified to the right. Pains in the shoulder region and abdomen suggest a tuberculous pleuritis. Of especial significance is the laryngeal symptom—paresis of the vocal cord on the side corresponding to the affected lung, with mild chronic laryngitis. Poor development of the muscles on the affected side often coexists and is not a consequence, but rather a predisposing cause, of the lesions. The pupil on the affected side is often more dilated and reacts more slowly to light than does its fellow.

Münchener medizinische Wochenschrift.

July 21, 1914.

Chronic Gastrointestinal Indigestion, Colitis Gravis, and Hepatic Cirrhosis.—Schütz describes this syndrome, which has been recognized for some years, and gives four personal cases in a few words. All patients had severe colitis, as shown by the escape of pus and blood by the rectum. It was necessary to exclude tuberculosis, dysentery, paratyphus, and typhoid. There was no peritonitis. In all four cases there was pronounced evidence of indigestion in the small intestine. The author concluded that the indigestion was the primary affection and the colitis secondary; in other words, intestinal insufficiency was somehow responsible for the severe inflammation of the large bowel. The small bowel had at the same time become highly irritable. As a result of these conditions it had harbored a pathogenic flora, which had set up abnormal putrefaction and fermentation, the products of which had proved irritable. In all probability the bacillus coli had become so virulent as to set up colitis. Hepatic cirrhosis is mentioned in one case only—an autopsy case in an infant, which in the absence of an alcoholic history shows how the intestinal lesions are able to cause this lesion.

Cholin Borate in Surgical Tuberculosis.—Baisch gives his experience with this salt in Wilms' clinic, Heidelberg. It has already been employed under a certain trademark name in carcinoma upon the theory that cholin can imitate the action of the *x*-rays. The latter are held by Werner to produce their characteristic action by breaking up the lecithin in the tissues and setting free cholin. The latter was found to be too toxic for use, and after considerable experimentation the borate was found to be an active salt and nontoxic. In 1909 Deycke and Much reported that cholin and neurin were able to dissolve tubercle bacilli *in vivo* and *in vitro*, thus giving an added indication for its use. The usual solvent is physiological salt solution. The physiological action of cholin when given in high dosage is that of a vasodilator. The face is flushed, there is visible pulsation of the arteries of the arm, a feeling of heat, increased secretion of tears, and sweat and vertigo. Cholin injections may be used simultaneously or alternately with the *x*-rays in the treatment. The full technique of injections is too long to be reproduced here. The drug, however, may be injected in the buttock or subcutaneously—not apparently in the tuberculous tissues. Cholin is said to affect the blood picture favorably. Of twenty-six cases treated the author noted no untoward effects. Care must be taken that the injections are neither too strong nor too often repeated, as should the pharmacological syndrome develop the vertigo indicates the danger point, since it may be at once followed by serious collapse.

Deutsche medizinische Wochenschrift.

July 16, 1914.

Relationship Between Flatfoot and Tuberculosis of the Foot.—Syring concludes that flatfoot, especially when unilateral, and with added evidence of a trauma, must be watched carefully for the possible development of local tuberculosis. We know that in tarsal tuberculosis the subjective and objective symptoms of flatfoot are often simulated; and in particular, when the disease is seated in the talo-navicular articulation the imitation may be perfect. But tuberculosis of the ankle joint may also simulate flatfoot at its inception. The danger of confusion between essential flatfoot and flatfoot as an early symptom of tuberculosis should not be underestimated. That such confusion does frequently occur is undoubted. In Garre's clinic 10 per cent. of all cases of foot tuberculosis were first diagnosticated as flatfoot. Upon suspicion of tuberculosis the foot must be kept in a rest position for some weeks and frequent *x*-ray examinations practised.

Treatment of Mammary Cancer in Mice by X-Rays and Chemotherapy.—Pentimalli agrees with von Wassermann that this growth is even more resistant to gamma rays than human cancer. So much more so in fact that mouse cancer can hardly be used as a control of the former. Even mouse cancer pulp in Ringers' solution gives negative results to the strongest raying. Chemotherapeutic experiments with selenium combinations and numerous other preparations of the same nature of reputed merit have given not a single unequivocal positive result. The success of others in this field must be explained by insufficient study of the histology of the growths after treatment, or by the fact that the tumors were not in their natural state, as a result of previous treatment, necrosis, etc.

Defect Symptoms After Affections of the Central Nervous System, Etc.—Rothmann sums up a long study of this subject by stating that these phenomena follow the phylogenetic law, according to which the phylogenetically old functions become defective with much greater difficulty than the phylogenetically young and undergo regeneration with much greater rapidity. This restitution can come about in various ways, the most important being the reappearance of independent functions of the phylogenetically old centers of the lower portion of the brain after defect of the higher nerve centers. The socalled practice or exercise therapy will hasten and perfect the restitution.

Deutsche medizinische Wochenschrift.

July 23, 1914.

An Early Symptom of Pernicious Anemia—Soreness of the Tongue and Palate.—Stern, after stating his belief that pernicious anemia need not be a disease of one causation, calls attention to the fact that we know little of its initial symptoms. Anemia is certainly not one of these, nor are there any symptoms which suggest pernicious anemia. By the time anemia is in evidence the disease is far advanced. In other words, we have to deal with a secondary anemia. Of all early symptoms a periodical soreness of the tongue, gums, and palate is the most dependable. That no importance has been attached to it is because it has been noted heretofore only as a symptom of the fully developed disease. It was not until 1912 that Schaumann announced its existence as a forerunner of the anemia proper. A year later Zabel mentions burning of the tongue as an early symptom of the disease. The author has seen two, possibly three, cases of the buccal symptoms. In the first, owing to failure of nutrition and gastric disturbances, cancer of the stomach was suspected. Patient complained greatly of attacks of soreness of the tongue and gums which lasted a few days. These occurred at times when the general and gastric disturbances showed exacerbation. There was a diffuse redness of the anterior and lateral portions of the tongue and ecchymoses of the (toothless) gums. The true diagnosis was eventually made by the blood pictures. In the second case cancer of the stomach was also suspected. The entire mouth felt sore and hot, especially the tongue. This patient improved so much under treatment that the buccal symptoms vanished. The author advances no rationale to explain the mouth symptoms. He does not refer to the soreness of the palate which is sometimes seen after eructations and vomiting of acid gastric contents. As a rule the latter show a diminution of acidity in pernicious anemia.

Treatment of Diarrhea by Anesthetization of the Stomach.—Henius, basing his views upon Fuld's doctrine of a gastrocolic reflex, which he holds to be responsible for certain diarrheas, seeks to put the idea into practice. Many diarrheas are, as is well known, gastrogenic. Thus a meal taken with an irritable stomach is often promptly followed by a liquid movement. Much chronic or subacute diarrhea is of this origin. The prolonged action of mild laxatives seen in certain individuals may have a similar explanation. The ability of castor oil to put a stop to some of these cases is due, doubtless, to its soothing action. In these gastrogenic diarrheas a bland diet is of course the first requisite. Next in order comes the mild anesthetization of the stomach. Fuld at first made use of ten drops of a 3 per cent. solution of cocaine. Afterward synergists were added—menthol and a little soda. So far so good. The preparation, with possible additions, has, however, been placed on the market under a trade name.

Case of Athetoid Movements in Both Hands.—T. R. Whipham reports the case of a girl, aged four and a half years, who had never been able to hold anything properly in either hand owing to athetoid movements (alternating pronation and supination, together with flexion of the forearm), which became more marked when objects were grasped. She seemed a fairly bright child, but had not begun to walk until she was 3½ years old, though she is said to have cut her teeth and to have talked early. She was the first child of her parents, and was born at full term after a difficult labor lasting two days, at the end of which forceps were employed under an anesthetic. Immediately after birth she had to be revived by means of artificial respiration and brandy, and she is said not to have cried for the first two days. Marks from the instrument were present for a time on both sides of the face, and at the back of the head. The condition was probably due to injury sustained at the time of birth.—*Proceedings of the Rayol Society of Medicine.*

Veronal in Delirium Tremens.—Schneider takes part with others in an impromptu discussion on the medicinal treatment of the disease. Having been accused by implication of denying any virtue to this remedy, he states that he has never denied the benefit of very large doses of veronal, which produce more or less restfulness. He cannot convince himself, like von der Portens, that a veronal plan of treatment shortens the course of the disease or affects the mortality. In the so-called impending delirium there is no correspondence in results with the actual delirium in institutes. He includes the former, while the latter do not. Hydrotherapeutic procedures can be carried out only amid special surroundings, and when these are not available we have to depend on isolation and strong narcotics.—*Münchener medizinische Wochenschrift.*

Insurance Medicine.

SUGGESTIONS TO THE MEDICAL EXAMINER.

BY THE INSURANCE EDITOR.

HEREDITY.

Dawson and Spencer established the principle that every organism eventually more or less assumes the form of the class or order from which it sprang. This law of heredity, considerably modified, has been recognized as one of the fundamental truths involved in the selection of risks for life insurance, as there is abundant evidence that certain individuals display deviations from the normal, when the same or allied deviations appeared among their forebears. The inheritable characteristic may be transmitted directly to the child, or may become potent in some of the grandchildren after skipping a generation. The deviation, whether in form of a taint or of some desirable quality, may be accentuated or mitigated by the environment, advantages or disadvantages, and mode of life. From an insurance point of view, the physical organism, rather than the mental qualities, are of interest, but on looking into the subject of longevity, it is found that there is usually a succession of physically as well as mentally well-balanced progenitors, while, on the other hand, in the short-lived family there is apt to be a combined influence of parental taint, the predisposition from the parental side, supplemented and intensified by that from the maternal. The manifestation of a poor inheritance is not always the exact counterpart of that which appeared among the ancestors, certain diseases producing a tendency to other affections in succeeding generations.

After all is said, however, it must be acknowledged that many individuals defeat their baneful inheritances through the subjugation of their desires and passions for excesses of all kinds, by living in a favorable environment, by adopting modern precautions and treatment, and by following a suitable vocation. If all men could and would observe these precautions in a thorough and conscientious way, the question of family history might be almost disregarded, but these measures can rarely be fully carried out owing to the uncertainties of fortune, surroundings and domestic relations. Then, again, some men who have not lived prudently do reach advanced age, though their family histories are replete with evidences of disease and early deaths, the survival under such circumstances being attributed to a reversionary inheritance from some vigorous and robust ancestor. It is quite evident, then, that before the laws of mortality, as far as they are based upon the principle of heredity, can be intelligently applied, there should be a careful study in each individual case of the conditions which may modify, intensify or neutralize inherited tendencies.

The medical examiners will materially increase the value of their services by securing accurate family histories, with the favorable as well as unfavorable modifying factors, even though he finds that the different insurance offices are not harmonious in the treatment of the information furnished. There is no fixed or universal rule in regard to the influence of heredity, each office acting according to its own experience. In a general way it may be stated that some insurance men regard the bearing of family records as most important in connection with the selection of risks. Others prefer to be guided chiefly by the personal history and physical examination of the individual. Most men will agree, however, that the means between these extreme views may be considered as approximately correct and that the wise course to pursue is to study both the family and the individual characteristics. There is no doubt that family history no longer occupies its former important role in the selection of risks, owing to the benefits gained from a vigorous dissemination of ideas concerning prophylactic and curative methods and the importance of environment.

A discussion of the details of the subject would require the space of a volume. We may, however, refer briefly to the few following points which most commonly present themselves for consideration:

The latest investigations show that a family history strongly tainted with tuberculosis may be of small consequence after the age of 30, provided the occupation, habits and surroundings are favorable and the weight of the applicant is at or above the standard. A good weight overbalances such a family record to a marked degree. This brings up the point, on the other hand, that the estimates of liability to consumption in tainted family histories often underrate the risk, as they are apt to include only those dying from consumption, while it is generally conceded that there is a greater tendency to die of other diseases as well as from consumption among those who have that taint in their family. Greater weight and deeper study has naturally been accorded to tuberculosis than any other disease as an element in the family history. When, however, the record is marred with gout, rheumatism, apoplexy, insanity, diabetes, alcoholism, etc., and especially when these blemishes appear in both paternal and maternal branches, or when there are indications of short life from various causes, the home office authorities will scan the application closely. It is the consensus of opinion that inheritance of cancer is of a negligible quantity. If the case is at or near the borderline in other respects, the unfavorable family history often proves to be the crucial point on which the decision depends as to whether the applicant is rejected or offered a rated-up or endowment policy.

Mitral Stenosis.—In a discussion of the insurance aspects of this affection, at a meeting of the British Life Assurance Medical Officers' Association, Dr. Hector Mackenzie said that his own rule, at present, was this, that if he found well-marked mitral stenosis he recommended that the case should be declined. Mitral stenosis was generally, when one was able to diagnose it, a condition that had lasted a considerable time. It was generally an old standing valvular disease, and one knew that the duration of life in these cases was certainly diminished. The question really was one of diagnosis, for many cases were diagnosed mitral stenosis which were not such.

Otorrhea and Life Insurance.—At the meeting of the British Life Assurance Medical Officers' Association held on November 5, 1913, the subject of otorrhea in relation to life insurance was discussed. Dr. Ogier Ward pointed out that there was frequently an intimate connection between otorrhea and tuberculosis, and where there was a family history of tuberculosis those suffering from otorrhea should be declined. Dr. F. de Haviland Hall said that his custom in the past had been never to pass an applicant for insurance who had a discharge from the ear.

Book Reviews.

MANUAL OF MILITARY HYGIENE for the Military Services of the United States. By VALERY HAVARD, M.D., Colonel, Medical Corps, United States Army, Retired; Former President, Army Medical School. Published under the authority and with the approval of the Surgeon General U. S. Army. Second edition, thoroughly revised and greatly enlarged. Illustrated with seven plates and 251 engravings. New York: William Wood & Company, 1914.

IN the five years that have elapsed since the first edition of this excellent work much has been added to our store of knowledge in this field, and Havard has brought his book up to date in all completeness. The introduction constitutes in itself a valuable chapter, from which we quote a few pertinent axioms, upon which the practice of military hygiene must rest. "It is now recognized," says the author, "that the sanitary service of an army is not an impedimentum or necessary evil to be tolerated." "Hygienic measures are expensive but they will prove comparatively cheap if they prevent disease, for nothing is more expensive than a sick soldier." "All authority must necessarily be centered in the commanding officer; to divide it would lead to military chaos. Complete autonomy is no more possible or desirable in the medical than in any other staff department." The last axiom might well be digested by militia and volunteer officers, many of whom have curious misconceptions of their relations toward their commanders, and an exalted idea of their own authority.

As an evidence of the remarkable progress in military hygiene, Havard shows that there has been a steady decline in the death rate from 15 per mille in 1870 to 4.46 in 1910. The civil records in the United States give a corresponding decrease from 19.6 in 1890 to 15.0 in 1910. While the latter figures are encouraging in a way, they are hardly comparable to the marvellous decrease in our army. The mortality in the army in men from twenty to thirty years old is approximately but one-half that in the civilian population.

Under the heading "Infectious Diseases," typhoid fever is of paramount interest, not only on account of its old-time ravages, but particularly in view of the fact that we seem at last to have the mastery and to have eliminated it as a factor of importance. That this could have come about in the few years elapsed since the first edition of Havard's book seems incredible. While the rate had steadily declined since 1899, a sudden drop in the incidence of 3.03 and a mortality rate of .28 in 1909, to an incidence of .31 and a mortality of .03 in 1912 coincides with the introduction of antityphoid vaccination. In 1909-12 *no death* occurred in vaccinated soldiers.

The chapter on venereal diseases is important because of the high percentage of disability and discharge. For the entire army at home and abroad the total admission rate for venereal diseases was 185.3 and constant non-effective 10.14, the equivalent of 738 men. The rates in our navy are about the same, being 177 for 1911. Our improved means of diagnosis, the Wassermann reaction, and the discovery of the treponema will aid in the cure of syphilis by its earlier recognition. As medical officers rather agree that a large percentage of venereal diseases may be arrested by the prompt application of disinfectants, the use of the several prophylactic tubes is now common in both army and navy. Havard sees in the abolition of the canteen and its alternative, the existence of vile resorts in the proximity of garrisons, the "fons et origo" of much venereal disease and alcoholism. Alas! the matured judgment of veteran officers is of small weight contrasted with the misplaced enthusiasm of so-called prohibitionists and the timidity of weak-kneed Congressmen.

On the subject of "Recruiting," Havard contends that young men from country districts endure the hardships of a soldier better than those from cities. This is contrary to the opinion of many writers, and we have frequently heard veteran officers emphasize the reverse view. In the extremely interesting chapter on "Exercise", Havard states that during the last twenty years or more there has not been a serious injury among the cadets in the West Point gymnasium. He quite rightly condemns the methods of the annual exercise test, to which field officers are subjected, as it demands of men over fifty or even sixty years an identical physical strain (notwithstanding a lessened elasticity) which men in the 40's are called upon to undergo.

Clothing and uniform are discussed entertainingly from every standpoint. Touching upon the extensive experiments in the Philippines, directed toward the elimination of the actinic rays of the sun, it is shown that "the opacity of garment is as effective as color and that a black fabric, preferably silk, is altogether best for the purpose." Therefore, a black undershirt is suggested, such as the "solaro," olive drab outside and black inside. Attention is invited to the new haversack pack-carrier recently adopted by the War Department. The material used in its construction is olive drab cotton, bound with cotton webbing. It can be scrubbed when necessary and its advantages over any similar device in use in other armies are beyond question. An officer of the British Medical Corps pointed out this equipment to the writer in the museum of the Royal Army Medical College and expressed the hope that the English would adopt a similar pattern. Its virtues may be summed up briefly as follows: Its center of gravity corresponds nearly with that of the body; it hangs comfortably without constriction of the muscles, blood vessels, and nerves; it allows free expansion of the chest; there is no interference with the free use of arms and legs; it helps support the cartridge belt and its capacity is remarkable.

Space will not permit a detailed review of the chapters on barracks and camps, heating, lighting, and ventilation, which are replete with the latest statistics and comparisons of the most modern devices. We would commend to the militia officer those chapters dealing with camps, the disposal and destruction of excreta and waste, cooking and a chapter "General Sanitary Rules in the Field." There are also chapters on "Service in Warm Climates" and "Service in Cold Climates" which indicate to what extent the American resourcefulness must be tested, with a territory that embraces the Arctic Circle, the equatorial regions, and all the gradations of dry and moist climates that may lie between these extremes.

The book also includes a chapter on naval hygiene, which, though of necessity brief, gives some conception of the problems that face the naval medical officer; and also one on quarantine and its special application to the various infections. It is really remarkable what a storehouse of information lies between the covers of this book, and we see everywhere not only the mind of a deep student, but the mark of the highly trained veteran.

FORMULAIRE DE THERAPEUTIQUE CLINIQUE. Par le Dr. L. PRON, Membre de la Société de Thérapeutique. Avec la Collaboration du Dr. A. CANTONNET, Ophthalmologists des Hôpitaux de Paris (Hôpital Cochin). Deuxieme Édition, Réfondue et Augmentée. Price 6 francs. Paris: Librairie Maloine, 1914.

THIS handy volume of 544 pages comprises an alphabetical enumeration of various diseases with a brief description of their treatment, including a list of select prescriptions which may be used in each of those. There are separate sections on the treatment of diseases of the eyes, on diet lists in different conditions, on opotherapy, on serotherapy and vaccinotherapy, on poisoning and its treatment, on various laboratory examinations, on mineral waters, and on climatic resorts and sanatoria; and there is also a résumé of clinical phramacology. There is appended a table giving the ingredients of well-known ready-made mixtures.

MODERN SURGERY—GENERAL AND OPERATIVE. By JOHN CHALMERS DACOSTA, M.D., LL.D.; SAMUEL D. GROSS, Professor of Surgery, Jefferson Medical College, Philadelphia; Surgeon to the Jefferson Medical College Hospital; Surgeon to St. Joseph's Hospital, Philadelphia; Fellow of the American Surgical Association; Member of the American Philosophical Society; Membre de la Société International de Chirurgie; Member of the Medical Reserve Corps, U. S. Navy, etc. Seventh Edition, revised, enlarged, and reset, with 1,085 illustrations, some of them in colors. Price $6.00 net. Philadelphia and London: W. B. Saunders Company, 1914.

THIS, the seventh edition of Dr. DaCosta's Modern Surgery, has been brought well up to date. The author in a peculiarly felicitous and witty preface critically reviews, in a sense, his own book. He points out in what respects, he thinks, it is lacking and apologizes for its language being somewhat dogmatic and oracular because there was no room in the work for argument and discussion. This new edition contains considerably more matter than the preceding one, but by a slight increase in size of the page the additions have been made without adding greatly to the size or weight of the volume.

INFANT FEEDING. By CLIFFORD G. GRULEE, A.M., M.D.; Assistant Professor of Pediatrics at Rush Medical College (in affiliation with the University of Chicago); Chief of Pediatric Staff, Cook County Hospital; Attending Pediatrician to Cook County, Provident, and St. Bernard's Hospitals, and to the Home for Destitute Crippled Children, Chicago; Associate Pediatrician to the Presbyterian Hospital, Chicago. Illustrated; second edition, thoroughly revised; price $3.00 net. Philadelphia and London: W. B. Saunders Company, 1914.

THE subject of infant feeding has been greatly developed within the past few years, chiefly through the contributions made by German pediatricians. On the whole, the feeding of infants has been greatly simplified. In the present edition of this well-known work the author shows that he still accepts the teachings of the German school, which teachings have been accepted by many pediatricians in this country. This volume presents a most lucid account on the scientific feeding of infants.

Part I deals with the fundamental principles of infants' nutrition; Part II deals with the nourishment of the infant on the breast; Part III deals with artificial feeding, and Part IV discusses anomalies of nutrition and other conditions. The summary of the chapter headings may serve to indicate the wide scope of this volume. Part I contains chapters on special points in the anatomy of the gastrointestinal tract of the infant; the physiology of the gastrointestinal tract in the infant; absorption and metabolism; bacteriology of the gastrointestinal tract of the healthy infant; and attributes of the normal child. Part II includes chapters on the human breast and breast milk; technique of breast nursing of the normal infant; and nutritional disturbances in the breast-fed infant. Part III comprises chapters on foods used in artificial feeding; artificial feeding for the normal infant; general consideration of nutritional disturbances of the artificially fed infant; weight disturbance; dyspepsia; decomposition; intoxication; symptoms and their causes. Part IV consists of chapters on the premature infant; the exudative diathesis; the spasmophilic diathesis; the nervous infant; infant feeding in rickets; infantile scurvy; infant feeding in eczema; congenital pyloric stenosis and pylorospasm; and infant feeding in other diseases than those above mentioned.

The author's method of artificial feeding is a very simple one. It consists in the simple dilution of cow's milk with the addition of carbohydrates, preferably in the form of malt sugar and various starches. He believes that the intervals of feeding should not be any less than four hours and that the amount of food given should slightly exceed the stomach capacity for a child at a given age. The book is well written and should prove of eminent value to the student and general practitioner.

FESTSCHRIFT DEM EPPENDORFER KRANKENHAUSE ZUR Feier seines 25 jährigen Bestehens Gewidmet von früheren und jetzigen Ärzten der Anstalt. Unter Redaktion von Dr. BRAUER, Dr. SCHOTTMÜLLER und Dr. MUCH. Mit 20 tafeln und 22 abbildungen im Text. KLINISCHE BEITRÄGE: BEITRÄGE ZUR KLINIK DER INFEKTIONSKRANKHEITEN UND ZUR IMMUNITÄTSFORSCHUNG (MIT AUSSCHLUSS DER TUBERKULOSE). Herausgegeben von Professor Dr. L. BRAUER, ärztlichem Direktor des Allgemeinen Krankenhauses Hamburg-Eppendorf. Redaktion: für die Originale: Dr. H. SCHOTTMÜLLER (klinischer und bakteriologischer Teil) and Dr. H. MUCH (immunitätswissenschaftlicher Teil), beide am Allgemeinen Krankenhause Hamburg-Eppendorf. Für die Ergebnisse: Professor Dr. H. LÜDKE, in Würzburg. III Band, Heft ½. Price, per volume, 20 marks; single number, 15 marks. Würzburg: Curt Kabitzsch, 1914.

THIS festschrift has been compiled by the former and present workers of the Eppendorf Hospital in the celebration of the 25th anniversary of its foundation. The enumeration of the articles comprised in this volume may serve to give a fair conception of the important contributions that are now being made in the study of the infectious diseases. These articles are as follows: the relation between albuminous and lipoid antibodies and humoral and cellular reactions, by H. Much and Dr. Adam; hypersensitiveness, fever, and metabolism, by E. Leschke; plasma studies, by S. Starke and B. Hannes; experiments on dialysis and the Wassermann Reaction, by M. Fraenkel; experiments on the transformation of an organism by means of the treatment of bacteria-carriers, by A. Adam; protein end-products and the Wassermann reaction, by Dr. Mahlo; the effect of plant extracts soluble in alcohol and ether on bacteria, by O. Ganz; investigations on the prerequisites of the Wassermann reaction, by H. Emden and H. Much; investigations on the nature of the complement-binding reaction of the serum of patients having a tumor, by K. Hara; cataract operations with special reference to the prophylaxis of operative infectious inflammations, by A. H. Pagenstecher; acute hemorrhages following scarlatinal necroses and fatal bleeding from the ear, by E. Harnsen; the question of the rôle of the school in the causation of epidemics of scarlet fever and the measures thereby suggested from the public health aspect, by Dr. Voretzsch; the separation of the diphtheria membrane, by W. Meinshausen; clinical observations on typhus fever, by L. Brauer; a case of pure *Strongyloides stercoralis* infection with a fatal outcome, by E. Wilbrand; the phenol-serum treatment of pyogenic processes in gynecology and its experimental basis, by O. Geiger; the significance of the bacteriological examination of the blood in autogenous sepsis, by H. Schottmüller; a contribution to the pathology and diagnosis of pylephlebitis, by H. Schottmüller; the bactericidal power of human blood with reference to streptococci as an index of their virulence, by H. Schottmüller and W. Barfurth; the treatment of severe cases of scarlet fever with salvarsan or neosalvarsan, by F. Poensgen; the bacterial content of the fetus in abortions, by W. Barfurth; bacteriological examinations of the blood following curettage, by P. Theodor; staphylomycosis of the air-passages and lungs in childhood, by H. Schottmüller; the clinical picture of puerperal infection by the *Bacillus phlegmones emphysematosæ* (E. Fraenkel), by K. Bingold. This summary of the table of contents of this volume gives a fair idea of the extraordinary amount of work that is being done in the study of the problems of modern medicine. This volume is a mine of information and cannot fail to be of extreme interest to the clinician, alert on the frontiers of discovery.

COLLECTED STUDIES FROM THE BUREAU OF LABORATORIES, DEPARTMENT OF HEALTH, CITY OF NEW YORK. By Dr. WILLIAM H. PARK, Director. Vol. VII. 1912-1913.

THIS volume contains the results of the various studies carried on during 1912 and 1913 in the divisions of the bureaus of the laboratories of the New York Department of Health. These studies are classified under the following headings: applied therapy and preventive medicine; bacteriology, biochemistry, clinical cases with laboratory studies, food and drug chemistry, immunity, milk, clinical pathology, special pathology, physiology, and protozoology. Among the many valuable contributions to this volume may be mentioned the following: differential diagnosis and treatment of epidemic cerebrospinal meningitis, by Phebe L. DuBois; two cases treated with antistreptococcus serum, by M. Nicoll, Jr.; the dosage and methods of administering diphtheria antitoxin—an experimental and clinical study, by W. H. Park and G. P. Biggs; the relative importance of the bovine and human type of tubercle bacilli in the different forms of tuberculosis, by W. H. Park and C. Krumwiede, Jr.; on the presence of diphtheria and diphtheria-like organisms in scarlet fever patients, by Harriet L. Wilcox and Marian S. Taylor; is serum anaphylaxis a danger of sufficient importance to limit our use of protective sera in the treatment of prevention of disease, by W. H. Park; the frequency of *B. tuberculosis* in the market milk of New York City, by Marie Grund and Harriet L. Wilcox; tubercle bacilli in the blood, by Jane L. Berry; concerning the cultivation of the rabies organism, by Anna W. Williams, and the pancreatic ferments in infants, by A. F. Hess.

ZUR FRAGE DER ADERHAUTABHEBUNG NACH STAR- UND GLAUKOM-OPERATIONEN. Von Dr. BOIT, Stabsarzt. Kommandiert zur Universitäts-Augenklinik, Berlin. Price, $2.00. Halle, A. S.: Carl Marhold Verlagsbuchhandlung, 1914.

THE review of this very interesting and important compilation of cataract and glaucoma operations has been conducted in a comprehensive manner. After a careful analysis of the cases reported, twelve additional cases from the clinic of the University of Berlin are presented. The different theories of the cause of chorioidal detachment are given and discussed, and conclusions drawn. This timely and excellent review of the subject should be read by every ophthalmologist.

Society Reports.

BRITISH MEDICAL ASSOCIATION.

Eighty-second Annual Meeting, Held in Aberdeen, July 24-August 1, 1914.

(Special Report to the MEDICAL RECORD.)

(*Concluded from page 316.*)

SECTION OF OBSTETRICS AND GYNECOLOGY.

Wednesday, July 29—First Day.

Treatment of Fibromyomata.—Dr. ARCHIBALD DONALD of Manchester said that if expectant treatment had been tried it should be given up in all cases when symptoms developed; additional experience showed that the climacteric did not bring relief. Postclimacteric complications were the following: (1) Intramural fibroids might become submucous or polypoid and for the first time give rise to hemorrhage. (2) Diminishing size of the tumor might cause incarceration in the true helois. (3) Degenerations might occur. (4) Malignant changes might also take place. As regarded palliative treatment he had no faith in drugs and did not recommend curetting. Operative treatment: He performed vaginal removal only in cases where the cervix was open or the tumor was sloughing; in all others he operated by the abdominal route and he was of opinion that vaginal hysterectomy for fibroid should be abandoned. He performed myomectomy, when possible, in women of childbearing age, but would not do it for multiple tumors; in these it was a good plan to enucleate the tumors before doing hysterectomy. He preferred subtotal hysterectomy and thought that the risk of subsequent development of cancer in the stump was so rare as not to be worth consideration. Oophorectomy for fibroid was of no good and should not now be performed. Of operative cases he had had at the Royal Infirmary, Manchester, 101 cases with three deaths; at St. Mary's Hospital, 108 cases with three deaths; at the Nursing Home, 100 cases with one death. These included every case operated on. As regarded technique he clamped the broad ligament, having first tied the vessels after removing the uterus. He removed both ovaries in almost all cases. In many cases the ovaries, when left, degenerated, and in others they underwent cystic development or painful adhesions formed. He thought that subsequent symptoms depended entirely on the type of woman and not on whether the ovaries were removed. The principal dangers were thrombosis and embolism, and these would be almost entirely prevented by the strictest care in asepsis, using gloves and masks. These precautions were particularly necessary in anemic patients. "Team work" was also advantageous. He was opposed to *x*-ray treatment on the ground that mistakes in diagnosis were common in particularly hard masses, due to inflammation, and ovarian tumors adherent to the uterus might be mistaken for fibroids; ovarian and tubal disease might complicate fibroids; sarcoma, adenoma, or carcinoma might be present as well as degenerations of various kinds. It was by no means clear that there would be no further trouble with fibroids after bleeding had been stopped by means of the *x*-rays and he had reason to believe that if operations became necessary after *x*-ray treatment it would be more difficult.

Professor GAUSS of Freiburg sent a paper which was read in his absence by the secretary. He said that the results of *x*-ray therapy of fibroids were much superior to those of operation; moreover the mortality of operation was from 3 to 5 per cent. Surgeons avoided operating on anemic cases and these could be successfully treated by *x*-rays. The improvement lately was due to using hard rays in much stronger doses by the "cross fire" method and with aluminum filters. In 693 cases he had been successful in 95 per cent., and the results were steadily improving. As regards the technique he applied the rays over twelve areas in front and six posteriorly, each area being four to six cm. square and the aluminum filter three mm. thick. He considered that the treatment was contraindicated in submucous tumors which protruded from the uterus, and in cases where pressure symptoms were present.

Dr. HASTINGS TWEEDY of Dublin protested against treatment by *x*-rays. He said that if tumors were left alone 2 per cent. became malignant, and he advised that every case should be operated on when diagnosed. He disapproved the practice of removing the ovaries and said that if they were cystic he would resect the cystic part.

Dr. NIGEL STARK of Glasgow had seen death at the age of sixty-two from a sloughing fibroid. We all knew that cases of hemorrhage from metritis could be cured by electrical treatment; he had operated on 300 cases of fibroid with a mortality of 2 per cent.

Dr. MURDOCH CAMERON of Glasgow said that he did not use gloves. He recalled the Apostoli treatment and its disappearance from gynecology.

Sir JOHN BYERS of Belfast approved of gloves. He thought that some improvement in the results was due to much improved methods of anesthesia. He recalled cases in which the Apostoli treatment stopped hemorrhage, but the tumor still went on growing. He thought that some cases might well be left without operation.

Dr. KYNOCH of Dundee had sometimes removed the ovaries when he had found it impossible to get at the uterus owing to a very fat abdominal wall. He had abandoned myomectomy and thought it a good thing to leave some of the endometrium. He had seen the *x*-ray treatment in Freiburg and thought that there was something in it, he said, that every gynecological clinique in Germany had its department for the electrical treatment of fibroids and he advised withholding judgment on the matter for the present.

Dr. PHILIP WATSON of Toronto said that the cessation of menstruation in those cases was mainly due to the action of *x*-rays on the ovaries, and it was a strong argument against the treatment that the tumor was left and an artificial menopause was produced; he thought that the question of menopausal symptoms depended on the state of the ovaries at the time of operation and that where these were healthy the symptoms were more severe.

Dr. PURSLOW of Birmingham said that he usually performed supravaginal amputation of the uterus, but asked what should he done in cases complicated by lesion of the cervix, for, if this was left, the woman would complain of discharge after recovering from the operation, and he thought that the existence of severe erosion, with fibroid, indicated panhysterectomy.

Dr. BECKWITH WHITEHOUSE of Birmingham said that it was his practice always to remove the ovaries; he thought that if the ovaries were left some of the endometrium should also be left, as these two organs interacted.

Dr. HAULTAIN of Edinburgh, chairman of the Section, was not inclined to say that every woman with fibroid should be operated on. Those in whom symptoms were absent were usually sterile women under forty-five years of age and the question sometime arose whether operation should be done for the cure of the sterility; he would do myomectomy for this purpose if requested by the patient. In his experience cases requiring operation for fibroid after the menopause were very infrequent and hemorrhage at that time was due to malignant disease or the fibroid becoming polypoid. He had never seen a case in which malignant disease had developed in the lesions left by a subtotal hysterectomy.

Dr. DONALD, in reply, referred to Dr. Giles's investigations, which showed that sexual feelings were less influenced by removal of the ovaries and uterus than by removal of the ovaries alone. As regarded anesthetic, he preferred the open ether method.

Thursday, July 30—Second Day.

Management of Pregnancy and Labor in Contracted Pelvis.—Dr. HENRY JELLETT, Master, Rotunda Hospital, Dublin, opened this discussion. He said that, from a clinical standpoint, contracted pelvis might be divided into two main classes, symmetrical contractions and asymmetrical contractions. He would consider the former only, and of this there were two main types, viz., flattened pelvis and generally contracted pelvis. He divided the contractions into four degrees based, to a large extent, on the clinical course in each: (1) Pelvis with a conjugate of over 3¼ inches; in these the child might be delivered spontaneously if of normal size, if the uterine contractions were normal, and if the presentation were normal. (2) Conjugate from 2¾ inches to 3¼ inches; in these vaginal delivery was only possible if the child was below the normal size, as in premature labor, or the pelvis was enlarged as by symphyseotomy. (3) Conjugate 2¼ to 2¾ inches. In these delivery through the pelvis of a viable child is impossible. (4) Conjugate below 2¼ inches. In these delivery of a child through the pelvis is impossible, even after

embryotomy. He would consider the treatment only of cases of the second degree, as in the others, the question might be considered settled. Four courses were open: (1) Induction of premature labor; (2) symphyseotomy; (3) Cesarean section; (4) Craniotomy. With reference to induction it might be said in its favor that for the general practitioner it was easier to perform than any of the other operations, against it were the facts that infection was easy, the methods were uncertain and the child was often weakly and incapable of surviving. Cesarean section was easy, and when done early in labor almost free from risk; it can be performed in subsequent labor. Its disadvantages were that if we were to get full advantage from it it must be done early and patient may not be allowed to try the effect of labor pains and of moulding, so that it will have to be done in every subsequent pregnancy. Pubiotomy had several advantages: it would be postponed until the last moment, so that every opportunity could be given the patient to complete the labor herself, and, what was most important, in his experience, it left a permanent enlargement of the pelvis. Against it could be urged that lacerations of the urethra and bladder might follow; other complications were phlegmasia and necrosis of the bone in two of their nineteen cases the piece of bone between the line of section and the symphysis necrosed, but good union resulted later and neither in these nor in any other of their cases did any difficulty of locomotion result. The normal minimum conjugate for pubiotomy was 7 c.m. in proof of the fact that permanent enlargement of the pelvis followed the operation he mentioned that, in these nineteen cases there had been twenty-nine labors prior to the performance of pubiotomy with twenty-two dead children, while, subsequently, these women had had fifteen labors with only three still births. In conclusion he laid down the following rules for the management of labor in contraction of the second degree: (1) Pubiotomy should be the operation of choice. (2) Pubiotomy was specially indicated in young multiparæ, because of its effect on subsequent labors. (3) Cesarean section was most suitable for elderly primiparæ, because of the danger of tears in doing symphyseotomy on these cases, and the fact that subsequent labors did not enter into consideration. (4) Premature labor was only advisable under special circumstances. (5) Craniotomy should not be done on the living child.

Professor Frank of Cologne said that one hundred years ago people tried to prohibit by law the operation of symphyseotomy as if it were an attempt to murder. To-day it might be called the most successful operation in the whole of midwifery, and it ought to be learned by every accoucheur. The author's subcutaneous symphyseotomy had no danger. In performing it, the outside wound must not be larger than the breadth of the narrow knife, which was the only instrument employed. When the knife left the wound the operation must be entirely finished. The operation was finished when a jerk was felt and the pelvis gaped for several centimeters. The opening in the skin was sutured immediately with catgut. Frank said he had performed this operation in his clinic 155 times. Among the cases were forty primiparæ. None died from operation. A contraindication was narrowing in the fourth degree. Unless the os was fully dilated, one should not operate. The following were the author's conclusions: (1) In cases with large disproportion the classical Cesarean section should be performed if one could guarantee asepsis. (2) If the asepsis was doubtful, delivery by the suprasymphyseal route was advocated. (3) In the middle degrees of narrowing subcutaneous symphyseotomy was to be preferred in multiparæ. In primiparæ, with narrow, soft parts, suprasymphyseal delivery was to be preferred if there was suspicion of infection. In clean cases in primiparæ classical Cesarean section was advised. (4) In primiparæ symphyseotomy was to be considered if there was only slight obstruction to delivery.

Dr. Shannon of Glasgow gave the statistics of the Glasgow maternity for the years 1909-13 inclusive. He estimated the pregnancy of contracted pelvis in Glasgow as 30 per cent., and thought that it was more prevalent than in any other city in the world. There were 1,291 full term labors, and among these 355 cases of contracted pelvis; the presentations in these latter were: vertex, 94 per cent.; breech, 2.5 per cent.; transverse, 2.5 per cent.; face and brow, 1.6 per cent. The average weight of the child was 7 pounds. For diagnosis of obstruction they did not trust to measurements of the pelvis alone, but paid much attention to the size of the head; in borderland cases the patients were anesthetized and placed in the lithotomy position; the head was then pushed down into the pelvis, and its fit estimated by placing two fingers of the other hand in the vagina and the thumb over the pelvis. They recognized three groups of cases: (1) When marked overlapping occurs these require Cesarean section. (2) Minor degrees of overlapping, which could be dealt with by forceps or symphyseotomy. (3) No overlapping; these would terminate naturally. The labor was closely watched, and, if fetal pulse rate was accelerated or maternal temperature rose the forceps was applied. Forceps might be applied too early by the practitioners before proper time for moulding had been allowed; and the amount of force used was often unjustifiable. They never employed symphyseotomy until the natural forces had been allowed to have a chance and two or three moderate tractions with forceps had been made. Pubiotomy was preferred to symphyseotomy. The operation was contraindicated when much manipulation had been done and many attempts at forceps delivery had been made, and they never did it in primiparæ. In case of infection when the woman had been long in labor they did craniotomy.

Dr. F. Hastings Tweedy of Dublin thought that internal measurements were of more use than the "Müller" method, and that we might usually act on the supposition that the child would be of normal size. He considered that the only reliable method of measuring the conjugate was by Skutch's pelvimeter. He would advocate extraperitoneal Cesarean section in preference to craniotomy for infected cases.

Professor Murdoch Cameron of Glasgow advocated examination of the pelvis by introducing the whole hand and examining whilst the head was pressed down from above by an assistant. He showed a pair of antero-posterior forceps which he had found useful.

Professor Kynoch of Dundee had found Walcher's position useful. The first labor should be treated as a test. Induction of premature labor had been far too much criticised and he was of opinion that, if based on careful estimation of the relation of the head to the pelvis it was a very good method. Herff of Basle had elaborated a good method of estimating the relation of head to pelvis; he measured from the spinous process of the last lumbar vertebra to the front of the fetal head above the pubes and compared that with the measurement from the same process to the front of the pubes (external conjugate).

Sir John Byers of Belfast agreed with those who said that cases which had been examined by outside practitioners and midwifes were unfit for Cesarean section. He advocated the greater extension of lying-in-hospitals.

Dr. Oliphant Nicholson of Edinburgh advocated induction. He did it by passing a finger through the os and separating the membranes, or, as an alternative, by packing gauze into the lower uterine segment.

Dr. Jellett, in closing the discussion, said that the knowledge that we have pubiotomy to fall back upon enabled us to allow women to go on in labor until signs of danger arose, and he again emphasized the effect of pubiotomy in leading to a permanent enlargement of the pelvis.

Friday, July 31—Third Day.

Acidosis and the Nitrogen Partition in Pregnancy.—Dr. Leith Murray of Manchester read this paper. He said that Whitridge Williams had modified his original views as to the ammonia coefficient. His own investigations covered eighty cases, normal and abnormal. He employed three tests—Mathison's, Groat's, and Hart's.

Mathison's Method of Ammonia Estimation.—Shake for two minutes 25 c.c. of urine with 15 grammes (circe) of *neutral* potassium oxalate and 50 c.c. distilled water. Neutralize with N 10 soda, using phenolphthalein as an indicator. Add 5 c.c. neutralized commercial formalin. Titrate again with N 10 soda till neutral. Each c.c. = 0.0014.

Groat's Method of Total Nitrogen Estimation.—Add to 2 c.c. urine 6 c.c. concentrated sulphuric acid and a few crystals of potassium sulphate in a Kjeldahl flask. Boil in a fume-cupboard till clear; cool, wash thoroughly into a large flask, and estimate the total nitrogen as ammonium sulphate by the above method.

Hart's Colorimetric Acidosis Index.—Two solutions are necessary: (*a*) Ethylaceto-acetate, 1 c.c.; alcohol,

25 c.c.; distilled water, 1,000 c.c. (*b*) Ferric chloride, 100 grammes; distilled water, 100 c.c. Take two test tubes of equal (½-inch) caliber; in one put 10 c.c. of A., and in the other 10 c.c. of urine. Add to each 1 c.c of B. Dilute the tube containing urine till the two match. The acidosis index per liter equals one-tenth of the volume (cubic centimeters) in the tube of urine. To obtain the index proper (which represents total acidosis estimated in terms of grammes of B—oxybutyric acid), multiply the above by the number of liters passed in twenty-four hours. Quantities of acetone bodies insufficient to give a positive perchloride test, but giving a sodium nitroprusside reaction represent an acidosis index per liter of 0.5.

In fifteen non-pregnant cases the ammonia coefficient was not above 5.5 per cent. in any case; the normal coefficient of non-pregnant cases was 3-5 per cent.; in normal pregnancy this percentage could be increased without pointing to acidosis. Ammonia was formed only by living liver cells and in normal pregnancy there was considerable strain on the liver; in hyperemesis there was degeneration of liver cells. In acidosis the symptoms were not due to acid bodies present, but to the diminution of the fixed bases in the tissues, these having been used to neutralize the acids. The best clinical test of acidosis was to note the tolerance of alkali as seen in its effect on the urine. Five grammes of sodium bicarbonate were given every six hours; in normal individuals this made the urine alkaline. In testing for the ammonia coefficient it was better not to use a mixed specimen of twenty-four hours urine, but to perform the test on specimens taken every three or four hours, as great variations may occur throughout the day. The coefficient became higher in pregnancy, and he had seen it 13 per cent. even in the absence of symptoms. In toxemic cases he had seen it 25 per cent. This was relieved by emptying the uterus, after other methods of treatment had failed. In five cases of eclampsia it varied from 13 to 18 per cent. He agreed with Whitridge Williams that only by comparing clinical symptoms with laboratory results could we arrive at a just estimation of the importance of the ammonia coefficient.

Dr. Russell of Glasgow was convinced that the interior supplied by Whitridge Williams was a valuable one as an indication of the necessity of active treatment.

Further Observations on the Treatment of Eclampsia by Veratrine.—Dr. Haultain of Edinburgh, president of the Section, read this paper. The dose he gave was 1 c.c. by hypodermic injection. This reduced blood pressure in a marked degree and increased the excretion of urine. He found that if the pulse was reduced below 58 by the drug, vomiting occurred. The outstanding feature of eclampsia, in all cases, was high blood pressure, both before and during the fits, and he thought that this was an element in the causation of fits. He had made experiments on cats and found that, in small doses, there was a fall of blood pressure, but no effect occurred when the vagi had been cut, showing that the effect was produced through action on the vasomotor centers; but it had also a probable action on the toxemia, as fits did not occur after its use, even when the blood pressure had risen again. He had tried it in seventeen cases with one death.

SECTION OF MEDICINE.

Wednesday, July 29—First Day.

Dr. J. F. Smith of London in the Chair.

Headache.—Dr. Hurry Campbell opened the discussion on this topic. It was necessary, he said, to distinguish carefully between true headache and cephalic dysthesias, such as constriction of the head, heaviness or lightness, confusion, vertigo, etc. The assumed center for head pain was in the lower part of the post-cerebral convolution and the connection of this region with the center of spinal sense explained headaches due to eyestrain, to loud noise, etc. In speaking of headache due to gastric and intestinal disturbances he deprecated the tendency to avoid meat, which he regarded as especially digestible.

Dr. C. O. Hawthorne discussed the relation of headache to high blood pressure, indigestion, and alimentary toxemia. In plethoric conditions he had found much benefit from the application of leeches to the temples.

Dr. L. H. Pegler called attention to headache occurring as a nasal reflex or due to malaeration of the blood or lymph stains due to nasal obstruction. There were no definite characteristics of a nasal headache as distinguished from that due to other conditions. But if examination showed obstruction or inflammation within the nasal passages, the removal of these pathological states would often cause the disappearance of the head pain.

Dr. F. C. Eve referred to the headache caused by increased tension of the cerebrospinal fluid and also to toxemic headaches among which was the pain so often noted after tuberculin injections.

Dr. F. J. Smith said intractable headache might be due to undiagnosed syphilitic infection and could in such cases be cured by mixed treatment.

Dr. Campbell said the diagnosis of a specific headache might be extremely difficult since in many cases of active syphilis the Wassermann reaction might be negative and the cerebrospinal fluid might also give no signs of the disease.

Splenectomy in the Treatment of Anemia.—Dr. J. S. McKendrick read a paper with this title, in which he advocated the removal of the spleen as a therapeutic measure in certain forms of anemia. This organ, he said, whatever its function might be, had been shown not to be essential to life.

Dr. L. P. Phillips reported a case of splenomedullary leucemia in which apparent cure had been obtained by the administration of benzol. He urged care, however, in the use of this drug, as it was a very powerful poison.

Sir William Osler said that rapid enlargement of the liver occurring in the course of splenic leucemia with splenomegaly was usually an indication for the operation of splenectomy.

Dr. J. R. Charles reported three cases of splenomedullary leucemia, in two of which splenectomy was performed, the third being treated, with but temporary success, by benzol.

Patent Ductus Arteriosus.—Dr. T. Wardrop Griffith reported two cases of this anomaly, illustrating his paper with lantern slides.

Thursday, July 30—Second Day.

Artificial Pneumothorax in Pulmonary Tuberculosis.—Dr. Rist of Paris opened this discussion. He said that this form of treatment had been under observation for quite a long time, but that only in 1906 did any one make a decisive step to prove its usefulness. He discussed many of the interesting points in connection with the disease and perhaps he laid most stress on the value of *x*-ray photographs as a means of diagnosis and the extent of the lesions involved in the lung. He discussed the types of cases which were most suitable for this form of treatment and the means by which fatal results must be prevented. He believed that by more extensive use many cases which at first sight seemed hopeless might have life prolonged by this treatment, and those who were destined to become invalids for the rest of their lives could be made fit and able to return to work. Dr. Rist discussed the physiology of respiration and showed how the potential cavity between the two layers of the pleura could have its negative pressure altered. This pressure, equal to about 6 mm. of mercury, was increased by inspiration and decreased by expiration. If the latter was violent then the pressure became a positive pressure. The lung did not fully collapse, owing to the amount of elastic tissue it contained. Now if nitrogen were placed in the pleural cavity the lung slowly collapsed and would eventually lie flat against the mediastinal contents if sufficient gas were introduced, and gradually the pressure passed from negative to positive. If the lung had undergone pneumonic consolidation or was filled with masses of caseating tubercle, as he related occurred in some of the patients under his care, the intrapleural pressure would give a positive reading before the organ fully collapses. Several days after the pressure was negative, due to the intrathoracic structures yielding to the resistance of the lung, and not due to the absorption of nitrogen. The lung finally became immobile. Dr. Rist showed that as the lung collapsed the other structures there collapsed also and forced out any contained secretions and prevented their accumulation. Cavities when present were obliterated by the approximation of their walls and the contents were expelled. All hemorrhage was arrested. Some believed that artificial pneumothorax should be a last resort, but only after four months of sanatorium treatment had failed. Progressive cases should be treated by this means.

Acute lesions responded better and earlier than old fibrotic lung cases, as then there was less chance of adherent pleuræ. Every suspected pulmonary tuberculosis case should be subjected to *x*-rays. These photographs should be taken at varying intervals and the difference in condition noted. When there were no signs of improvement then the experimental method must be tried. Sudden hemoptysis was a sign that the disease was progressing, and from a point of view of treatment the method of lung displacement should be begun. The position of the lesion was discussed. It was better when it was in one lung only, though there was no reason why a perfect cure should not be got when both lungs were affected, provided there was enough sound tissue left to carry on the function of respiration. If artificial pneumothorax was attempted on one side, and the other side was also affected and only a little healthy tissue left for respiration, the patient died from asphyxia. The method of treatment consisted in keeping the patient in bed for some time previous, except in cases where displacement was urgently required to check a hemorrhage. One must always note cough, expectoration, temperature, etc. Some men gave morphine, but the speaker said he gave it only in certain cases because it masked many of the signs which one wanted to find out. He did not deal with the instruments used for the operation nor with statistics of cases he had dealt with. The lecturer went on to deal with the amount of gas injected. When the needle reached the pleural cavity the manometer indicated the pressure therein. A long inspiration gave a still further negative pressure, while coughing gave a positive indication in the tube. It was not necessary to push the needle right into the lung to get it to collapse. Dr. Rist injected a fairly large quantity of nitrogen at the first attempt, and did not do as some did, injecting a small quantity first and then increasing its amount by subsequent operations. The average pleural cavity contained about 3,500 c.c. of gas, but one could be sure that the lung was fully collapsed only by means of *x*-rays. If the lung was not extensively diseased a pressure varying from + 1 upwards indicated complete collapse. If the organisms consolidated it might be only two-thirds displaced when this pressure was reached. Several days later the pressure was again negative and more gas could be run in. The presence of adhesions were often a source of difficulty to the operator, and the difficulties which arose varied with the character and extent of these adhesions. The finding of the pleural cavity was a very difficult matter and one may know he has reached it when the manometer reading began to oscillate. Pleural adhesion was common, occurring in at least 50 per cent. of the cases. Numerous small and transient effusions were found commonly. The pleuroscope showed these up quite well. The amount of fluid might be half an ounce. The disappearance of the effusion was shown by this instrument also. The presence of fluid might not affect patients, but it did so in some. If after pneumothorax had been performed a fever occurred then usually an effusion had occurred, and Dr. Rist said that tapping did not help much unless the pleural cavity had got half full of fluid. Then nitrogen was pumped in and the manometer reading kept constant. Experiments had been tried on guinea pigs by inoculation with tubercle bacilli. Very small sacs were found to contain pure esinophile and mast cells, but this fluid did not become purulent.

Drs. Woodcock and Clark of Leeds also took up the question of artificial pneumothorax. They discussed its advantages and disadvantages when the different degrees of pathological thickening of the pleura occurred. Dr. Clark described the method of operation. A point was usually selected in the fifth intercostal space in the midaxillary line. The part selected was made thoroughly aseptic and the operation proceeded with. He dealt with the rate at which the gas should be injected and said that with caution gas embolism never occurred. Two cases under his care were reported and both had turned out successfully.

Friday, July 31—Third Day.

Tuberculosis in Infancy and Childhood.—This was the subject of a joint discussion of this Section and that of Diseases of Children.

Dr. D. B. Lees said children were specially susceptible to tuberculosis, the infection of which was often marked by symptoms recalling those of rheumatic fever. During the past few years the *x*-ray had given good service in the diagnosis and in exposing the lesions of this disease. The question was asked whether tuberculosis in children could be diagnosed by physical examination alone, without the *x*-rays or bacteriology. The speaker thought the ordinary measures of inspection, palpation, percussion, and auscultation were sufficient if carefully and methodically used. All muscles must be relaxed and the patient must be recumbent, or, for examination of the back, sitting and stooping slightly. Percussion often showed evidence when auscultation was negative, and *vice versa*. He said the distribution in the lungs was always the same and symmetrical in as far as the lobe division permitted, and quite different from the areas of atelectasis, infarct, etc. He showed a diagram with the lesion areas marked. There were dull areas at the apices of the upper and lower lobes; these were the chief ones. Dullness, due to enlarged glands, in asthma, etc., lay between these areas. Another, working independent of these percussion results, could confirm these conclusions by the *x*-rays. Examination should be made monthly with a permanent record taken in finger-breadth measurement. Dull areas should be marked in a simple diagram. All this refers to adults and adolescents as well. In children there were special features distinguishing the clinical picture from that in adults. Tuberculosis in children was much more liable to spread by the peribronchial lymphatics and was much commoner on the right side, probably because of the relations of the glands. The glands when infected swelled and pressed on the vagus causing asthmatic or croupy symptoms. A gland might burst into a bronchus causing pneumonia, miliary turerculosis, or emphyema. Peribronchial tuberculosis fibrosis, etc., had characteristic skiagrams. No sound conclusion could be made on a screen examination without a photograph. Even with a photograph the greatest technical skill was required and the highest knowledge was called for in interpreting it. The rays might project an area of dullness on to a different area. Careful percussion would detect these fine incipient changes as well as very large areas and give their true situation while there were yet no morbid sounds. Children were very liable to mixed infections. An apparently simple bronchopneumonia was often found followed by tuberculosis. When an apparently simple bronchopneumonia was found one should examine these apices. Fatal tuberculosis in children began oftenest in the lungs—not the intestines. Common lung troubles that seemed to become tuberculous were probably lesions in an already infected child or tuberculous infection was mixed with the prominent one. Careful physical examination was within the power of every general practitioner without a laboratory, and he could regulate his treatment by the knowledge so acquired. When every man realized this we might hope for the extinction of pulmonary tuberculosis.

Dr. Clive Rivière said that chronic pulmonary tuberculosis in children was nothing more than a curiosity. The glands bore the brunt of the first infection and it was therefore first a tuberculosis of glands from whence it might spread elsewhere. It began in the glands and first became a hilus tuberculosis. This form was much commoner than apical phthisis in children. From it phthisis might develop. Such cases were found rather in the school than in the hospital—little seen and seldom recognized. The course of the affection was uneventful and its treatment local. Interscapular dullness of the Leblanc was one of the oldest signs of enlarged chest glands. With gentle percussion and röntgenoscopy we could get early physical signs. Interscapular dullness as an early sign was found on the right side only. Pressure on the right pulmonary artery is the cause of this probably. The *x*-rays show signs on the left side also. This sign alone was present in two-thirds of a group of seven children showing *x*-ray signs. Normally there was an area of impaired note from the first to the fifth dorsal vertebrae. An increase in the dullness and size of the area constituted the sign. The outer limit was curved and varied with respiration. The signs differed from those of apical involvement. In gland impairment the apex was less affected than the interscapular area and dullness might be found only on the back. In apical tuberculosis the apical dullness was the better marked and more constant. On auscultation one gets sounds, but when the glands chiefly are involved râles are rare.

In phthisis the diagnosis was much the same as in adults only one cannot as a rule get sputum evidence. Blowing sounds, especially on the right, must be carefully interpreted. Very light percussion must be used. This gives the earliest and most reliable results. All signs should be taken together and one should not rely too much on auscultation. Dull areas once present might persist for the remainder of life and were no evidence of active disease. If active they enlarged and this could be charted.

Dr. BRUCE of London said that fluid and fibrous tissue offered more resistance to the *x*-rays than normal lung. The screen was useful for studying the movements of the lung, diaphragm, etc. Photographic methods were necessary for fine details. Short exposures were now possible. If the diaphragm had moved during exposure the plate was not reliable. He went on to describe the screen-appearance of an affected chest and to discuss the probable causes of these appearances. Typical appearances might, however, go on to other pictures—shadows might enlarge and overlap and thus form large masses. Fluid formed large opacities obliterating all else, but had a sharp outline. Different conditions accompanied by fluid could be distinguished. Hydatid cyst had a sharp outline.

Dr. EVE of Hull said that glandular and pulmonary forms of tuberculosis were often confused and unless they were distinguished one could not go far. He mentioned the physical signs as he had found them in both classes. He knew of only one death in a child with suffocative attacks. At autopsy a gland was found to have ulcerated into the trachea. He asked Dr. Bruce if *x*-rays could distinguish between the two cases.

Dr. MACHEIL of Edinburgh asked Dr. Revière whether he meant that dull areas were found in all cases at the apices. He said there was no proof in this country either from autopsy or tuberculin tests that a tuberculous infection, latent or active, was universal. He expressed a doubt of the dullness always meaning a tuberculous lesion. Clinicians were going back to adopt infection of the apices from the neck glands though pathologists now had given up the theory of infection from the glands direct. He wished to distinguish between latent and active apical lesions. The tuberculin test was a far more delicate test than the percussing finger. Apical tuberculosis, whether latent or active, was rare in children.

Dr. LAWSON of Banchory asked whether the ordinary clinical method or *x*-rays were the more reliable. He said that one ought to combine these. The only rational method was to combine all our means of diagnosis. The *x*-rays would detect dullness. He had known apparently typical tuberculosis of the glands turn out to be malignant disease. He thought that endothelioma, etc., in children was insufficiently considered. He attached the greatest importance to limitation of diaphragm movement in early cases. He also asked if transillumination phenomena were studied. It was important to be able to say whether the fluid in a child's pleura was clear or purulent. Ten years ago, in experiments with rubber bags, he had found almost no difference in the shadows, and he wished to know if this had been investigated.

Dr. LANGMEAD of London said he had not Dr. Lees' optimistic opinions. Tuberculosis was very common in children. Eighty per cent. of the tuberculin tests in Vienna in school children were positive, yet physical signs failed. His opinion was that tuberculosis often failed to be diagnosed when present even with most careful examination. *X*-rays did not tell whether a lesion was active. Repeated physical examination was required. He insisted on taking everything into consideration—not percussion or röntgenoscopy only.

Dr. PREST of Ayrshire said it was necessary to determine whether the disease was active or not. He always inquired carefully into the history, if there was sweating, if the patient quickly tired, or was losing weight, etc., and he treated any symptoms that arose. He relied more on symptoms than on signs which many were unable to appreciate. In addition to percussion, the sound of the whispered voice was extremely useful in detecting consolidation.

Dr. BARTY KING of London said that in 35 per cent. of the cases sent to his clinic as definite pulmonary tuberculosis, after most careful scientific examination, he could find no tubercle bacilli, hence deductions from examination must differ widely. In one case *x*-rayed by Dr. Jordon and reported undoubted peribronchial tuberculosis, but with kidney disease, sections after the autopsy showed thickening of the bronchial walls and peribronchial tissue but no tuberculosis. What they wanted from the *x*-ray department was a report of what they saw and also what their interpretation was.

Dr. F. J. SMITH of London, President of the Section, said they were face to face with not a quarrel, but two points of view. One relied on physical signs; the other wished to know whether the child was ill or not and what the prognosis was. Very little had been said as to symptoms and nothing as to the organism. Statisticians annoyed him by ignoring symptoms. He spoke of the advice given in sanatoria to departing patients. Each had a fetich which they studied—not the patient. He said that more attention should be paid to the patient's symptoms than to his temperature or the skiagram.

Dr. LEES said the dull areas were not universal in children's chests. These dull areas were frequently found in children and the results agreed closely with tuberculin results. The discovery of dull areas did not prove active tuberculosis. The areas diminished in size but did not disappear on recovery. The case should be kept under observation in order to determine whether or not it was active. In children the difference between apical and hilus tuberculosis was marked, but they were only different types of the same disease. Until physicians improved their skill in percussion they would not make much progress. He remarked on a patient who was gaining weight until tuberculin treatment was started, when emaciation set in. The treatment was regulated by ausculation only.

Dr. RIVIÈRE said one was apt not to differentiate between tuberculous infection and tuberculous disease. Symptoms had to be carefully inquired into also in diagnosis.

Dr. BRUCE was of the opinion that the caseating gland in the fatal case could have been easily made out. He did not believe that fluids could be differentiated by the *x*-ray unless one could do so from the condition of the viscera. He said catarrhal but not fibroid changes could be diagnosed.

SECTION OF SURGERY.

Wednesday, July 29—First Day.

The Etiology and Treatment of Carcinoma of the Tongue.—Mr. W. G. SPENCER of London opened the discussion of this subject. He said that it had been the hope of those who had paid special attention to cancer like the late Sir Henry Butlin that by recognizing and removing the conditions which were destined to become cancerous, or what practically came to the same thing, cancer in its earliest stages, a safe cure without deformity might be insured. This would offer an escape from the vicious circle of severe and deforming operations, so often followed by recurrence because done too late. Owing, however, to the introduction of fresh methods of treating inflammatory conditions, such as the administration of salvarsan, exposure to radium *x*-rays, further hindrances to the incision of cancer in the earliest stages had arisen. It was a fact of first importance that an inflammatory condition existed on the tongue for a time before carcinoma actually commenced. Such lesions were well known under the names of chronic superficial glossitis, leukoplakia, papilloma or wart, chronic ulcers or fissures, and irritable scars. There were causes of delay which are due to patients; but there are also many of these in which the disease had for some time been under the observation of a medical practitioner. In the syphilitic lesion the Wassermann reaction was now an aid to diagnosis and salvarsan has proved a valuable adjunct to mercury in clearing away chronic affection, which otherwise would have gone on to cancer. But salvarsan had no influence on old standing lesions and certainly none when a new growth was about to begin unless there was an absolute improvement, going on to healing, within a fortnight of the administration of salvarsan recourse should be had to surgery. Smoker's patches should disappear on the cessation of smoking, if not, cancer might supervene, it might be years afterwards. A dental ulcer should heal at once on removal of the offending tooth. In one case five weeks after the bite the ulcer after excision, was found to exhibit commencing epithelioma. Two other cases in which the date of the bite was definitely fixed at ten weeks before that of the excision of the ulcer, epithelioma had already become widely diffused, and both died from secondary disease which appeared beyond the limits of

the extensive excisions. Oral sepsis was a grave complication increased in rate of growth of the cancer. But whether the oral sepsis *per se* was a cause of cancer in the mouth was a different proposition altogether and one which appears to be non-proven. The lesions which went on to cancer were marked by a proliferation in the epithelium and at first there was no change in the subepithelial tissue. There followed a small cell infiltration of this subepithelial tissue and next a down growth of epithelium. When this last had occurred it must be assumed that among the small round cells there were cells derived from the epithelium which would later prove epitheliomatous. There followed in the lymphatic sinuses of the lymph glands which received lymphatics from the affected portion of the tongue a collection of small round cells. Here it was also necessary to assume that some of these small cells were descendants of epithelium, which would develop epitheliomatous characteristics. But clinical observation tended to support the further assumption that at this stage of the disease, no epitheliomatous cells had been arrested in their course to the lymph gland. The exceptions were cases when the malignant disease diffused widely from the first but these were hopeless. A case quoted had a primary growth on the tongue which only measured 1.5 cm. in diameter, yet malignant glands in the posterior triangle of the same side had already become inoperable, having partially broken down and a foul sinus having formed.

The term precancerous is too indefinite a term and it was best once for all to include the zone of small cell infiltration as part of the cancer. This was comprised by the observations of E. Bashford and A G Murry on the transmission of squamous cell cancer in the mouse. Superficial lesions in which the small cell infiltration of the subepithelial tissue was absent showed no tendency to develop epithelioma in the specimens exhibited. Removal of the chronic lesions by excision were free from risk—when the patch was small and single there was no impairment in the movements of the tongue—generally, one should avoid removing more epithelium than was necessary in order to avoid loss of articulation and difficulty in swallowing. The patient's enjoyment of life and his occupation demanded consideration. The best way of recognizing that epithelioma had already invaded the subepithelial tissue, was in a microscopic section made immediately from the piece excised, the surgeon waiting and the patient being kept under the anesthetic. This overcame the very real objection that the patient might refuse to undergo a second operation until too late. When the cancer was found to have already invaded the subepithelial connective tissue, the portion of tongue incised should be enough to include all the small cell infiltration. The surgeon should then proceed to a dissection of the anterior triangle of the corresponding side. This dissection should be restricted to the lymphatic glands above the omohyoid muscle along with the platysma and deep fascia. But in the stage of the disease above mentioned the mylohyoid muscle and hypoglossal nerve should be spared in order that the patient might recover food articulation. Also there should be no communication opened up with his mouth and then the wound in the neck might be expected to heal by first intention. The additional dissection of the opposite anterior triangle was indicated whenever the disease approached to or lies across the middle line. Cases were quoted and the specimens of the diseased shoulder from the patients who had remained not only without recurrence but without any impairment of speech and swallowing. But when the epithelioma had already invaided the muscular substance of the tongue, and further when the corresponding lymphatic glands also showed an epitheliomatous invasion then it was necessary to remove the disease *en masse* or *en bloc*. Some favorable cases on freedom from recurrence might be insured without importantly impairing the patient's power of articulation. But the more extensive operation involved an immediate risk to life, impaired articulation and deglutition and the patient was liable to suffer from recurrence, even many years after. Perhaps the most distressing feature in the advanced stage of the disease was the suffering of the patient in whom there is recurrence. These larger operations involved variations in procedures about which there might be wide differences of opinion. Among such questions were: (1) How far might the more typical operation be modified to meet emergencies in individual cases? (2) Should the sternomastoid muscle and the spinal accessory nerve be moved along with the glands lying underneath? (3) Should the internal jugular vein be excised? (4) The ligature of the common carotid and of the internal carotid seems to be always contraindicated. (5) The extension of the dissection to the root of the neck is a dangerous procedure but it might be proper to run the risk. Division and excision of a portion of the mandible increased the danger; the excision of one-half of the mandible appeared safer. (6) The horizontal division of the cheek caused a deformity and did not appear to have any redeeming advantages. (7) A preliminary laryngotomy was of great value in important cases. Owing to the difficulty of introducing the tube in such cases intratracheal insufflation involved more risk. Intravenous ether anesthesia in skilful hands had advantages when a preliminary laryngotomy was unnecessary. Preliminary injection of morphine appeared objectionable as impairing respiratory movement after the operation. (8) It was advantageous to diminish raw surfaces by applying sutures between the remaining portions of the tongue and the buccal mucous membrane, also by inserting deep sutures to shut off a communication between the mouth and neck. (9) Difficulties with food after the operation were best overcome by a tube passed through the nose. A catheter kept in the esophagus was objectionable; preliminary gastrostomy was preferable.

The results of operations might be summarized as follows: (a) The incision of chronic lesions of the tongue was wholly successful before the epitheliomatous invasion of the submucous tissue had occurred. The patient would remain free provided that the original cause did not produce fresh patches on the tongue. (b) Incision of an epithelioma, including the zone of small cell infiltration together with the corresponding lymphatic glands was successful when the epithelioma had not already extended into the muscular substance of the tongue, and when the lymphatic glands had not been invaded by actual epithelioma. The operation did not invoke risk to life. No important deformities persisted; the patient need not fear late recurrences. (c) When epithelioma had infiltrated the muscular substance of the tongue, and when there is already an epitheliomatous infiltration of lymphatic glands, then varying with the extent of the operation and the condition of the patient previous to the operation, there was a risk of death after the operation, and deformity followed. In the less malignant cases there was a prolongation of life, but the three years limit passed, there was still no certainty that late recurrence might not supervene. A few cases, of which instances were quoted, were benefited by secondary operation and they might even be thus freed from the disease.

In the palliative treatment of inoperable cancer, the greatest relief was afforded by reducing the septic decomposition on the surface by continuous use of non-irritating antiseptics, and the administration of opium, aspirin, phenacetin, etc. There seemed important drawbacks to other proposals, the division of the lingual nerve was useless; drugs tended to excite the development of the lymphatic glands, also radium inserted caused great pain, and might be followed by rapid infiltration as in the cases cited; diathermy affords temporary relief by killing the organism on the surface, but its use was necessarily occasional, whereas antiseptics can be used continuously; adrenalin injected to reduce congestion, favored necrosis and so made things worse.

The Lymphatics of the Tongue.—Professor J. KAY JAMIESON and Dr. J. F. DOBSON of Leeds read this paper. They said that the primary glands were the submental, submaxillary, and some members of the deep cervical chain, i.e., the jugulodigastric gland, the members of the upper deep cervical group on the great vessels at and below the level of this gland, and some members of the lower deep cervical group notably the jugulo-omohyoid gland, the anterior outpost of this group lying on the central tendon or anterior belly of the omohyoid. There were three sets of vessels, marginal, central, and posterior which ran to the primary glands without interruption. The marginal vessels ran through the mylohyoid close to the jawbone and along with the lingual blood vessels. The central vessels draining the greater part of the upper surface descended in the middle line between the genioglossi and then turned out with the lingual blood vessels. The posterior vessels from the region of the circumvallate papillæ and back of the tongue ran towards the hyoid and then turn outwards to pierce the pharyngeal wall below the tonsil to reach the deep cervical glands. Vessels from the tip and region of the frenum might cross the middle line and reach glands of the opposite

side. Some central vessels from the right side of the dossum turned outwards to the opposite side glands. Posterior vessels near the midline often bifurcated and reached the glands of both sides. Only the lateral marginal vessels were confined to one side in distribution to the glands. The vessels ended in the following way. The deep cervical glands (jugulodiastric, jugulomohyoid, and the glands between them) received vessels from all parts of the tongue; the submaxillary from the whole area in front of the circumvallate papillæ and the submental only from the tip and region of the frenum. It was to be noted that the most posterior marginal vessels, and the posterior vessels might wind round the outer side of the external carotid artery on their way to the deep cervical glands. In cases of cancer of the tongue adequate removal of the glands diseased or likely to be diseased could only be effected by an operation performed on the lines of Crile's block dissection. A bilateral gland operation was indicated in a growth of the tip, frenum, or back of the tongue, and in cases of growth commencing on the lateral border but extending towards the middle line. The unilateral operation should be reserved for cases of early growth of the lateral border of the tongue.

Dr. C. P. CHILDE of Southsea advocated the dual operation, and whenever the patient's general condition was sufficiently good he preferred to do the operation at one sitting in the following order: removal of glands and lymphatic tissue, ligature of lingual artery or arteries, excision of the tongue wide of the disease. In cases involving the floor of the mouth, the lymphatic glands on both sides required removal, and this procedure as a rule necessitated a two-stage operation. He laid stress on the urgent necessity of early operation on cancer of any organ, and submitted a leaflet issued by the Town Council of Portsmouth for the education of the public in regards to early signs of cancer.

Mr. E. HEY GROVES of Bristol advised division of the lower jaw because of the free access to the front of the tongue and to the floor of the mouth thereby obtained. The section should be V-shaped so as to insure exact coaptation and easy fixation with a wire suture. In his opinion the best mode of administration of an anesthetic is the intratracheal.

Dr. T. K. DALZIEL of Glasgow laid stress on the frequent presence of an infected gland close to the mastoid process at the base of the skull. He cited cases in which he had successfully removed the tongue, pharynx, and larynx for cancer of the base of the tongue. In the after treatment the mouth was treated as a large granulating area by gauze packing, food being given through a nasal tube, and breathing carried on through a tracheotomy tube.

Mr. MCADAM ECCLES of London drew attention to conditions precedent to the invasion of cancer as illustrated by multiple papillomata of the bladder due to infection from the *colon bacillus*, and skin lesions of the digits induced by exposure to *x*-rays. In each of these examples there was a source of chronic irritation; but only a proportion of the morbid patches became cancerous. With regard to operation his practice was to remove the glands before excising the tongue.

Prof. CAIRD of Edinburgh said it was well to have an opportunity of exchanging experiences and he apologized for dwelling upon his own, although they might present some geographical variations from what had been so ably submitted by Dr. Spencer. His belief was that the diagnosis of lingual carcinoma was easy, and that, moreover, no morbid tissue was more readily recognized under the microscope. All the so-called "precancerous conditions" he had encountered either had been already malignant, or remained simple and yielded to simple treatment under observation. He had not found that syphilis played the rôle so frequently attributed to it as a factor. He now generally employed novocain as a local anesthetic, and with it, it was possible to carry out most complete intrabuccal operations without pain or difficulty. In every case he removed the entire half, or both halves, of the tongue at the first sitting, as by so doing the septic original focus was got rid of, and there could be no further propagation by the lymphatic channels from that source. No gag was required, and Whitehead's or Syme's method was selected according to the requirements of the case. After 10 days, under general, or with local, anesthesia all the lymphatic structures along with the submaxillary and a portion of the parotid glands and such veins as were in too suspicious proximity, were removed in one sheet from the submaxillary region to the sterno-clavicular articulation. The identification of the lymphatic structures was easier at the second sitting from the inflammatory reaction which followed on the primary removal of the tongue. At the second sitting it was well to open into the mouth, thus dealing with any remains of the hyoglossus and lymphatic elements about the mylohyoid muscle. The mortality of such operations was remarkably low, but unfortunately the ultimate prognosis was very uncertain, the most promising cases turning out badly and *vice versa*. Recurrence was frequent, but rarely occurred in the mouth or vicinity of the hyoid bone; it rather favored the lower postauricular area. He only removed the lymphatics on both sides of the neck when very definite indications for this course were present.

Mr. A. LUCAS of Birmingham had found a high proportion of his cases of cancer of the tongue giving a previous history of syphilis; and he also noted that arterial sclerosis was a common concomitant.

Mr. SPENCER briefly replied on the discussion. He held that permeation of lymphatic vessels by cancer cells was certainly not true in the early stage of lingual cancer; and he believed that division of the jaw added to the risks of operation, and was not infrequently followed by necrosis.

The Newer Indications for Removal of the Spleen.—Mr. SIDNEY A. BOYD of London read this paper. He said that for many years splenectomy had been performed for various pathological conditions localized to the spleen, but more recently a number of medicosurgical conditions had been treated by splenectomy with considerable success. A brief account of these conditions was given and the indications for operation were discussed: (1) *Splenic anæmia.*—The term was restricted to those cases which showed an enlarged spleen with oligocythemia, a low color-index, no leucocytosis but usually leucopenia, and a tendency to gastrointestinal hemorrhage and to pigmentation of the skin. "Banti's disease" was the terminal stage of splenic anemia and was characterized by the same symptoms with, in addition, cirrhosis of the liver, ascites, and sometimes jaundice. The treatment of uncomplicated splenic anemia is splenectomy, which should be performed as soon as the diagnosis is made. Apart from operation the disease, although protracted, was progressive and eventually fatal. A successful result was much more likely if the operation was done before the onset of cirrhosis and ascites. Nevertheless, even in this late stage, the operation afforded considerable hope of success. (2) *Chronic acholuric (hemolytic) jaundice.*—This disease differs from splenic anemia in that a hemopoietic reaction was shown by the blood-forming organs, whereas in splenic anemia there was aplasia of these organs. There were two main types, acquired and non-acquired. The latter might be either congenital or familial. In both types there was enlargement of the spleen and anemia, which might be severe, and often there was an increased fragility of the red cells. The acquired cases usually terminated in from six to twelve years in cirrhosis of the liver and ascites, and the non-acquired might end in the same way. Splenectomy had give most encouraging results in both types of the disease. The author referred to a case of his own successfully treated by splenectomy. (3) *Pernicious anæmia.*—The occurrence in some cases of pernicious anemia of increased fragility of the red cells, increased hemolysis, and acholuric jaundice point to the possibility of a common origin with acquired hemolytic jaundice. Histologically, the spleens are very similar. Hence it was not surprising that splenectomy had proved highly beneficial in several cases of pernicious anemia, and the operation was to be recommended, especially in those cases which showed increased hemolysis. The blood picture after a successful splenectomy in these cases differed from that which occurred in the natural remissions of the disease. (4) *Splenic anemia of infants.*—This was a disease occurring in children from six months to two years of age, often with a syphilitic taint, and was characterized by severe anemia, enlargement of the spleen and sometimes of the liver, oligocythemia with presence of normoblasts, and myelocytes, and leucocytosis. Many cases recovered under medical treatment, but the mortality was high. Two cases at least had been treated successfully by splenectomy. The operation should be performed if the child was going down hill. (5) *Gaucher's disease.*—This was a rare affection with an insidious onset, usually before the age of twelve years. There was progressive enlargement of the spleen and liver and pigmentation of the skin of exposed parts.

There was a simple anemia with leucopenia and a tendency to hemorrhage from nose and gums. Brill's sign might be present and be pathognomonic. The pathological changes in the spleen were characteristic. Splenectomy had proved more beneficial than any other form of treatment, but should be performed early. (6) *Cirrhosis of the liver.*—In both Lænnec's cirrhosis and hypertrophic biliary cirrhosis there was reason to believe that the condition of the liver might be unfavorably influenced by the state of the spleen. Splenectomy should be given an extended trial in both conditions. The author referred to a successful case of his own of "splenomegalic cirrhosis," and discussed how splenectomy produced its favorable effect in cases of cirrhosis with ascites. (7) *Acute yellow atrophy.*—There was some evidence to show that splenectomy might prove valuable in these cases. (8) The question of operation in cases of simple splenomegaly was dealt with and the author concluded that it should be performed if the enlargement was progressive or if the general health was deteriorating without any other known cause. The mortality of the operation of splenectomy was discussed, and by performing it in the early stages of the diseases in which it is indicated, he thought it could be reduced to 5 per cent.

Practical Considerations in the Diagnosis and Treatment of Abscess of the Cerebellum with a Record of Cases Subjected to Operation.—Sir WILLIAM MILLIGAN of Manchester read this paper. He said that whereas it was generally taught that cerebral abscesses occurred twice as frequently as cerebellar, his own experience was singular in that he had seen three times as many cerebellar as cerebral abscesses. The largest number of cases were found between the ages of ten and thirty, males being affected twice as frequently as females, and in his experience abscess on the left side was twice as frequent as on the right. In acute cases the usual sequence was the formation of an extradural abscess in the posterior fossa, or thrombosis of the lateral sinus, with secondary infection of the brain. In chronic cases, labyrinthine suppuration was the primary condition. Hence the importance of differentiating between cerebral, cerebellar, and labyrinthine suppuration. No sign was of more value than nystagmus, when properly interpreted. He analyzed this sign in detail, and discussed the caloric tests by hot and cold water. The coordinating functions of the cerebellar hemispheres were considered, and also the disturbance of equilibrium induced by localized lesions, and the significance of Barany's pointing-by test. He considered the ideal route of approach to the usual site of a cerebellar abscess (anterior part of lateral lobe) to be through the posterior wall of the petrous bone in the space between the lateral sinus and the internal auditory meatus; and he preceded the exploration by withdrawing a few drams of cerebrospinal fluid by lumbar puncture in order to lower intracranial pressure, and thus obviate the well-known risk of sudden respiratory failure. To facilitate drainage of the abscess he made a counteropening behind the groove of the lateral sinus. During the last ten years he had operated on 27 cases (17 males, 10 females), of which 20 were cases of cerebellar abscess on the left side and 7 on the right; the results of the operation were 17 cures and 10 deaths.

Three Cases of Abdominal Aneurysm Treated by Operation.—Mr. DE C. WHEELER of Dublin gave a description of the end results of three cases of abdominal aneurysm treated by operation. One case was alive and well nearly four years after operation; a second was seen eleven months afterward and was then apparently well—all signs of the tumor had disappeared. The third case died from rupture of the sac secondary to intestinal obstruction on the fifth day. In each case Colt's apparatus was used. Mr. Wheeler thought there was now no alternative to the coiled wire recommended by Colt, and deprecated the use of electrolysis. It was necessary to be certain by a free flow of blood that the cannula was in the lumen of the sac before introducing the wire, otherwise the latter might penetrate among the laminated clots and not enter the cavity of the sac. The "gall-bladder" position of the patient facilitated the operation. A striking feature in each case was the internal pain in the back from which the patient suffered before operation—due according to the speaker to the tugging and stretching of the peritoneum of the posterior parietal wall. The patients were treated with salvarsan and mercury, and horse serum was injected by Mr. Wheeler before the operation in order to promote coagulation.

Thursday, July 30—Second Day.

The Surgical Treatment of Arthritic Deformities.—Mr. ROBERT JONES of Liverpool opened the discussion of this subject. He said that cases classified as tuberculous were often hereditary, septic, or nervous in origin, but they really all presented similar deformities. These deformities might appear early or late. They always reflected discredit upon somebody. Prevention of deformity was more important than its correction. The essential symptom of arthritis was limitation of movement in each direction. In view of the possibility of ankylosis, the surgeon must place the joint in a position of maximum use. Full extension was best for the hip and knee though a little flexion was no disadvantage. The ankle should be fixed to a right angle and the elbow to an angle slightly less than a right angle; the wrist should be kept hyperextended. Tuberculous deformities in the young should be corrected in the active stage, without excessive force, slowly and gently. When the deformities were fibrous in character, mechanical measures were sufficient to overcome them. More radical measures were necessary when long deformities had taken place. Bony ankylosis was rare in children. Fibrous or unsound ankylosis increased with use while bony or sound ankylosis was fixed. Tuberculosis in the young was benign and tractable; in the adult it is very different and required early and radical treatment. Manipulation, osteotomies, wedge exsections, exsections of joints, pseudoarthroses, arthroplastics, and transplantations were the procedures used for deformities in the short fibrous and osseous type. Manipulation with extension was used in young children. Osteotomy was best employed on the femur for deformities of the hip or knee and was most successful when the ankylosis is bony. Transtrochanteric section should be used if the neck was not absorbed, a wedge-shaped osteotomy being performed through the base of the trochanter if absorption has taken place, but it should be wedge-shaped to secure sufficient abduction; the operation must not be performed if the flexion was acute. Subtrochanteric division should be reserved for cases of unsound fibrous ankylosis when flexion was not very marked. In bony ankylosis of the knee, a suitable anterior wedge should be removed, the apex ending ½ inch anteriorly to the popliteal space, the remaining bone being divided by the saw. In bony ankylosis of the shoulder osteotomy of the neck should be perfomed and the arm rotated inwards and abducted forwards. Of recent years an attempt had been made to mobilize ankylosed joints. Arthroplasty entailed separation of the bones by manipulation and chisel. The bones were remodelled and covered with a flap of tissue. It was immaterial what tissue was used for the flap. It was difficult to obtain good results in the knee as the joint was largely held together by intraarticular ligaments and cartilages. Bony spinal fixation was an ideal operation in an adult with deformity of the lower lumbar region. Bone grafts were laid on the bare laminæ and covered over by muscle. Deformities of the rheumatoid or septic group once the disease had ceased were amenable to radical measures. Deformity must be anticipated, and safe and effective methods used to restore the stability and functions of the joints. Arthoplasty was useless without stability. Deformities were preventable; in view of ankylosis the joint should be fixed in a position of greatest functional use. Osteotomies and exsections of bone were rarely acquired in children. In septic and tuberculous joints the deformity could be reduced if immediately followed by fixation. Osteotomy should be performed in sound fibrous ankylosis of the hip with adduction. The site of osteotomy depended upon the nature of the ankylosis and the extent of the deformity. It should be accompanied by division of the adductors. Arthroplasty of the hip joint was often valuable and successful. It should not be performed in children or in the presence of active disease. The best results had occurred after septic cases. In osteoarthritis of the hip we now had many procedures to give relief by preventing the friction of tender joint surfaces.

Mr. C. MAX PAGE of London referred to the interesting commentary Mr. Jones' paper afforded on that read by Dr. Murphy on arthroplasty, before the Clinical Congress of American Surgeons on Monday last. He then referred to the fixation of the knee and shoulder joint in the course of tuberculous disease in those regions in children. He mentioned in relation to the knee the difficulty commonly met with in maintaining the limb in a proper position by the usual forms of splintage, and referred to an apparatus described by

himself in the January Proceedings of the Royal Society of Medicine as being useful for this purpose. In the course of tuberculosis of the shoulder joint he emphasized the importance of maintaining the arm in a position of abduction of at least 45°. He then asked Mr. Jones whether in cases of "sound" ankylosis of the hip joint in which there was little destruction of the head and neck of the bone he did not think manipulative reposition was not more satisfactory than subtrochanterie osteotomy. With respect to the shock associated with operations on the large joints he said he had found that spinal anesthesia greatly reduced it.

Mr. JOHN MARNOCH said that in arthroplasty of the elbow he had once or twice found considerable difficulty in getting sufficient fat and fascia from the neighborhood, and in his last case he took a free flap of fascia. He found this answered admirably, the flap fitted beautifully over the end of the humerus, adapting itself to the undulating articular surface, and the result was exceedingly good.

Mr. MCADAM ECCLES of London emphasized the point which Mr. Robert Jones has made as to the position in which the wrist-joint should be placed when infected by organisms, particularly by the gonococcus, namely, the position of dorsiflexion. Disease of this joint was usually treated by the general practitioner. For this reason it was necessary that the proper position should be widely known because extension or even palmar flexion was often used. The speaker suggested that in joints which had become ankylosed, in which it was desired to obtain and maintain free movement the placing of the tissues of an enlarged bursa patellae from another person between the bone surfaces should be tried. The bursa might even be used without being opened, the bursal edges being stitched to the edges of the periosteum of the bone. The line of section of the femur parallel to Poupart's ligament in ankylosed hip was approved.

Prof. J. T. J. MORRISON of Birmingham referred to the severe shock induced by operations on the upper end of the femur in elderly patients under general anesthesia, and advocated in such cases the method of spinal anesthesia by trypococaine as an effective means of preventing shock. He mentioned that Mr. Robert Jones was the first British surgeon who published his results of operations under spinal anesthesia.

Mr. J. DEC. WHEELER described a case of "cheilotomy" of the hip and knee in a girl crippled from rheumatic arthritis. The neck of the right femur was surrounded by a collar of bone causing great pain, and inhibiting movements in all directions. No weight could be borne on the limb. The knee joint on the opposite side was also the site of osseous outgrowths and was semiflexed. The girl for seven years was only able to get about with the aid of crutches, and with great pain. The ring of bone was removed from the neck of the femur through a Kocher's posterior incision and the other was similarly treated; all pain instantly disappeared, and the girl was now walking freely without crutches. The movements of the joints were normal.

Mr. HEY GROVES, and Mr. H. M. W. GRAY, also took part in the discussion.

New Appliances Used in the Operative Treatment of Fractures.—Mr. HEY GROVES of Bristol demonstrated and described these appliances. They consisted of the following: (1) The double transfixion apparatus for leg fractures, improved by the addition of a socket ¾ of an inch long exactly fitting each transfixing pin, and thus ensuring the requisite parallelism of the pins. The apparatus permitted of massage, and during the three or four weeks it was worn the patient got about on crutches. (2) Tapped plates with converging screws suitable especially for the humerus, and securing stronger fixation than was obtainable by simple plates and screws. (3) Bolted plates modified by making the nuts round, and cut like screw heads. They were tightened by a tubular screw driver and the projecting ends were cut off when firmly adjusted. (4) A new circular saw for bone work in connection with osseous grafts. It worked by means of a bevelled cog parallel with the handle or cable, and it could be carried to the bottom of a deep wound in a way not possible where the blade was at right angles to the shaft.

Mechanical Considerations of the Human Foot with Special Reference to Flat Foot.—Mr. H. S. ROWELL of Leeds read this paper.

Pott's Disease in Cervical Region, with Methods of Bony Splinting.—Mr. A. DON of Aberdeen read this paper. He briefly referred to Hibbs' method of fracturing the base of the spine above a diseased vertebra and turning it down to unite with the body of the vertebra below; and to Albee's method of splitting the spinous processes and grafting a piece of bone from the tibia. Both these methods are satisfactory in the dorsal region. The writer's method for the neck was as follows: The spines from the seventh to the second were exposed by a central incision; the seventh and under surface of the second were cleared of periosteum; a piece of rib was excised subperiosteally, and a hole drilled in the wider end so that the seventh spine could be slipped through the hole like a button, the upper end of the rib being fitted into the groove below the second spine and secured with a stitch. If the second spine was not available owing to disease, the rib was fixed to the base of the skull. He gave notes of a case in a boy of 14 successfully treated by the method described.

Friday, July 31—Third Day.

Anoci-Association, or the Evolution of the Shockless Operation.—Mr. H. M. W. GRAY of Aberdeen opened the discussion on this subject. Local anesthesia, he said, was the chief factor in the prevention of surgical shock, and general anesthetics and narcotics were merely adjuvants. Novocain in weak solutions of ¼ to ½ per cent. was non-poisonous both locally and remotely; whereas ether and chloroform injured the brain cells. Morphine prevented cerebral irritation, and was therefore preferable to general anesthetics. Prevention of mental excitement was nearly as important as prevention of pain, and was achieved by the use of sedatives. Dr. Crile's work was highly eulogized and stress laid on the procedures which were ancillary to the infiltration of tissues with novocain. The preparation of the patient should not be overdone. After the injection of an opiate it was well to cover the patient's eyes with pads and to stop his ears with moist cotton wool. Cutting instruments must be sharp, and rough handling, tearing, or pulling of tissues, especially of the peritonium and mesentery, avoided. Too hot, cold, or strong liquids readily produced shock; physiological salt solution at 100° F. usually sufficed for irrigation. Suitable clothing and warmed air were important. Hemostosis was imperative, as loss of blood might turn the scale in some cases. Proper suturing and dressings were not insignificant, and firm compression of a wound prevented effusion. The use of a general anesthetic should be dispensed with as far as possible. Ether, by the open method, might be retained, but only negligible quantities were required in combination with narcotics and local anesthesia.

In abdominal work the intercostal and lumbar nerves were blocked near the costal margins and far back in the loins, and the line of incision was also infiltrated. Five or six skin blebs were first made with a fine needle, and through the blebs injections were given by larger needles down to the peritoneum. At this stage a small amount of ether might be required. After ten to fifteen minutes the operation might be begun. Further injections might be made into the peritoneal attachments of the organs to be operated upon. The pulse rate gave a fair indication of the degree of shock. The following table showed the average pulse rate in sixty patients:

Patients	Before incision	Abdomen opened	Skin sutured	Evening after operation
With infiltration of line of incision only	89	95	94	95
With blocking of abdominal parietal nerves.....	94	87	80	85

Patients thus treated had a feeling of well-being immediately after operation; many continued sleeping for hours; others were soon able to have a meal or read a newspaper. The anesthetic solution consisted of novocain ¼ per cent., potassium sulphate 4 per cent, and twelve drops of synthetic adrenalin to 100 c.c. of solution. This compound was preferable to urea and quinine. The syringe had a capacity of 40 c.c. A Schimmel's needle was used for making the blebs, and a long strong needle in a bent nozzle for the deeper injections. If the pulse tended to flag the best restorative was a saline infusion. Transfusion of blood should be resorted to if shock threatened after an operation. In more than 2,000 abdominal sections during the last three years the author had records of only two cases of postoperative shock.

Mr. C. A. PANNETT of London restricted his remarks to the problem of preventing shock in abdominal operations. He had made an experimental investigation to measure the efficiency of Crile's technique by determin-

ing whether impulses were prevented from reaching the medullary centers. The criterion relied upon was the disappearance of vasomotor and respiratory reflexes during the manipulations. He arrived at the following conclusions: (1) Stronger impulses resulted from handling the viscera than from the incision into the abdominal wall. (2) Impulses from the viscera, therefore, more essentially required blocking. (3) In animals, impulses from the stomach could be blocked by a ¼ per cent. solution of novocain injected into the attachments of this viscus. (4) Impulses from the intestine could be similarly blocked. (5) Impulses from a middle line incision were effectively blocked by Crile's technique. Infiltration of a middle line incision lessened shock by eliminating afferent impulses; it abolished the reflex inhibition of peristalsis; and it prevented the reflex rigidity of the abdominal muscles. A serious limitation to the use of local infiltration was imposed by the presence of sepsis, for it was not permissible to risk the dissemination of organisms by thrusting the needle through infected tissues.

Mr. CUTHBERT of Gloucester had used Crile's method extensively, and he strongly supported the practice of local anesthesia.

Mr. DEC. WHEELER of Dublin thought that general anesthesia would cease to be used except in special cases or as an auxiliary to local anesthetics. Precision and gentle handling during operation were essential factors in the prevention of shock.

Mr. A. DON of Aberdeen pointed out that anoci-association not only caused blocking of impulses to the brain, but also had the merit of making an operator more gentle in his manipulations.

Mr. M. FERGUSON of Banff had employed Mr. Gray's technique for three years and was satisfied that it was preferable to Crile's method.

Prof. J. T. J. MORRISON of Birmingham called attention to the wide and increasing choice of anesthetic agents and methods available in recent years, and deprecated a too rigid adoption of one method to the exclusion of others. In particular he thought that spinal anesthesia deserved a high place in the surgeon's equipment. Compared with general anesthesia it was a preventive of shock; and compared with local anesthesia it had the merits of simplicity and time-saving, a single puncture and the injection of 20 drops of tropococaine solution inducing analgesia within three minutes. Moreover, the puncture was made remotely from the abdomen and lower limbs where the field of operation often included septic tissues which prohibited the use of local injections.

Appendicitis and Acute Appendicular Obstruction.—Mr. D. P. DALBRECK WILKIE of Edinburgh read this paper. He maintained that the most important problem at the present time in regard to acute appendicular disease was its early and accurate diagnosis. This becomes inevitably easier if we clearly distinguished between the two acute diseases to which the appendix was subject, namely, acute inflammation and acute obstruction. In cases of acute inflammation of the appendix a prompt rise of pulse and temperature was invariably present; in cases of acute obstruction of the appendix such was not the case and the local pathological changes might reach an advanced stage before the signs of inflammation supervened. He brought forward experimental evidence to show the changes which followed acute obstruction of an isolated portion of the intestine such as the appendix. The changes depended mainly on the content of the appendix at the time the obstruction occurred. The presence of fecal matter and its nature and amount largely determined the rapidity of the destructive changes which folowed obstruction. The previous diet of the animals had a very important relation to these changes, which were more rapid and of a gangrenous type in those on protein diet and slower and less fatal in those on carbohydrate diet. The prevalence of appendicitis among western nations was probably attributable to the large percentage of animal food in their dietary. The rarity of such disease in its acute and fatal form among eastern peoples was, on the other hand, probably due to the more bulky vegetarian diet which was customary among them. For the same reason acute gangrenous appendicular obstruction was more commonly met with in the male than in the female sex. Whilst immediate operation was the only safe treatment in cases both of inflammation and of acute obstruction of the appendix, it was much more urgently required in the latter; hence the importance of clearly distinguishing between the two diseases.

Therapeutic Hints.

The Treatment of Seasickness.—L. Pron outlines this treatment as follows: The diet should be light and a purgative should be taken the day before embarkation. With the onset of the attack of seasickness the patient should be placed in the Trendelenburg position and the abdomen should be firmly compressed by means of a flannel bandage. The patient should be made to take deep and frequent inspirations in order to diminish the excitability of the vomiting center. The following should be administered::

℞ Powdered nux vomica, 0.02 gram.
Extract of belladonna, 0.01 gram.
Stovaine, 0.01 gram.
Extract of hyoscyamus, 0.05 gram.

This should be given in pill form one hour before embarkation and then three times a day.

Burwinkel, regarding seasickness as the result of a vascoconstruction in the nerve centers, recommends the following:

℞ Alcoholic solution of glyceryl trinitrate, 20 drops.
Distilled water, 150 c. c.

Of this solution there should be given one to four teaspoonfuls in twenty-four hours.

One may try likewise the inhalation of five to ten drops of amyl intrite three or four times in twenty-four hours.

Naame has suggested the use of suprarenal extract in three doses of 2 milligrams each as a preventive, to be taken respectively after the last meal preceding embarkation, three hours later, and then when on board ship. Six milligrams should be taken in one dose upon the onset of an attack after the stomach has been emptied.—"Formulaire de Thérapeutique Clinique."

Charcoal in the Treatment of Membranous Enterocolitis.—A. Rodiet reports excellent results following the treatment of this usually intractable condition by means of large doses of poplar-wood charcoal. From two to four tablespoonfuls of the latter are given daily, mixed with water and administered after the midday and evening meals. The efficacy of this remedy is said to be due to its power to absorb gases from the stomach and intestine, to its antiseptic effect, and to its action in stimulating the contractility of the stomach.—*Journal de Médecine de Paris.*

Hypodermic Injections of Hexamethylentetramine in the Treatment of Typhoid Fever.—J. Baumel states that this method of treatment was first tried in 1913 by Triboulet and Levy who administered doses varying from 1 to 6 grams per day. The solutions used were sterile and were of a strength of 0.40 gram per cubic centimeter. The results were apparently quite satisfactory in twelve cases. The author employed the same method of treatment in eleven cases of typhoid fever, of which two were severe from the outset, in one case of infection with the *Bacillus paratyphosus* β, and in two cases of Malta fever. The study of these cases showed that hexamethylentetramine has no pronounced effect upon the symptoms of the above diseases, nor does it prevent complications. The treatment is apparently of value in cases of typhoid cholecystitis. The injections are painful. Small doses of 0.80 gram are no less efficacious than large doses of 4 grams.—*Bulletin Général de Thérapeutique.*

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Original Articles.

INTESTINAL INTOXICATION.

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THE study of the visceral nervous system, particularly from a pharmacological viewpoint, could not long continue without some import to the clinician. With the recognition of the antagonistic position of the sympathetic division of the vegetative nervous system toward the autonomous, an attempt was made to study pharmacodynamically, also those numerous nervous phenomena caused by the terminal filaments of the vegetative nervous system and not directly by the organs enclosing them.

With the above in view, Eppinger and Hess succeeded in separating from the great number of intestinal neuroses an independent pathological condition, the vagotony. By the aid of exact pharmacological examinations and by various other means they were able to demonstrate that of the two antagonists constituting the visceral nervous system, the one, the autonomous division, is much more sensitive and more readily responsive to irritation than the other, the sympathetic: so that even the normally mildest of physiological stimulations affecting the first suffice to disturb the equilibrium maintained by the two opposing forces.

It must especially be emphasized that a high tonus of the entire autonomous system is not of frequent occurrence. On the other hand, varying increments of irritability of individual branches of the system are a common concomitant of pathological conditions. While studying the various features of a case the pathogenic element may very frequently appear preeminently conspicuous and seem of such importance as to apparently overshadow the others (as, for instance, in vagotony-intoxication by vagus irritants); but, in our opinion, even the purely nominal division or classification of the individual symptoms into autonomous and sympathetic, in itself constitutes a marked advance for the clinic, and is of as much importance as the pathogenic element. That this classification is of considerable practical value may be seen from the circumstance that we are enabled by the help of irrelevant drugs such as atropine, pilocarpine, etc., to differentiate between depression and irritation of the diametrically opposed nervous systems, a distinction often invaluable in the direction of rational therapy.

*From the First Medical Clinic, Prof. von Noorden, Vienna, Austria.

Reviewing the various phenomena associated with disease we may soon observe that symptoms characteristic of severe general vagus irritation occur in most cases of meat or sausage poisonings. Such symptoms as bradycardia, low blood pressure, diarrhea, discharge of mucus from the lower bowel, vomiting, profuse sweating, salivation, frequently eosinophilia, spasm of the ciliary bodies, contraction of the pupils, etc., are commonly associated with the above mentioned conditions. Even to the layman such a succession of symptoms, especially if sudden in appearance, suggests the idea of poisoning.

But such violent disturbances as enumerated above, and similar to those resulting from pilocarpine poisoning, are not limited to injuries effected in the intestines by poisons introduced from without, but may also be produced by substances originating within the intestinal tract. We see this fact most clearly illustrated when considering the symptomatology of spastic constipation and its numerous complications. The close relationship between general intoxication and intestinal derangement is very plainly exemplified in those cases and can easily be verified: the proper relief from constipation will be followed by a total disappearance of all the symptoms of autonomous irritation which it caused, such as hyperacidity, hypermotility, spasms of the stomach, bradycardia, extrasystoles, etc.

The organs controlled by the terminals of both visceral nervous systems are held in readiness for contraction or relaxation. Between these two extreme states there exists an intermediate one, a state of equilibrium, a normal tone, which is dependent upon the tonic innervation of the autonomous nervous system on the one hand and of the sympathetic on the other. The force controlling the latter, the sympathetic system, is known; it is suprarenal extract. But the substance affecting the stimulation of the former system, the autonomous, is as yet unknown. However, it is very logical to assume the existence of such a body or hormone. Knowing that suprarenal extract originates in an organ capable of internal secretion, we had hoped to discover the vagotropic hormone in one of the other glands of similar function. Notwithstanding numerous attempts to detect the source of a vagotropic hormone we have met with no success. Because of the frequently simultaneous occurrence of vagotony and status thymicus we were inclined to assume the thymus as the source of origin of a vagotropic secretion, but, we must admit, without any substantial ground other than the one specified. Because of failure with glandular organs it became necessary to search for the hormone controlling the autonomous system in other parts of the organism. For this reason we turned our attention to the intestinal tract.

Barger and Dale, during their investigations of

the physiological properties of the ergot preparations have isolated from ergotoxin, which is probably composed of a number of substances, a singular body, the so-called beta-imidazolylethylamine. This body is an amino-acid-base apparently identical with histidin, a product of protein decomposition and of putrefaction. Beta-imidazolylethylamine, also called histamin, causes a number of disturbances very similar to those following the application of poisons known to be typical irritants of the autonomous system. In most animals the intravenous injection of histamin produces a depression of the blood pressure of the general circulation and a simultaneous increase of blood pressure in the pulmonary artery, a phenomenon probably brought about by the dilatation of the blood vessels of the peripheral organs. Furthermore, histamin produces spasm of the bronchial musculature, bradycardia, contraction of the virgin and non-gravid uterus, salivation, lacrymation, etc. As these symptoms may be controlled by atropine, which is a typical vagus depressant, it might have been concluded that histamin effecting them would have to be placed in the category of vagus stimulants; but such a conclusion would have been erroneous as the activity of histamin differs from that of the latter in many respects. For instance, it is known that certain doses of suprarenal extract usually producing typical blood pressure elevation in the presence of histamin not only fail to accomplish this, but react altogether differently, being actually attended by a fall in blood pressure. The irritation of the splanchnic nerves in the presence of histamin also leads to a depression of instead of an elevation in blood pressure. Only barium chloride and hypophyseal extract, which is believed to influence the smooth muscle fiber directly, effect that circulatory system with an increase in its pressure. It may be assumed, therefore, that the point of attack of histamin is not the same as that of pilocarpine or muscarine, but is confined to the myoneural zone exclusively.

Barger and Dale were able to isolate still another base from ergotin, a substance known as para-oxyphenylethylamine. This body, also named tyramin, is derived from the decomposition of tyrosin. In its chemical properties it possesses certain very definite similarities with suprarenal extract and in common with the latter, also a number of functional characteristics. Dale and Dixon have demonstrated the physiological relationship between tyramin and suprarenal extract; these two differ, according to von Knaffl-Lentz and Pick, only in their mode of attack, the suprarenal extract acting upon the central nervous system.

The discovery that such violently active poisons as beta-imidazolylethylamine and para-oxyphenylethylamine, originating during putrefaction and therefore playing an important rôle in the intestinal tract, are closely related to proteins, became of great value to the pathologist. But the fact that Barger and Dale have actually isolated histamin from normal (although not living) intestinal mucosa commanded even greater attention. These two English investigators have assumed also the substance which Popielsky had isolated from the intestinal mucosa, secretin, to be identical with histamin. Up to the present time, it has been possible to obtain from the mucous membranes of the intestines only histamin; however, no mistake would be made to assume the generation of other bases during the decomposition of the great variety of amino-acids in the process of putrefaction. Remembering that practically all bases are extremely active substances, some of which hardly differ in their intensity from adrenalin, and bearing in mind also that many of these basic substances are active irritants of the entire autonomous system, it seems justifiable to pay closer attention to those found in the intestinal tract under physiological and pathological circumstances.

The information that bases are to be found in the feces of man is not of recent acquisition. Baumann and Udransky were able to demonstrate the presence of putrescin and cadaverin in the stool of one of their patients, a case of cystinuria. Both cadaverin and putrescin are bases and products of protein decomposition. Cadaverin is a derivative of the amino-acid lysin, while putrescin finds its origin in diaminovalerianic acid. Roos was able to prove the existence of these substances also in diarrheal stools of non-cystinurics. To the writers of this paper, who are concerned only with the pharmacological action of the various bases, putrescin and cadaverin are of lesser interest and especially so since these bases when injected in small doses intravenously produce but little toxicity. The statement of Glaessner that he had been able to prove the presence of oxyphenylethylamine in the stools also deserves attention. With this information our total knowledge concerning the existence and functions of the bases in feces is practically summarized. It became, therefore, our intention to further investigate the characteristics and significance of amino-acid bases found in the stools of both normal and abnormal individuals.

Because of the enormous difficulties of the isolation from feces of individual bases we decided to confine ourselves at the beginning of our investigations to general, even if rougher figures, *i.e.* to the investigation of groups consisting of chemically related substances and not of separate bases. With this in view it seemed advisable for our purposes to make use of the method of Hausmann and Pfaundler. This method is devised for the purpose of separating the total nitrogen of urine into divisions consisting of substances similar in their constitution. For our purpose it seemed to promise the best results, but being adapted for the examination of urine only, it was first necessary to modify it so as to make it practicable also for that of feces.

In the first place we kept the patient whenever possible and compatible with the general treatment upon a definitely standardized diet. Only in those cases where some special object was to be obtained a deviation from the prescribed diet was permitted. Whenever this was done it will be specified in the following pages, as for instance, a cellulose-rich diet or a protein-rich diet, etc.

The patient's stools, generally comprising the daily output (to the actual quantity we paid no attention as the only information sought was the percentage of nitrogen distribution and not the actual quantity) were macerated, ground into a very fine mass and enough 3 per cent. hydrochloric acid added to make up the total quantity to one liter. The mixture was then placed upon a water bath and heated until it became perfectly uniform; distilled water was then added to prevent too strong concentration from evaporation. After full digestion the mixture was removed from the water bath and filtered; to the residue enough hydrochloric acid was added to bring the volume to one liter. This fluid was again thoroughly digested by heat-

ing over the water bath, then filtered, and this filtrate added to the one previously obtained. The last residue was similarly treated as the two former. The filtrate derived from the last extraction was added to those previously obtained. The combined filtrates constituted the standard solution employed in the analyses, but before using it for such purpose the last residue was tested for possible traces of nitrogenous material. Usually after such vigorous treatment and in the manner above described, the residue of the feces when tested by the Kjeldahl method contained none, or if present, the amounts of nitrogen were negligible; in but few instances did we find it necessary to repeat the extraction once or twice more.

To the protein nitrogen sometimes present in feces very little attention was paid as in our investigations the amounts of base-N only were of interest to us. However, if at all present as a result of the digestion of the stools with the hydrochloric acid the peptones and albumoses must have been converted into amino-acids. If such conversion actually did take place and the nitrogen in consequence thereof suffered a rearrangement in distribution, then it could have only resulted in favor of the amino-acid group and that only.

The total fluid acid extract prepared in the manner previously described was employed as a standard solution of the feces it was obtained from and analyzed according to the prescribed method of Hausmann and Pfaundler for urine. Twenty c.c. of the fecal extract were mixed with 40 c.c. of a 10 per cent. phosphotungstic-hydrochloric acid solution (100 c.c. of phosphotungstic acid, 100 c.c. of hydrochloric acid, 800 c.c. water). The precipitated mixture was allowed to stand for 24 hours in an atmosphere free from ammonia. It was then filtered into Erlenmeyer flasks through nitrogen free filter paper, the residue on the paper being washed several times with the filtrate and the above acid mixture. Then precipitate and filter paper were placed into similar Erlenmeyer flasks and water in amounts equal to that of the filtrate in the other flasks was then added. Into each of the flasks 10 grams of crystallized phosphoric acid was then placed and all of them put into an oven for 18 hours at a constant temperature of 150° C. While there care was taken to avoid too vigorous ebullition. At the end of the prescribed time the flasks were removed from the oven and after cooling their charred contents were thoroughly dissolved by the addition of hot water.

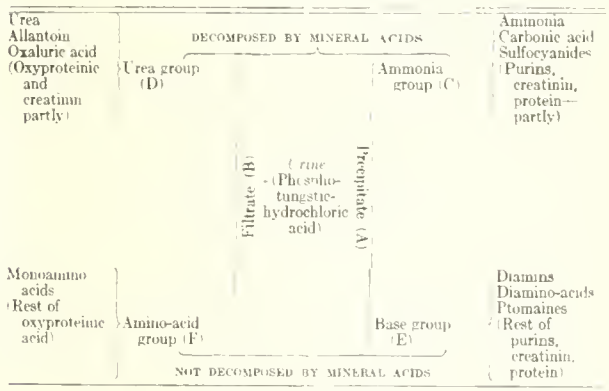
These solutions, the remainders of the former precipitates and filtrates, were then poured into large distilling flasks and carefully neutralized with a solution of sodium hydroxide, using litmus as an indicator. Enough calcined magnesia was then added until the solutions were strongly alkaline in reaction. The flasks were then connected with condensers and their contents distilled over, using a N 4 sulphuric acid solution in the nitrogen receiver. Care was taken to obtain complete distillation of the ammonia. For this reason the residue remaining after the first distillation was diluted with water and redistilled, using a fresh portion of acid solution in the nitrometer. Usually a trace of additional nitrogen was thus received and added to that of the previous distillate, obtaining thus the correct total nitrogen contents of the distilled fluids. These figures when subtracted from the corresponding amounts of total nitrogen contained in equal portions of precipitate or filtrate and determined in the ordinary manner by Kjeldahlization gave the nitrogen values unaffected by the magnesia neutralization.

We have thus investigated the following groups and obtained the following figures: (1) The total-N in 20 c.c. of the original total extract of the feces of an individual and obtained by the usual Kjeldahl method; (2) The total nitrogen of the precipitate obtained after treating 20 c.c. of the above extract with the phosphotungstic-hydrochloric mixture (A); (3) The total-N in the filtrate obtained in the above manner (B); (4) The total-N obtained from distillation of the precipitate, using the calcined magnesia after previous oxidation in the oven with phosphoric acid (C), ammonia group. (5) Total-N of the distilled filtrate obtained in the same manner as the above precipitate (D), urea group; (6) Subtracting the amounts of (5) from those of (3) gave the total nitrogen of those substances not affected by the magnesia distillation, (F) amino-acid group; (7) Subtracting the findings of (4) from (2) gave the same variety of nitrogenous substances contained in the precipitate (E) base group.

It may be well to add here that each test performed was accompanied by one or two controls and the averages obtained from tests and controls were thus recorded.

The composition of the four groups into which the various nitrogenous substances of the urine are classified may best be illustrated by the following diagram:

TABLE I



Before we begin the description of our investigations we desire to mention the fact that Glaessner had also given his attention to the nitrogenous distribution in stools, but in his analyses he confined himself exclusively to the nitrogen derived from coagulable and noncoagulable substances and to that precipitated by phosphotungstic acid. His reports we shall analyze and compare with ours later.

In table II we present the results obtained from our examinations of normal stools. We defined stools as normal if passed daily at the same hour, and by individuals apparently in good health. By "mixed diet" in the column so headed we understand an ordinary dietary used by the average person. Under "oats" is meant the Schmidt-Strassburger test meal (with meat). The figures in the different columns under the various headings express the number of cubic centimeters of N 4 HCl necessary for the neutralization of the ammonia distilled over after oxidation of the corresponding substance in the ordinary Kjeldahl manner. To the actual amounts of nitrogen per diem we paid no attention; only the relative proportions into which the

nitrogen is distributed did we take into consideration.

TABLE II

No.	Disease	Diet	Total N.	Phosphotungstic		Ammonia, N.	Base, N	Urea, N.	Amino-acid, N.	Percentages			
				Precipitate	Filtrate					Ammonia N.	Base, N	Urea, N.	Amino-acid, N.
1	Normal	Mixed	35.5	19.5	15.5	19	0.5	15	0.5	54	1.4	43	1.4
2	Normal	Oats	16.5	10	6.25	9.75	0.25	6	0.25	58	1.5	36.4	1.5
3	Normal	Mixed	43	27.5	15.5	22	5.5	14	1.5	51.1	12.8	32.6	3.5
4	Normal	Mixed	45.5	28	17.5	19	9	15	2.5	41.7	19.8	33	8.5
	Averages									51.2	8.9	38.2	3.7

In studying table II, particularly as to its percentage figures, it soon becomes evident (1) that about half of the nitrogen in normal excretions is in the form of ammonia, while (2) the smallest amount is found in the amino-acid group, (3) the relatively least variations, *i.e.* the greatest uniformity in quantities is found in the urea column, (4) the base-N figures which claim our greatest interest are peculiar, in that in two groups of normal individuals they were very low, while in the other two, also representing healthy persons, the figures obtained were high, in fact, nearly as high as those later observed in pathological cases; hence, the average of the base-N obtained for normal individuals.

Let us first describe very briefly the cases employed in our investigations and presented in above table:

Case I.—This case, one of so-called dysentery, was that of a woman who had suffered for many months from diarrhea and at times fever and vomiting. The patient was very emaciated and anemic. She passed daily five to ten watery stools from which several varieties of bacilli of the paratyphus group were cultivated. True dysentery bacilli and amebæ were not discovered. The diarrhea was not controllable by medication. Proctoscopically, a number of small ulcerations were visible in the lower bowel. An operation for colostomy was performed and affected exceptionally favorably the course of the disease. The stools always reacted alkaline to litmus and practically constantly contained blood. Microscopically, there were very few food-rests, numerous red blood cells, few white, but a great number of bacteria. Sections when stained showed a preponderance of gram positive bacteria over gram negative.

Case II.—Enteritis. This patient was suffering for a number of days previous to her admission to the clinic from gastrointestinal disturbances, caused by the ingestion of contaminated meat. In the beginning she had fever, vomiting, and headaches; later these symptoms gradually improved but the diarrhea persisted. She passed from five to six thin watery, ill-smelling stools, containing considerable mucus. Bacteriologically, the paratyphus *B. bacillus* was isolated. Chemically, blood was found. Upon thorough calomel treatment a cure was effected.

Case III.—Represents a typical form of tubercular enteritis complicating extensive tuberculous involvement of the lungs. This man had from eight to fifteen thin stools daily; they were usually alkaline in reaction considerably intermixed with blood, and rich in mucus. At the autopsy, extensive ulcerations distributed all over the surface of the small intestines were found, and in addition, partial destruction of certain segments of the colon.

Case IV.—This case was that of a woman 38 years old, who had suffered for some time from pain in the abdomen. She also complained of fever, headaches, and diarrhea. The passages, four to five daily, consisted of mucoid like substances enclosed in semi-solid masses. Their reaction was strongly alkaline. Microscopically, the stools contained numerous bacilli, very few formed elements, some blood, and a number of leucocytes and eosinophiles. Proctoscopically, the mucous membrane of the rectum was much reddened and thickened. Upon treatment with atropine and a special rough diet the diarrhea ceased. It was not possible in this case to isolate the particular bacterium, the cause of the affection.

TABLE III

No.	Disease	Diet	Total N.	Phosphotungstic		Ammonia, N.	Base, N.	Urea, N.	Amino Acid, N	Percentages			
				Precipitate	Filtrate					Ammonia N.	Base, N.	Urea, N.	Amino Acid, N.
1	A. Dysentery	Meat	96	63.5	32.5	47	16.5	31	1.5	49	17.1	32.3	1.6
2	Dysentery	Carbohydrate	99	56	43	31.5	24.5	37.5	3.9	31.8	24.7	37.8	5.6
3	B. Enteritis	Meat	15.5	9.5	6	8.5	1.0	5	1	55	6.3	32.4	6.3
4	Enteritis	Carbohydrate	25.0	15.5	9.5	7.5	8	8	1.5	30	32	32	6
5	C. Enteritis tuberculosa	Mixed	173	139	34	91.5	47.5	31	3	52.9	27.4	18	1.7
6	D. Cystitis and proctitis	Mixed	87	59.5	27	52.5	7	24.5	2.5	60	8.4	28.1	3.5
7	Cystitis and proctitis	Meat	108	76	32	59	17	28	4	54.9	15.8	26	3.6
8	Cystitis and proctitis	Carbohydrate	42	26	16	19	7	14	5	45.2	16.7	33.8	4.8
	Averages									49.8	18.4	31.25	4.14

Examining the above table for its percentages of base-N we are soon impressed with the decided increase in the size of the figures, the average in the pathological cases being nearly twice as great as in the normal ones. The ammonia values do not materially differ from those of normal cases, but the urea quotient is somewhat diminished. That the increase of base-N occurs at the expense of the urea component is the only possible conclusion that we can draw. The amino-acids show only a very moderate increase. Examining the cases individually, we must conclude that a decided increase of the basic-N is very common to diarrheal diseases especially if the stools are of an alkaline reaction.

One explanation though must be made, in the cases of Table III. Here the dietary was quite frequently changed abruptly. Most of the patients were kept on one diet for two consecutive days and then suddenly placed on another of an entirely different composition. For the examinations the stools of the second day were utilized. This explanation is very necessary as the base-N is very appreciably increased with each abrupt change in the qualities of a dietary as proved by our previous experimentations. This increase occurs in normal as well as in pathological cases but with the following difference: in the former the figures reach their previous dimensions very rapidly while in patho-

logical cases only very slowly. We made this observation in all our previous experiments and those cited below, a fact especially important to bear in mind when studying Table III. In order to demonstrate this statement the following table is presented:

TABLE IV

No.	Date	Disease	Diet	Total N	Phosphotungstic		Ammonia, N.	Base, N.	Urea, N.	Amino Acid, N.	Percentages			
					Precipitate	Filtrate					Ammonia, N.	Base, N.	Urea, N.	Amino Acid, N.
1	3/5	Normal	Protein	86	46 5	39.5	14 1	2.4	36 1	3.1	51 3	2 8	41 9	4 0
2	4/5	Normal	Protein	53 2	27	26.2	25.4	1.6	22.9	3 3	47 6	3 2	43	6 2
3	5/5	Normal	Carbohydrate	30 7	16 1	14.5	12.4	3 7	12 2	2 3	39 3	17 9	48	7 8
4	6/5	Normal	Carbohydrate	47 8	25 1	22 3	21 6	3.8	19.3	3 0	45 3	8	39 9	6 8
5	7/5	Normal	Carbohydrate	60	31 4	28 6	26.9	1.7	25.3	3.1	49 5	2 9	42	5 6
6	8/6	Chronic enteritis	Protein	70 6	41 9	28 8	31.5	10.4	27	1 8	45	14 9	36 3	3 8
7	9/6	Chronic enteritis	Protein	64 8	37	24 9	27 0	10	22 5	2 1	43 7	16	36 3	4
8	10/6	Chronic enteritis	Carbohydrate	107	69 5	37.4	37.5	32	33.3	4 0	35	30	31	4
9	11/6	Chronic enteritis	Carbohydrate	87 3	52 2	35 1	31.2	21	28 8	6 3	35 7	25	32 2	7 1
10	12/6	Chronic enteritis	Carbohydrate	120	69 1	51	49 1	20	42.7	8 3	40.7	16 9	35 6	6 8
11	13/6	Chronic enteritis	Protein	80	60 7	20	30.4	30.3	16.3	3 7	37.8	38	20 2	4
12	14/6	Chronic enteritis	Protein	88 6	56 2	32 5	22 5	23 7	23 6	8 9	36 8	27	26 2	10

The case marked "normal" was that of a female nurse of our hospital. The case "chronic enteritis" was that of a male suffering for some time with nontuberculous diarrhea. Rectoscopically, there were no ulcers in his sigmoid flexure, but in the feces paratyphus *B. bacilli* were present. The patient was relieved by temporary colostomy and local applications.

The above table clearly shows the great increase in the amount of base-N occurring with each abrupt change of food, and it demonstrates the necessity of permitting the patient to accustom himself to each dietary before sampling his feces for analysis. Otherwise too high values, hence erroneous, may be obtained.

For the purpose of determining the relationship between the severity of the symptoms of a disease and the quantity of base-N excreted in the feces of the affected individual, it might perhaps be advisable to study first the symptomatology of the cases in question (Table V) and to compare them with the obtained figures of base nitrogen contained in their feces.

TABLE V

No.	Disease	Diet	Total N	Phosphotungstic		Ammonia, N.	Base, N.	Urea, N.	Amino Acid, N.	Percentages			
				Precipitate	Filtrate					Ammonia N.	Base, N.	Urea, N.	Amino Acid, N.
1	A. Carcinoma sig. romani	Meat	125	91	34	61 5	29.5	30	4	49 2	23 6	24	3.2
2	B. Carcinoma cardiae	Mixed	158	103	55	75	28	50	5	47 4	17 8	31 6	3 2
3	C. Paratyphus abdom	Milk	116	69 5	46 5	61 5	8	33 5	13	53	7	29	11
4	D. Icterus catarrhalis	Carbohydrate	114	84	30	67	17	30	0	58 8	14.9	26.3	0
5	E. Tetany	Meat	96 5	68	28 5	46	22	27 5	1	47 6	32 8	28.5	1 1
6	Tetany	Carbohydrate	97	66	31	46 5	19 5	28	3	48	20	29	3
7	F. Spastic constipation	Schrot	96	63	33	43	20	30	3	44 7	20 9	31 2	3 1
8	Spastic constipation	Meat	45	26 5	16	19	7 5	15	1	44.2	17.1	34 4	3 1
9	Spastic constipation	Carbohydrate	89	49 5	39	28.5	21	37 5	1 5	32	23 6	42.1	2 3
10	G. Spastic constipation	Schrot	78	57	21	41 5	15 5	18.5	2 5	53 2	19	23.7	3 3
11	Spastic constipation	Meat	105	70	34	53.5	16 5	25 5	8 5	51	16 6	24 3	8 1
12	Spastic constipation	Carbohydrate	50	30	19 5	32 5	7 5	17 5	2 0	45	15	35	4
13	H. Hemorrhagic ventriculi (inanition)	Milk	68	45 5	22 5	11.5	4	18	4 2	61	7 3	26 5	5 2
	Average percentages									48 8	18 2	29 6	3.8

Case V.—This was a case of carcinoma of the rectum with partial stenosis of the gut and numerous metastases in the liver. Patient had one or two normal appearing stools, but which upon chemical analysis were found to contain blood. The cachexia was of a rapid and progressive type and death ensued therefrom. The autopsy revealed the above mentioned pathological lesions.

Case VI.—This case, also ending in exitus, was that of a patient with a large tumor in the region of the cardia of the stomach. Hematemesis was frequent and very considerable. The woman was very anemic and suffered from most obstinate constipation. She practically never had a voluntary passage, and had to resort always to enemas and cathartics to induce a movement of the bowels.

Case VII.—This case resembled very much one of true typhus abdominalis but the blood agglutinated only the *Bacillus paratyphosus B.* The disease was probably caused by sausage poisoning. Patient was kept on a milk diet and thus cured. Stools: one daily of normal formation.

Case VIII.—In this case the disease began with vomiting, diarrhea, and other gastrointestinal symptoms, but very soon these were followed by jaundice. The biliary ducts seemed to have been completely occluded as the patient's feces were devoid of bile. She passed daily one or two stools and those obtained during the above mentioned stage, that of jaundice, were used for the analyses.

Case IX.—This represented a typical and very severe form of juvenile tetany. The attack which compelled the patient to seek the aid of our clinic, was his third, the other two having occurred in the two previous years of his life. He had one passage daily, of normal formation and with the exception of a slight amount of mucus also of normal constitution.

Cases X and XI.—These were typical cases of spastic constipation occurring in individuals of a distinct vagotonic type. Both patients (ages 27 and 30, respectively), had applied to the clinic because of stomach discomfort and hyperacidity. Spontaneous evacuations from the bowels were to them impossible for years; only with the help of enemata and cathartics were they able to clear the bowel from its contents and to obtain the desired relief. During such periods of constipation they suffered from headaches, sensations of heart palpitation, and frequently also vomiting. When placed upon a Schrot diet their conditions improved very rapidly, and their complaints soon ceased.

Case XII.—Was that of a woman 60 years old who was struck with a very severe hemorrhage of the stomach. For eight days food had to be entirely withheld from the stomach; at the end of that period feeding by mouth was only permitted in the form of tablespoonful doses of milk. The stool samples were taken at this stage of the disease, when the patient was nourished in

the form of hourly portions of milk. The presence of carcinoma was fairly excluded by subsequent examinations after the patient had fully recuperated.

Having now briefly described the cases under observation, and before beginning the analyses, we wish to mention that use has been made from the experience derived from the experimentations in the cases enumerated in Table IV. Hence, their analyses were undertaken only several days after a certain diet had been administered and only after the patient had evidently accustomed himself to such diet. This rule was rigidly observed in cases of spastic constipation and tetany.

It might have been very interesting to make a study of every division of nitrogen distribution in feces, but at present we had to confine the scope of our investigations to the base variety exclusively. It seems remarkable that the lowest values of nitrogen shown in the above table (Table V) were found to be associated with cases kept on an exclusive milk diet, one of inanition (Case XII) and another of paratyphus (Case VII). It proves, therefore, as far as may be concluded from these experiments, the favorable influence which a milk diet may exercise upon the amount of base-N in the stools of those exclusively so fed. The inanition case exhibited also the greatest quantity of ammonia-N. Rather high amounts of base-N were found with both carcinomata, intestinal and cardiac. Biliary stasis, as far as may be judged from the one case on hand, had no exceptionally pernicious influence upon the base-N; for figures in the neighborhood of 14.9 per cent. are far below those obtained in enteritis cases without biliary stasis.

Very interesting results were obtained in the cases of spastic constipation and vagotony. At least one of these, Case XI, deserves our particular attention. In this case the Schrot diet had exercised a very decided effect upon the whole course of the disease, while the figures of base-N were the highest ever obtained, much higher than those derived after the administration of carbohydrate or protein diets. At this time it is but fair to add that while the Schrot diet relieved the patients from the constipation and its accompanying disturbances the other two, *i.e.* the carbohydrate and protein diets had no such favorable effect; on the contrary, all complaints previously removed by the Schrot diet, with the administration of the other two had returned. In the other case of spastic constipation (Case X) 20.9 per cent of Base-N was obtained during the period of Schrot dieting; during that of meat, 17.4 per cent., and upon the use of carbohydrates as high as 23.6 per cent. of base-N. It should also be added that during the periods of carbohydrate and protein feedings, there was a tendency to diarrhea rather than constipation.

In the case of tetany, although free from any stomach or intestinal disturbances, the highest values of base-N that had ever come to our attention have been observed. In but one other case, that of enteritis, a severe inflammatory condition, (Table IV No. 11), was the percentage anywhere near as high as that of tetany, the figures in the former case having attained upon an abrupt change of the dietary the maximum values of 38 per cent.

Although we have not presented very many cases of intestinal derangement, still we believe to be more or less justified in drawing conclusions on the subject of intestinal intoxication. At first we shall consider the question whether any intimate relationship exists between the severity of the symptoms of a given individual and the amount of aminoacid bases present in his stools. If we carefully peruse the figures exhibited in our tables, and compare these with the severity of symptoms of the cases they were obtained from, we may soon arrive at definite conclusions. Let us, for instance, compare the case of dysentery of Table III, an exceptionally severe intestinal disturbance, showing base-N values of 17.1 per cent. to 24.7 per cent. with that of a normal individual such as Case I of Table II and base-N values of 19.8 per cent. From this it may be concluded that there is practically no relationship between the amount of base-N and the severity of the symptoms. However, it is very singular that a normal individual absolutely free from intestinal or other disease should nevertheless excrete as much base-N as that encountered in conditions of most extensive intestinal disease, severe inanition, or general prostration. But neither are striking differences in the amounts of base-N to be found in the examination of the other cases under observation of extremes of pathological conditions; so that we may be justified to conclude that no particular difference exists in the amounts of base-N of normal cases and that of pathological cases. Were we still to adhere to the hypothesis that the characteristics and severity of symptoms of a disease are indirect in proportion to the quantity of aminoacid bases, excreted in the feces, then we must assume the existence in the intestines of protective agencies whose function it is either to qualify or to counteract in varying degrees the toxic effects of the intestinal contents. Such qualifications if present might correctly be ascribed to a properly functionating intestinal mucosa and to the normal activity of the liver.

Any probable inaccuracies of the figures exhibited in the various tables must be ascribed to the Hausmann-Pfaundler method for separation of nitrogenous substances into related groups by precipitation with phosphotungstic acid. While this method is known for its exactness, yet there is no positive evidence that all the so-called base-N obtained by it belongs exclusively to the class of aminoacids. In our former investigations dealing with fractional separation of nitrogenous substances of fluids, we have shown that the base fraction particularly consisted not only of precipitated ptomaines and diamines, but also included the diaminoacids, and partly purins and creatinine. Because of the greatly complicated technique, the identification of individual bases in each of the cases was impractical if not impossible. We confined ourselves, therefore, to the isolation of separate bases in but a few of the cases. Substantial quantities were obtained only in pathological cases. As already mentioned, Roos isolated from pathological stools, cadaverin and putrescin, while Glaesner discovered oxyphenylethylamine. We should like to call attention herewith to two other bases, which we were able to detect in the feces; one, phenylethylamine, characterized by its presence in stools independent from the variety of food ingested; the other, evidently betaimidazolylethylamine, of especial significance because of its unusual toxicity.

For the separation of individual bases, we used the method of Kutscher, modified, however, so as to be applicable for stool examinations. To prepare the solutions, the stools were mixed with hydrochloric acid. This mixture was then concentrated to one-third its volume. To the rather voluminous

remainder (we utilized for each such test a ten days' quantity of stools) phosphotungstic acid was added until a test sample upon the addition of the above acid remained clear for one minute. The mixture was then allowed to settle for twenty-four hours, filtered, and the precipitate washed with 5 per cent. sulphuric acid until free from chlorides. It was then washed free from the filtrate with hot water, treated with hot barium solutions under the usual precautions and washed several times by boiling it with hot water. The remaining fluid was then treated in the manner prescribed by Kutscher for the determination of organic bases in urine.

What concerned us most were the silver precipitations II and III. In spite of very careful analyses and valuable assistance obtained from eminent consulting chemists of the clinic, we were not successful in obtaining substances in quantities sufficient for analysis of more complicated structure than the relatively simple bases methylamin, putrescin, cadaverin, etc. We then made an attempt to artificially create more favorable conditions for the appearance of the desired bases in feces by feeding one normal individual and one with intestinal disease with the aminoacids phenylalanin and histidin. We administered to them daily for one to two weeks ten grams of phenylalanin and 4-5 grams of histidin, so that they received during that period about 70 grams of phenylalanin and 25 to 30 grams of histidin. Only after such a procedure were we successful in isolating from the stools of the pathological as well as the normal individual the substances desired (phenylethylamine and imidazolylethylamine); partly in the form of picrates and partly as platinates. It must here be added that the quantity obtained from the feces of the normal case was considerably smaller than that of the pathological.

For the detection of betaimidazolylethylamine, even in smallest quantities, and to demonstrate also at the same time its pathogenic properties, we discovered a method by which these objects might be easily accomplished. If the human skin be very superficially scratched with a needle so that the uppermost layer of epithelium is denuded and if a drop or two of betaimidazolylethylamine in a solution of 1 to 1,000 be applied to it, within five minutes a typical reaction appears at the point of application. The skin turns very perceptibly pale and becomes somewhat elevated above the rest of the surface. Then this pale and projecting swelling begins to increase rapidly in width and height, reaching its maximum in about four or five minutes, at this same time retaining exactly the shape of the original scratch mark although the mark itself entirely disappears. In some individuals the swelling has been observed to reach a width of 3 cm. and a height of 2 mm. The whole reaction has very much the appearance of urticaria, even as to its characteristic subjective symptom, the itching which accompanies it. Imidazolylethylamine is recommended as an ergot substitute for the control of uterine hemmorhage. For this reason we made use of it in one of our cases of uterine bleeding, but we decided since then never to employ it again for such purpose as the untoward effects produced by it are undesirable. Immediately after the injection of the drug the patient's body turned scarlet red and in some places, such as the face, quite cyanotic, but the redness would disappear when the skin was pressed upon. Other severe or serious subjective symptoms were absent. We have experimented with a great number of other bases but no other substance than the one mentioned, betaimidazolylethylamine, was found to react in the manner described, so that we concluded the reaction to be specific for that poison. This qualitative test was later used for the identification of histamin in the analyses of the other stools. If this test is really specific for imidazolylethylamine, then its presence in the stools of all normal individuals might be assumed with reasonable certainty, for at least in one normal case have we been able to isolate the above substance beyond any doubt. This fact seems to deserve emphasis.

Because of the striking similarity of the symptoms of true urticaria and those of imidazolylethylamine poisoning, it appeared to us logical to suspect the poison in the stools of those habitually suffering with urticaria. But we were disappointed to find in two exceptionally typical cases of this condition examined with the above object in view no appreciable differences from that of the normal.

In animals, histamin produces also a combination of symptoms very similar to that of bronchial asthma of human beings. Assuming the possibility of some connection between asthma and histamin we made an attempt to look for the latter in the stools of several cases of bronchial asthma; but again as in the cases of urticaria, have we failed in our mission and could find nothing particularly abnormal. Notwithstanding these disappointments we still remained clinging to the presumption that the symptomatology of the two above mentioned diseases is caused by some derivative of protein decomposition; therefore, we decided to place our patients with habitual urticaria upon a diet as protein-free as was possible. In a number of instances we obtained indeed very satisfactory results, but when the same method was applied to asthma cases it had no influence upon their attacks.

The facts established that bases originate during the decomposition and putrefaction of organic matter and that differentiated amino-acid-bases are produced by bacteria in pure culture form, suggested the idea to ascribe the origin of the poisons discovered by us in the intestinal canal, also to bacterial activity. This presumption was further strengthened by the recent discoveries of Mellanby and Twost. These two investigators were able to cultivate from the intestines a bacillus possessing the power to convert histamin into imidazolylethylamine. Furthermore, they proved that this bacillus can accomplish this act in an alkaline medium only, while the addition of acids or sugars seems to create surroundings unfavorable for the bacillary production of the base. This fact may serve as additional proof in our argumentation.

The demands from the clinic and the bacteriological laboratory for practical applications of these important discoveries are numerous. Should it be definitely proven that many of the bases are of vital importance to the economy of the animal organism, then such proof would constitute additional evidence for the necessary symbiosis of bacteria and the animal organism. We also considered this question from another point of view: whether these bases originating within the intestinal canal and having properties similar to the hormones of the secretory system are not substances distributed to the organism to exert their influence upon the vegetative system. Experimental pathology has already utilized this principle by employing histamin to antagonize adrenalin. It may with reasonable

certainty also be assumed that histamin is not the only base formed in the intestines, but that numerous others originate there. Besides it is quite plausible to connect the absorption of these very active poisons originating during intestinal derangement with the symptomatology of the intoxication accompanying the same. While we have not been able to treat the whole subject under consideration as completely as we would have liked to do, yet we believe we have been able to prove with reasonable certainty the presence under pathological as well as physiological conditions of poisonous amino-acid-bases and to a certain degree their importance. If these bases really do play such an important rôle in the human organism even the normal, then we must ascribe as powerful a command to the intestinal canal upon the general circulation as to a gland with internal secretion. We have no desire for chimerical assumption of hyper- or hypofunction of the intestinal organs, but what we wish is to impress the fact that amino-acid cases do exist in the lower bowel and that their elimination is brought about in the feces.

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THE STERILIZATION OF MENTAL DEFECTIVES CONSIDERED FROM THE PHYSIOLOGICAL STANDPOINT

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The removal of the power of procreation from all mental defectives by some form of surgical operation has been much advocated as a means of relieving organized society of one of its serious burdens. This agitation has borne fruit in the enactment of legislation in various States, but thus far at least has practically ceased to progress further than the stage of placing such laws upon the statute books. The adequate and necessarily extensive enforcement of these laws so as to give success to the plan of sterilization as a large social relief measure does not seem to be in prospect. In all probability this method of dealing with the problem as a whole is destined to fail so far as the near future is concerned and to be replaced by other measures, the practical enforcement of which cannot encounter the aversion of the public. Wholesale sterilization as a relief measure is a practical question involving something to be done, and if there are inherent in it factors which lead to its ultimate neglect, whether these factors are logically justifiable or not, then this measure becomes a failure. That such factors are operative is evidenced by the neglect of the practical enforcement of sterilization laws. Among these factors we believe the following two stand out prominently. First, no doubt, as the mind of the public conceives it, is the removal from the human body of a normal organ by a surgical operation, *e.g.* castration. Second, perhaps, is the ultimate realization of the large number of individuals in every State who would have to be pursued outside of the institutional population in order to make the measure efficient against the increase of the defective. The present discussion is not concerned with the occasional resort to sterilization in exceptional cases, but with sterilization as a State measure, firstly, for a large part of the institutional population, and secondly, if conditions would permit, for a large part of the non-institutional defective population which will probably always exist. The agitation for sterilization from these viewpoints would appeal to the public more effectively as judged by the result of practical enforcement if the procedures to be used were of a less radical nature. If a surgical operation, *e.g.* castration, which a large portion of the public mind considers to be mutilative, could be abandoned, or if a lesser operation, *e.g.* vasectomy, could be substituted therefor, or, still better, if a non-surgical procedure, *e.g.* Roentgenization, could be used, these more moderate measures would more readily receive public approval and enforcement.

The problem of sterilization thus presents two main aspects which are respectively sociological and physiological. As judged from the former standpoint, it is taken for granted in the present discussion that sterilization ought to be practised with certain defined classes of defectives. With reference to the motive for this procedure we differ with many in holding that a proper sociological motive therefor is primarily and only the removal of the power of procreation from designated individuals. Sterilization simply to prevent masturbation is not justified by our present knowledge on the subject of masturbation itself. Castration for the purpose of preventing masturbation seems to be a highly questionable procedure in view of the psysiological factors involved.

In the present state of our knowledge there are three chief methods of sterilization available. Two of these are fairly well known and are more or less commonly advocated. These are first the removal of the sexual glands in either sex (castration, ovariotomy) and secondly the transection or ligation of the efferent ducts of these glands in either sex (vasectomy, salpingectomy). The third method which we especially advocate as a substitute for castration and whose practicability and efficiency should be investigated is that of Roentgenization of the testes or the ovaries. All of these methods are or can be made to be efficient methods for the destruction of procreative power and thus far at least satisfy the sociological requirements. Consequently our consideration of them may be directed to their physiological conditions and consequences.

The writer desires to make the abandonment of castration and the development and substitution of other less objectionable methods of sterilization the chief object of the present discussion. If it can be shown that the sexual glands are organs of internal secretion having an important relation to the processes of growth and metabolism and to the nonsexual organs or functions, this fact alone would be sufficient to raise a physiological doubt of the advisability of castration at any period of the individual's existence. If in addition it can be shown that other physiologically less destructive methods successfully remove the power of procreation then it becomes still more advisable to dispense with castration. The writer believes that in the present state of scientific investigation both of the preceding questions admit of answers sufficiently positive to appeal to the physiological sense of those competent to judge. As a preliminary critical observation it should be noted that investigation in the field of gland physiology has not yet by any means reached its culmination; that the subject-matter is difficult and involved and has been pursued perhaps only two decades from a modern standpoint. The more critical the analysis of the available data the more

keenly is felt the need of further observation. In view of these conditions the ready haste and positive zeal of the majority of those who deal with the subject of sterilization in a practical way commends itself very poorly to scientific judgment.

The first physiological fact having a cogent bearing on our proposition as above stated is that the male sexual glands have a double function which is both generative and secretory. As sexual generative glands they produce and extrude the male germinal elements, viz., the spermatozoa. This fact is so well known that only the second function, that of internal secretion, could possibly be called in question. What then is the evidence for the internal secretion of the testes and of what significance is this function for the remainder of the organism?*

The long line of castration experiments made on mammalian subjects including the human body might here be cited. We shall pass over most of this fact-material briefly, not because of its lack of significance, but because it is well known and we are now in a position to offer more direct evidence on the same subject. When the castration experiment is performed on the *immature* mammalian body there is unmistakable evidence of its influence upon other than the sexual organs. The evidence for this statement is so abundant in the literature that we need not repeat it here, but the following very recent data obtained on human adults who had been early castrated may be cited to show the influence of castration upon other glands of internal secretion in man. Tandler and Grosz found the thyroid glands noticeably small in these castrates. The weight of the alcoholic specimen was 13 gm. compared with 45.8 gm. for that of a normal adult. In the Skopts (a Russian sect practising castration) whom they examined they never found an enlarged thyroid. The thymus gland in early human castration persists abnormally long. With reference to the pituitary, the fossa hypophyseos was found notably broad, long, and deep. Itaka Kon found the hypophyses of castrates on an average 1 to 5 gm. heavier and in measurements several millimeters larger than normal. The earlier in the individual's life the castration is performed the more marked are the results, whereas late castration brings about only minor somatic changes so far as morphological characters are concerned. Among the easily observable results are obesity in many cases, early grayness of the hair, falling out of the beard hairs, according to some reports involutionary processes in the genitals, changes of the skin like those observed in early castrates, gradual loss of the power of erection and of the libido sexualis. More observation has been given to the effects of castration upon women. Without going into detail we may note that the resulting physiological disturbance is apparently more marked than in men.

To the physiological mind these secondary effects at once raise the question whether the non-sexual capacities of the reproductive glands, which capacities have now been incidentally and unintentionally removed, are not so necessary or so advantageous to the organism that they should not be ignorantly and unwittingly removed. If it be replied that castration of the adult has no such remote effects, then we ask where is the evidence. How much investigative study has been devoted to the determination of the physiological condition of castrated individuals? Our criticism is that we have made very many castrations based on our ignorant assumption of physiological knowledge but we have concerned ourselves little or not at all with the scientific study of these subjects after the operation. We cannot dignify with the term physiological observation or with the term scientific the popular physical or ocular and casual examination whereby the occasional fatness and the lethargy of the castrated subjects have come to be regarded popularly as very desirable and very satisfactory results. The whole trend of modern physiological investigation of the sexual glands is to regard them as having a very important relation to the processes of metabolism of the body generally. Lubarsch terms them "the regulators of metabolism." As the castration of women has frequently been performed as a therapeutic measure in osteomalacia there have been many observations on the subsequent conditions of nutrition. Various observers found an alteration in the lime and phosphorous metabolism which has, however, been doubted by others. Some have held that these changes exist at first but are of only temporary duration. The influence of the sexual glands upon the mineral metabolism is well shown by the fact that the administration of ovarian or testicular substance will restore the metabolic equilibrium. According to Loewy and Richter the oxygen consumption sinks 20 per cent. upon the removal of the ovaries, whereby fat is notably spared. After the administration of animal ovarial substance normal relations are restored or the oxygen consumption even exceeds the normal. According to Luethje, Neumann, and Vas the nitrogen balance is not changed by castration. Alterations in the blood have been found by Adler who correlates the lengthened coagulation time which he found in both man and animals after removal of the ovaries, with the calcium content of the blood.

These considerations indicate the possible nature of the effects which may follow castration of the adult. They indicate that the scientific study of the subjects of this operation should proceed along the lines of their metabolism. The meagerness and the uncertainty of the results of this nature thus far obtained do not show that this investigation is unnecessary. They serve to give emphasis to the proposition that before we settle upon castration as a scientifically commendable and legally justifiable procedure we determine by exact and thorough investigation what the physiological conditions and results are. This implies that the subjects to be operated be studied for a period both before and after the operation and those who are familiar with the requirements of a metabolism investigation know that this is a laborious undertaking if it is to be pursued to an established conclusion.

We may now turn to the direct evidence for the power of internal secretion by the sexual glands. We shall have to recall the distinction between the primary and the secondary sexual characters, *i.e.*, the distinction between sexual and somatic organs. As above stated castration experiments upon the immature body have shown the influence of the sexual glands upon distantly situated organs. For the concrete character of these changes we refer the

*The literature cited or collated in the present discussion as well as additional data and references can be found in the following publications:

Tandler, J., und Grosz, S.: "Die biologischen Grundlagen der sekundären Geschlechtscharaktere," Berlin, 1913.

Biedl, A.: "Innere Sekretion," 2te Auflage, 2 Teil, Berlin, 1913.

Falta, W.: "Die Erkrankungen der Blutdrüsen," Berlin, 1913.

reader to the literature, including that which deals with the subject of internal secretion. This influence at a distance from the anatomical location of the primary disturbance was formerly ascribed to direct nervous action. The abandonment of this explanation was due to the discovery of a new method whereby one organ, especially a gland, may act upon other organs, *i.e.*, by means of secreted and chemically and physiologically characterized substances called hormones which are poured into the blood stream. The existence and action and in some cases the nature (*e.g.* adrenalin) of hormones is now too well established to be called in question. The effect of castration upon the secondary sexual characters of man and mammals is strong evidence of the production of hormones by the sexual glands and thus of an additional function to that of producing the germinal cells, viz., the spermatozoa. However, this evidence may be established beyond all possibility of doubt by other evidence that is both anatomical and physiological. This additional evidence we shall describe not so much because of its logical necessity, as for the light it will throw upon the question of the advisability or the necessity of castration especially in view of the possibility of other less drastic procedures.

Histologists have long recognized in the sexual glands at least two classes of cells. One of these may be called, after Tandler and Grosz, the *generative* cells which have the function of producing the gametes, *i.e.* the spermatozoa and the ova. The other class has nothing to do with this production and impresses the observer as if it were merely supporting tissue. These latter are known as the interstitial cells of Leydig by whom they were discovered in mammals in 1850 and they were first observed by Koelliker in human testes in 1852. Of course nervous, muscular, and connective tissues are also present. Into the descriptive histology of these cells, their seasonal and species variations, and the detailed history of our gradually developing idea of their function we cannot enter here. Suffice it to say that in 1902 Mosselmann and Rubay first expressed the opinion that the interstitial cells influence the development of the secondary sexual characters. During a period of years thereafter Ancel and Bouin as a result of extensive morphological and experimental investigation developed the important proposition that the influence of the testes upon the organism in general is due to these interstitial cells. Finally we have a series of investigations which trace the interstitial cells as a gland of internal secretion affecting not only the secondary sexual characters *but also the other glands of internal secretion.* In view of the now well known importance of the integrity of the system of the glands of internal secretion for the most varied physiological functions, other than sexual, this relation of the interstitial cells should be critically weighed in passing judgment on the effect of castration particularly if interference with this relation is avoidable. It may here be noted that in the female also the analogous interstitial cells have been found among the tissues of the ovary.

Seeing that there is the greatest unanimity among histologists regarding the morphology of the interstitial cells let us turn to the experimental testing of their function. It has been found that in the Roentgenization of the sexual glands we have a means of eliminating the generative function while preserving the interstitial cells both morphologically and in their power of internal secretion. This is a most important proposition and requires a description of the data on which it is based. Albers-Schoenberg in 1903 observed that after intense Roentgenization of rabbits and guinea-pigs the potentia generandi was lost but the potentia coeundi remained. Histological examination by Frieben of the testes of these same animals showed that the epithelium of the seminiferous tubules had disappeared and that there was a complete want of spermatogenesis. Bergonie and Tribondeau in 1905-6 confirmed these findings and developed the additional and significant fact that the interstitial cells remain intact. In 1906 Villemin expressed the opinion that only the interstitial cells of the testes possess the function of internal secretion. Further details of the comportment of these cells under Roentgenization we shall have to omit here but the subsequent and very definite experiments of Tandler and Grosz should be described for their bearing upon the question of internal secretion of interstitial cells. In 1908 they reported that if roebucks are castrated at the time when they are bearing antlers they will cast these within the next few weeks and will then develop in their place a distorted but now perennial antler called a peruke-antler. This process offers then a good means of determining the influence of the sexual glands upon a distant secondary sexual character. Then proceeding from the established fact that Roentgenization destroys the generative portion of the gland while saving the interstitial part the experiment was made of treating the testes of three roebucks with the Roentgen rays. After several months a microscopical examination was made of one of the testicles of each animal. This showed the complete destruction of the epithelium of the seminiferous canals and the consequent loss of spermatogenesis, but the interstitial cells were normal. Comparison was also made with normal testes. How now did these Roentgenized animals comport themselves with reference to the development and casting of antlers? The result was no observable distinction in this secondary sexual process between the Roentgenized and the normal roebucks. The effects of castration then were due to the loss of the interstitial secretory cells, for the generative cells were destroyed by both castration and Roentgenization. (See Tandler and Gresz, *loc. cit.*, pp. 99-103.)

The secretory function of the interstitial cells is thus experimentally demonstrated and with this result it becomes clear that the operation of castration makes deeper inroads upon the physiological integrity of the organism than is either necessary or intentional. Furthermore the unanimity of many different experimenters to the effect that by Roentgenization it is easily possible to eliminate the power of procreation without destroying the interstitial cells certainly suggests that it would be far more scientific as well as physiologically effective to substitute the Roentgen ray treatment for castration. Those who are familiar with the logic of physiological experiments will at once recognize the validity of the previously described experiments for the human subject but we nevertheless make the following quotation from Tandler and Grosz, *loc. cit.*, page 107: "Here belongs above all the well-known fact, which we ourselves have been able to establish free from objection, that persons who must expose themselves to the Roentgen rays professionally, become sterile, *i.e.* they lose the functional capacity of the generative part of the sexual glands, without thus suffering any damage to other somatic or

psychical sex characters. The sterilization of women for various therapeutic indications has often been undertaken recently, but without the elimination phenomena of castration having appeared."

We may now turn briefly to another procedure used for the sterilization of the male, that of vasectomy. Here also we meet with the conclusive result experimentally established that this procedure results in the loss of spermatogenesis with the retention of the integrity of the Sertoli cells and of the interstitial cells. Bouin and Ansel showed by numerous experiments on guinea-pigs, rabbits, and dogs that after ligation of the vas deferens spermatogenesis disappears within a period of eight to twelve months thereafter. They also call attention to the resemblance of such experimental testes to those which are cryptorchic. Animals thus treated retain the sexual instinct and do not change their secondary sexual characters. Tandler and Grosz have confirmed these results by experiments upon roebucks which are equally conclusive as those previously described on Roentgenization. They thus lead to the same conclusion that the interstitial cells have an internal secretory function which would be removed by castration. To avoid a possible wrong inference we again quote from Tandler and Grosz, *loc. cit.*, page 107: "The transection of the tube cannot be compared in its action with vasectomy, because by the former operation the ovary remains fully intact in its function. This is taught with unanimity by the animal experiments of Sellheim, Foges, etc., and by therapeutic sterilizations on the human female."

While this paper was not written primarily to advocate vasectomy we may note in passing the frequently made criticism that a junction might be regenerated by the vas deferens with the implication that the procedure would thus be nullified. This particular objection to vasectomy has probably little or no legitimate force as this is a matter of surgical efficiency. On the subject of such regeneration there seem to be no experimental data available. The logically essential and practically important question is not whether this regeneration of the vas deferens can occur, but whether the *power of spermatogenesis*, having once been removed by a successful vasectomy, can be reproduced. The regeneration of such pathologically destroyed tissue is a very unfamiliar biological phenomenon. Tandler and Grosz assert (*loc. cit.*, page 106): "Vasectomy doubtless brings about a permanent destruction of the generative part of the germinal gland."

We may summarize our conclusions as follows:

1. The sexual glands are not only reproductive in function but they are also organs of internal secretion which have an important relation to the processes of growth and metabolism and to the non-sexual organs and functions. The distinction between these two functions has an anatomical basis in the local and histological differences between the generative and the interstitial cells of these glands as distinguished by Tandler and Grosz. The functional distinction between these two classes of cells is borne out by an extensive series of physiological experiments as described in numerous and recent investigations.

2. By the procedure of castration the subject is deprived of the internal secretory functions of the sexual glands whereas the primary intention is to deprive him only of the power of procreation. The extent of the derangement of internal metabolic functions thus induced has never been studied except superficially. The procedure has been assumed to be physiologically harmless and commendable. It should be further studied from the standpoint of its metabolic effects before it is adopted on a wholesale or legal scale, as is now contemplated by many, for the sterilization of the mentally defective. The tendency of increasing knowledge is to show that a normal mentality and a normal nervous system cannot be developed nor even maintained without the adequate functioning of the system of glands of internal secretion.

3. Since castration is an operation performed in ignorance of its physiological significance and rests more on customary than on scientific grounds for its justification it has no claims to preference over other methods which could be tentatively tried in its stead. I therefore propose as a method for investigation the Roentgen ray treatment of the testes and ovaries of properly selected cases under skilled hands, and, may it be emphasized, under adequate physiological and metabolic control of the effects produced. From the data previously cited in this paper the Roentgen ray treatment appears to be an effective method of sterilization, it does no violence to the anatomical integrity of the body, and it appears to cause the smallest possible amount of physiological destruction. The argument of the present paper is made to induce the temporary abandonment of castration and merely to place on trial the apparently excellent claims of the Roentgen ray sterilization.

A PLEA FOR THE MORE RATIONAL USE OF VACCINES.*

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To present at this late day to a body of medical men a paper on vaccines or bacterins seems like carrying coal to Newcastle. Yet there is scarcely another branch of medicine about which the general practitioner's knowledge is so indefinite. This statement, however, is not made in any disparaging sense. Most physicians have gained their knowledge on this subject from current literature or from a limited experience. They have not had a systematic course of instruction on vaccines such as is given in other subjects in a medical curriculum. The existing diversity of views can, therefore, be partly accounted for in this way. The writers' views on this subject are the result of an experience of over five years of intimate and constant use of vaccines in all branches of medicine, and mostly in the wards of the Jewish Hospital.

That any new method of treatment should be grasped with such avidity as this has been is little wonder, for on one side are the hundreds of diseases to which flesh is heir, and on the other but a handful of specifics with which to combat them. Attempts to equalize the contending forces in this unequal struggle against the infectious diseases constitute the main object of the use of vaccines or bacterins.

A brief elemental consideration of the terminology and of the theory of the use of vaccines may

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not be superfluous, owing to the confusion in the minds of many men on this part of the subject. Vaccines are suspensions or emulsions of bacteria in normal saline. A vaccine is not a serum. It seems necessary to emphasize this, as the distinction is not clear to many, though it presents not the slightest difficulty. A serum is at all times and under all circumstances the fluid portion of blood after the formation of a clot. The therapeutic differences between a serum and a vaccine are as distinct as their biological ones.

A vaccine or bacterin may contain one organism only, in which case it is named after that organism, as a staphylococcus vaccine, a streptococcus vaccine, etc., or it may contain two or more different organisms and constitute a mixed vaccine. It may, furthermore, be made up of one organism only, but of many types or strains of that organism, and be known as a polyvalent vaccine. The same term is applied to one organism obtained from a variety of lesions. And, depending upon whether it contains a staphylococcus or a streptococcus, the vaccine is a polyvalent staphylococcus or a polyvalent streptococcus vaccine. A vaccine or bacterin made from the patient's own lesion and reintroduced into that patient is an autogenous vaccine. This is in contradistinction to an emulsion of bacteria derived from some source outside of the patient and which is known as a stock vaccine. The autogenous vaccine cannot be polyvalent, for in this case one is dealing only with one strain of an organism, while a stock vaccine may be univalent or polyvalent. Autogenous vaccines like stock vaccines may be mixed if the disease, as in rare cases, is a mixed infection. When a vaccine is used in advance of a disease, its use is termed protective or prophylactic; when used in the course of a disease its use is termed curative or therapeutic.

What is the condition of the bacteria making up the vaccine or bacterin? In the vaccines commonly employed the bacteria are dead; they are killed usually by exposure to heat, or, in rare instances, by chemicals. However, dead bacteria are not the only kind that may be employed. Living or viable bacteria have been used very frequently. When live bacteria make up a vaccine some process is employed by which their virulence is diminished or attenuated, and though they remain viable they are no longer pathogenic.

In the laboratory of the Jewish Hospital we early became impressed with the fact that to produce the greatest specific reaction to an organism that organism must be as nearly as possible in the living or viable state, and yet not pathogenic. We found that by exposing bacteria to just below their maximum temperature for several days in succession would so change them that, where heretofore a given dose proved fatal to animals, the same dose, after treating the bacteria as described, would be entirely harmless. Numerous injections of this kind of vaccine were made, and in no instance did a local infection result. In fact, it was not generally known that this method of treatment was in vogue. Constitutionally, the cases so treated at no time showed any change in the clinical picture for the worse that could not be readily accounted for by the disease itself.

Another method for attenuating bacteria is the one described by Besredka in his use, at first of a typhoid vaccine, and later of a number of other vaccines. He found that when he mixed with the bacteria heated beef serum or rabbit serum, the bacteria would remain viable, but a previously lethal dose would not now cause death of the animal. He found the same thing to hold true when, after adding his serum, he centrifuged and washed the bacteria in saline. This change in the pathogenic properties of the organism he termed a sensitizing process, and the vaccine prepared in this way a sensitized virus-vaccine. He now uses the specific antiserum to sensitize his bacteria—*i.e.*, if he wishes to sensitize typhoid bacteria he uses the serum of a typhoid case, etc.

No presentation of the subject of vaccine or bacterin therapy is complete without some consideration of the subject of immunity. There are a few elemental principles relating to this subject which have stood the test of time and experience. Immunity is resistance to disease, or, more exactly, it represents the total of all the elements which constitute resistance to infection. The varieties into which it may be classified are self-evident: Natural immunity is that type usually inherited; the acquired type may result either from an attack of an infectious disease, as typhoid fever, scarlet fever, etc., or may be produced by artificial means, as with specific viruses, specific sera, and specific vaccines or bacterins. When the body does not take part in the manufacture of any immune elements, but has these elements already contained in the substance injected, as the antitoxin in the various sera, then, as we know, this represents the passive form of acquired immunity. When, however, the substances injected do not contain any ready made immune bodies, but depend for their production on the stimulating properties of the inoculated material, then this is classified as active acquired immunity. Those substances which stimulate the production of immune bodies are known as antigens, and vaccines or bacterins are the best example of an antigen. Those substances formed in the body as the result of the presence of an antigen are known as antibodies or immune bodies, and include most prominently antitoxins which neutralize the poisons of bacteria, bacteriolysins which destroy the bacteria themselves, and opsonins whose presence in the blood facilitates phagocytosis.

A word on the opsonic index. It is common knowledge that when leucocytes are washed free of all serum and mixed with a suspension of bacteria, alive or dead, and incubated, that few or none of the bacteria will be taken up by these leucocytes, but this same mixture of bacteria and washed leucocytes, with the addition of serum, will show after incubation that phagocytosis is active. That the serum contains something that facilitates phagocytosis is, therefore, the simplest of laboratory demonstrations. If now the number of bacteria in a certain number of leucocytes is counted, and an average determined of the number of bacteria per leucocyte, that average is known as the phagocytic index. This phagocytic index of the patient divided by the average phagocytic index of a number of normal persons, is known as the opsonic index.

Though the steps in the determination of the opsonic index are plain, yet the procedure necessitates such a complexity of detail that it becomes impracticable as a routine measure. Not only because of its impracticability, but also because of the variation in the results obtained by the very

best authorities, has the determination of the opsonic index been abandoned as a routine. This does not in the least detract from the brilliancy of the observations of Wright and his associates, nor does it imply that in skilled hands this method would not in certain intractable cases of chronic localized infection give the proper clue to the dose and to the frequency of injections of vaccine.

Following the use of bacterins, there are certain "phases of reaction" about which there has been the greatest confusion in the minds of the profession in general; this misconception at one time threatened the adoption of vaccine therapy; as it is, it has done immeasurable harm. The phases of reaction are termed negative and positive. By the negative phase Wright means that period immediately following the injection of a vaccine and lasting about twenty-four hours, during which the opsonic index, measured by the degree of phagocytosis, as previously explained, is lessened. This is succeeded by the positive phase or a heightening of the opsonic index above the normal. Clinically, the negative phase is interpreted to mean that feeling experienced by the inoculated individual, of malaise, anorexia, headache, slight elevation of temperature, and an occasional temporary aggravation of the local symptoms. Wright gave this phase a significance which subsequent experience did not confirm. He taught that during this period the body resistance to the particular infection was diminished and the individual was made more susceptible to the disease. This he said about 1898-1900, and caused the temporary abandoning of prophylactic inoculation against typhoid fever, which was then being performed in the English army engaged in the Boer War, where typhoid fever was prevalent. The reasoning for that step was as follows: If after an injection of typhoid vaccine a person became more susceptible, therefore, while it may be done with impunity when the disease is not prevalent, it does become dangerous whenever the disease is raging.

To prove that this is not so I can speak from a personal experience, which, on account of circumstances, has been exceptionally rich, and includes a record of over 1,000 antityphoid inoculations of three injections each, performed since January 15, 1913. Many of these were given under conditions ideal for the development of secondary cases, conditions complying with all the requirements of Wright's negative phase, and yet not in any one case did typhoid fever develop after the process of immunization had been completed. On the other hand, where no inoculation was performed, instances of secondary infection were not at all uncommon. I regret very much that I have not time to dwell more at length upon this branch of the subject, and describe in detail some of the cases observed, but I must mention a few: (1) Mother and infant visiting relatives in the city; four days after arrival infant develops what subsequently became typhoid, contracted from milk bought at a neighboring farm at home in which a case of typhoid had occurred. The number exposed to the infection was five, of which the father and two sons of the family being visited consented to be inoculated. The mother of the sick infant and the wife eluded all attempts. Consequences: Those inoculated escaped; the others were both taken to a hospital, where they ran a severe course of typhoid fever. A further illustration: A child took sick with indefinite symptoms that proved to be typhoid fever. The mother and father were inoculated; the nurse refused; mother and father remained well; the nurse contracted typhoid fever. One more instance: A young man had typhoid fever; a brother and sister not inoculated contracted the disease; the mother and the other sister inoculated remained well. And so I could go on.

It is of importance to feel certain that persons about to receive prophylactic injections of typhoid vaccines are not in the prodromal period of the disease, for the result of an injection at this time is to bring about, somewhat more abrutly, the period of invasion. Experience teaches that one prophylactic injection neither produces any degree of immunity, nor changes in any way the usual clinical course of the disease. Individuals in the incubation period of the disease will not have the disease aborted, though the general experience testifies to the clinical fact that the course of a case of typhoid fever that has received two or three prophylactic injections is milder and more free from complications than when no injection has been given. That one or more prophylactic injections of typhoid vaccine can produce typhoid fever is from every point of view preposterous. We furthermore know that the hyperdermic injection of avirulent or sensitized living typhoid bacilli does not reproduce the disease. The following are the conclusions at which the writer has arrived with regard to the use of typhoid vaccine: For prophylaxis in typhoid fever its use is specific and it affords absolute protection. In the presence of direct exposure no contraindication to its use exists. As a routine procedure in individuals not exposed, heart cases, and proved cases of pulmonary tuberculosis should be passed; the menstrual period should also be avoided. The vaccine does not produce abortion at any period of pregnancy. The reaction experienced rarely incapacities, and is seldom severe. Fear of the after-effects need never deter a physician nor be accepted by him as an excuse. When one considers that the statistics of hundreds of thousands of cases prove that antityphoid inoculation is more efficacious than vaccination against smallpox, it becomes needless to urge the present-day practitioner of medicine that while it may not be practicable for him to prevent primary infection with the typhoid bacillus, it is absolutely within his power to prevent the occurrence of secondary cases. This will immediately reduce the number of cases in one year by thousands, and save hundreds of lives.

All this is incidental and used in the discussion of the negative phase after vaccine injection. Before leaving this part of the subject, I emphatically state that I hold the negative phase to mean simply the reaction of the body to the stimulus of the organism or its metabolic products injected; it differs only in the degree of severity from the reaction following the inoculation of vaccine virus; it in each instance produces a mild, often imperceptible, attack of that particular infection; it no more represents a stage of lessened resistance to infection by that specific organism, than vaccinia represents a susceptibility to smallpox. The positive phase is represented clinically by an amelioration of symptoms, and corresponds theoretically to the production of a sufficient amount of specific antibodies to effect a neutralization, usually only in part, of the disease-producing agent, whether it be a toxin, a living bacterium, etc. Theoretically, the produc-

tion of immunity with vaccines or bacterins is smooth sailing. But a number of factors arise which produce trouble. It must be primarily borne in mind that the process of immunity is a delicate one, and very likely, biologically and chemically, a complex one. That we have not yet solved all the problems entering into the question, there can be no doubt; for it is scarcely more than a decade since this subject began to engage the close attention of research workers. But this much can be laid down as a law, upon whose recognition depends the accurate conception of this subject, namely: the antibody formed as the result of the presence of an antigen, is always specific for that antigen; or, the immune bodies produced by the injection of bacteria are specific for these organisms. In other words, the injection of a streptococcus vaccine produces immune bodies that are of use in neutralizing the toxins of streptococci only, and no other; these immune bodies will not neutralize the toxins of staphylococci, of colon bacilli, or of any other; and, conversely, staphylococci or colon bacilli, when injected, will not produce immune bodies that are of any use whatever in the neutralization of the toxins produced by streptococci. Furthermore, it must be borne in mind that the different types or strains of one organism produce antibodies that are specific, not for the entire species, but for that type only: for instance, the immune bodies of a streptococcus hemolyticus do not act on a nonhemolytic streptococcus. That nearly all organisms have different types peculiar to particular species has been proved beyond doubt. That the immune bodies are specific for each peculiar type or strain of an organism, has been conclusively proved.

The following facts should be emphasized: Autogenous vaccines or bacterins are the only vaccines to be employed in order to comply with the scientific theoretical conception and experimental evidence. Stock vaccines to be of any use whatever must be of that organism which has the fewest number of strains, should be polyvalent, and should be used only for chronic or subacute localized infections. Mixed vaccines are to be used only when a mixed infection has been bacteriologically proved to be present, or tangible evidence is at hand to lead one to suspect its presence. Only in rare instances, according to undisputed scientific evidence, are mixed vaccines to be used. Not only is the indiscriminate use of mixed vaccines unscientific and useless, but harm results from their use, for the reason that, as physiology teaches, tissue cells have a limited capacity to react to stimuli, chemical, electrical, or biological. In bacterial infections the stimulus is the specific organism or its toxin; tissue cells react to this stimulus by producing specific antibodies; the larger the amount of specific antibodies the cell is made to produce by a vaccine the greater is its therapeutic efficiency. If, however, instead of reacting to the specific organism alone, the cell is called upon to divide its reacting capacity in the production of antibodies to two, four, six, or even more varieties of organisms, then the ability of the cell to manufacture the specific antibody is reduced, at least, in direct proportion to the number of nonspecific organisms contained in the vaccine.

If the principles upon which the use of vaccines depends are to be observed, then it is manifestly illogical and, to say the least, bad therapeutics to employ this therapeutic agent in a manner diametrically opposed to its basic principles.

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NOTES ON THE USE OF RADIUM IN TREATMENT OF DISEASES OF THE EAR.

By W. SOHIER BRYANT, A.M., M.D., F.A.C.S.,

NEW YORK.

The use of radium in the treatment of diseases of the ear offers the means to fulfil efficiently two urgent requirements in otology: first, the stimulation of cell-growth; and second, the destruction of cells. In the majority of chronic otological cases, the desiderata are the proliferation of normal tissue cells and the destruction of new-formed cellular and cicatricial tissues. Radioactive therapy presents these two desirable and diverse modes of action, which can be used either singly or together. Often we wish to use both of these processes at the same time in the same ear.

In hypertrophic and cicatricial states the destructive action of radium is desired; in atrophic states the stimulating effect is desired. The destructive action of the radium is sought particularly in cicatricial states of the middle ear or in degenerations of the auditory nerve and labyrinthine mechanism. In atrophic and degenerative states, atrophic middle ear catarrh, otosclerosis and auditory neuritis and labyrinthitis, the action desired is stimulation of the growth of the remaining normal cells as well as the destruction of the pathological tissues.

There are four processes apparent in the action of radium in ear diseases and they are of varying importance: (1) the presence of the radium capsule in the auditory canal acts as an irritant, as any foreign body acts; (2) the heat evolved by the radium has a warming effect on the meatus; (3) the electrical activity of the radium ionizes the surrounding matter; and (4) the radiation of the radium produces diverse effects, depending upon the individual and upon the dosage. The rays of radioactive substances are of three kinds. The shallow, penetrating, slow α rays act only as a superficial destructive agent. Their action is not desirable in the treatment of ear disease, and therefore they should be eliminated by filters. Another variety of rays are the rapid γ rays. These rays penetrate deeply and break up into β rays. The various intermediate rays between the α rays and the γ rays are the β rays. These β rays are now considered the most important therapeutically. From an otological point of view also these rays are most significant, for to them are attributed the two apparently antagonistic activities of stimulation of desirable tissue on one hand and destruction of undesirable tissue on the other hand. In my treatment I use mesothorium bromide because it is the richest in β rays.

In the use of radium for the treatment of aural diseases, as in the use of radium for the treatment of diseases of any kind, precise care should be exerted in every possible direction, so that there may be no overuse or no misuse. The reaction of the individual must be carefully watched and determined; the dosage of the application must be nicely gauged; and the equation of the applicator used must be carefully studied. Because of the comparative newness of the treatment there is practically no literature on the use of radium in ear diseases. I consider that too much care cannot be used in determining the susceptibility of the individual to the action of radium. There is, of course, a wide range of reaction in individuals and there is little known of the indication of the relative susceptibility of an individual; the amount of reaction to the radium

can as yet be determined only by careful experiment. We can, therefore, see the importance of the utmost caution in the employment of radium lest we do more harm than good. Overuse shows in deterioration of the hearing. In the use of radium the first effort should be to avoid damaging anything. Before I applied the capsule I now use, I exposed my skin to it without harmful results for a period much longer than I have ever used it in the ear.

The technique of the radiation depends upon the kind of radioactive substance used, its concentration, upon the amount used, its area, the distance of application, the filterage, and the length of exposure. The applications should always commence at a minimum and be gradually increased, the time and length of an exposure being governed, of course, by the result of the previous exposure. The intervals between the applications should also be carefully graded. The greatest difficulty in the appropriate dosage of radium is the fact that the effect may be long delayed and may not appear for months after the application. Every applicator should be considered an entirely new instrument. Each applicator has its own equation; it must be studied separately and its effect measured. Other applicators, even though containing the same amount of radioactive substance, are only a very general guide to an applicator, for the minute individual variations make a great deal of difference in the results. The applicator I use is a glass tube containing 5 milligrams of mesothorium bromide wrapped in thin tinfoil. The applications were made in the auditory canal.

The limitations or contraindications for the use of radium have not as yet been definitely established. Apparently the only conditions in which there is no indication for its use are those in which the functions of the ear are normal and those in which the labyrinth has been entirely destroyed, and all function annihilated; in other words, when there is nothing to use radiation for and where there is nothing to use radiation on. Local radiation of radioactive substances does not appear to have much influence on the causal factors of ear disease, but its action offers a specific for the residual effects of ear disease; that is, radioactive therapy seems to be not so effective in the treatment of causes, as it is in the treatment of the effects of the causes. The causal factor of ear disease should be eliminated before recourse is had to radiation. In order, therefore, to obtain the best and permanent results, it is usually indicated that other treatment be used and that radium be considered an adjunct to this treatment. The practical indications for the use of radiation are all forms of functional derangement of the ear when the causal factors have been eliminated. The use of radium in ear disease is indicated and is most effective in static and terminal conditions. Besides these advantages, it has another in the fact that it renders certain cases amenable to treatment that would not yield to other means.

SUMMARY OF CASES

20 CASES—40 EARS.

Otosclerosis	9 ears
Atrophic middle ear catarrh	12 "
Effects of middle ear suppurations	13 "
Non-suppurative labyrinthitis	2 "
Hypertrophic middle ear catarrh	4 "

RESULTS

Hearing decreased in 1 ear	(Non-suppurative labyrinthitis.)
Hearing unchanged in 6 ears	(2 atrophic middle ear catarrh.) (4 effects of middle ear suppuration
Hearing improved in 33 ears	
Much improved in 14 ears	(6 atrophic middle ear catarrh.) (2 hypertrophic middle ear catarrh.) (1 non-suppurative labyriothitis.) (3 otosclerosis.) (2 effects of chronic middle ear suppuration.)
Restored to normal in 6 ears	(2 hypertrophic middle ear catarrh.) (4 atrophic middle ear catarrh.)

No.	Age	Diagnosis	Hearing Before Radiation		Radiation		Hearing After Radiation	
			A.D.	A.S.	A.D.	A.S.	A.D.	A.S.
1	55	Atrophic middle ear catarrh, both.	0	0	mm.* 150	mm. 415	9	13
							60	60
2	34	A.D. effects of middle ear suppuration.	14	0	105	260	31	0
		A.S. atrophic middle ear catarrh.	2400				2400	
3	54	Effects of middle ear suppuration, both.	2	0	415	425	13	14
			2400				2400	2400
4	48	A.D. Effects of middle ear suppuration.	3	17	100	100	8 5	48
		A.S. Atrophic middle ear catarrh.	60	2400			60	2400
5	60	Otosclerosis, both	4	16	245	305	8	40
			60	2400			60	2400
6	48	Otosclerosis, both	9	4		135	20	11
			2400	2400			2400	2400
7	62	Hypertrophic middle ear catarrh, both.	6	2	50	50	2 5	3
			2400	60			60	60
8	34	A.S. Effects of middle ear suppuration.	12	0	115	190	4	1
		A.D. Atrophic middle ear catarrh.	2400				60	240
9	40	Effects of middle ear suppuration, both.	8	4		60	17	4
			2400	2400			2400	2400
10	55	Atrophic middle ear catarrh, both.	†	0	145	250	‡	0
11	20	Effects of middle ear suppuration, both.	45	4 5	145	190	108	10
			2400	60			2400	60
12	35	Hypertrophic middle ear catarrh, both.	11	1 12		15	60	60
			60	60			60	60
13	19	Effects of middle ear suppuration, both.	0	10	515	600	0	40
				2400				2400
14	27	A.D. Atrophic middle ear catarrh.	10	4	445	460	156	4
		A.S. Effects of middle ear suppuration.	60	60			60	60
15	35	Non-suppurative labyrinthitis, both.	0	22	335		3 5	18
				60			2400	60
16	32	A.D. Otosclerosis	0	0	265	305	2 5	0
		A.S. Effects of middle ear suppuration.					2400	
17	40	Otosclerosis, both	2	8	480	565	10	38
			2400	2400			2400	2400
18	42	Otosclerosis, both	6	4	25	60	2 5	16
			2400	60			60	60
19	58	Atrophic middle ear catarrh, both.	8	42	215	160	1 5	2
			2400	2400			60	60
20	53	Atrophic middle ear catarrh, both.	1 25	3	245	270	37	26
			60	60			60	60

*mm. is a symbol for milligram millimeters of radium

†Hears shout with ear trumpet.

‡Hears voice without ear trumpet.

To give a general idea of my results of the treatment with a radioactive substance, I submit the data on a series of twenty consecutive cases. The cases are not selected on any basis other than chronicity. The cases were all seen in private practice, and all had been under my observation for a number of years before radiation was used.

The hearing was measured by a 60-inch watch and a 2,400-inch Politzer acoumeter.

PELLAGRA

By J. R. LOWERY, M.D.,

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HAVING seen and treated a number of cases of pellagra during the past five years, I have reached the conclusion that the disease is due to the absorption of poisons from the intestinal tract. We have had pellagra in the South for a number of years, but the cases were so sporadic the malady for some time was not identified. It has been gradually increasing, however, for the past few years, which I think is due to the fact that we eat different food prepared in a different way from that of a half century ago.

The bread we ate then was made of flour from the old burr mill, containing much bran, which, while it was indigestible, yet passed into the intestines and acted as a blotter to absorb and carry away the poisonous products from the sewer of the body. White bread, made of flour from the modern roller mill, is practically all digested, and so leaves no residue as a stimulus to intestinal action. The vegetables and meats we ate then came fresh from the farm, but with the coming of the railroad we began to be supplied with food that had been shipped many miles and undergone decomposition. It will be remembered that the probable cause of the disease was at first attributed to the use of decayed corn, or corn in some process of decay. Bread made from unsound corn meal may contribute, or even be the main factor, in producing these poisons, but bread made from unsound wheat flour may produce these poisons also, and I think really does produce more poisons, than corn meal; especially bread made from flour of wheat that has been stored for many weeks or months in large elevators, containing many thousands of bushels, where it may undergo deleterious changes. Dr. Driscol and Dr. Monroe, of Georgia, report several cases of pellagra, the symptoms of which disappeared in a few weeks after the patients had been put upon a diet of bread made from corn meal, with half its volume of bran. They think there is some vitamine in the bran that produces the results. I think, however, they are produced because the bran does not digest, but passes through the intestines, absorbing and carrying off the poisons from the intestinal tract. Yet, these poisons alone rarely cause pellagra; there must be something that lowers the tissues. A person that is healthy is able to throw off and resist the invasions of these toxins.

The most common causes of lowered resistance power are childbirth, tuberculosis, malaria, and poor hygienic surroundings. Eighty-one per cent. of all my cases were females. Of these 77 per cent had borne a child within one year prior to the first symptoms. And I think, therefore, that childbearing, which lowers the resistance of the body, and the sedentary habits of women, which produce constipation and cause thereby the poisons to be retained in the intestines longer, resulting in greater absorption, are the reasons why we find pellagra more common in the female.

The Thompson-McFaden Pellagra Commission found that the rate of prevalence among males drops between the ages of nineteen and forty-five. I think this is due to the fact that man has greater resistance power between these ages. This same report also shows an increased prevalence of the disease among females betwen the ages of nineteen and forty-five. This, I think, is because that is the childbearing period of women, especially among the poorer classes with their insufficient food and bad hygienic surroundings, rendering them unable to resist the invasion of intestinal fermentation, under the extra strain put upon them by pregnancy and childbirth. I have examined the urine of the majority of my cases and find nothing definite. In most of the cases, especially those of a chronic nature, the stomach analyses show a diminished amount of hydrochloric acid and ferments, but this is due to the inflammation of the mucous membrane of the gastrointestinal tract. In some cases I found an excess of acid, but these were cases in the incipient stages. Dr. Pendleton examined the blood of a number of these cases and discovered nothing definite. I have found in all cases a great increase in the number of bacteria of all kind in the feces with much white mucus.

Sambon thinks that the spread of pellagra is due to a gnat that lives near streams, as he found more cases among field laborers that lived near water courses. For this reason, in his opinion, women had it more often than men as they went to the streams after water and looked after the cows that grazed near streams. But in this country we have more cases in cotton mill districts remote from rivers, and so, I think, the trouble is rather due to their getting wages inadequate to the supply of good food, together with long hours of work that lower their resistance power, leaving them pale and anemic.

I know of one cotton mill town of 2,000 people situated on a river, the people living on both sides in houses situated near the banks, and there has been but one case of pellagra in this town, and this patient lived one mile from the stream and town. I attribute this to the fact that this town was situated out in the country, and the operatives ate food brought in every day from the surrounding farms, which really is the best food that can be found anywhere. Moreover, as this settlement was in the country, where there were no attractions to go to at night, there was nothing to prevent the operatives from getting the proper amount of rest and sleep.

One of my pellagra patients was a very wealthy man; he had always eaten good food, and had had no previous disease to lower his resistance, but he had one of the most stubborn cases of constipation, going sometimes for a week without an evacuation of the bowels. Evidently it was the absorption of the poisons from the intestines that induced the disease in this case.

The symptoms of pellagra are many, but the most important in making a diagnosis are swimming of the head, shortness of memory, sore mouth, digestive disturbances, nervousness, sore rectum, burning of the feet and legs.

Vertigo was found in 97 per cent. of the cases, in 80 per cent. of whom it was the first symptom. In some cases it was very mild; in others the patient could not walk straight, but staggered along as if under the influence of alcohol.

Short memory was found in 90 per cent. of cases; they could not remember how long they had been sick or what were their first symptoms; in many instances they lost their mind entirely. Twelve per cent. of my cases became insane. Sore mouth or some abnormal change in the mucous membrane was found in 80 per cent. of cases. In some instances the mouth was ulcerated; in others it was red and of a glazy appearance and felt, the patient declared, as if it were scalded.

Burning of the feet and legs from the knees down was found in 95 per cent. of cases, and in no instance did it extend above the knees nor in any was it confined to the feet alone.

An eruption or a history of an eruption was found in 94 per cent. of cases, 75 per cent. of whom were affected on the hands and arms alone, and 20 per cent. on other parts of the body as well; but in every case the eruption appeared first on the hands or arms.

All were more or less nervous; the poisons seem to attack especially the nerve tissue, hence some observers think it is a purely nervous disease. The oldest patient was seventy; the youngest twelve. Ninety per cent. of the female cases were snuff dippers, none of whom showed improvement until I had stopped the use of the tobacco, as it impaired their appetite to such an extent that they did not eat a sufficient amount to keep them properly nourished.

Twenty-four per cent. of my patients died; a large percentage of these were in the last stages when I saw them, and to some of them I gave no treatment at all; two I saw early in the disease, and they were in good condition, but the treatment seemed to have no effect on them.

I have tried almost everything in the way of treatment that I have ever heard of, and find arsenic the most efficacious in the way of drugs. Some have obtained good results with castor oil, and naturally so, for it cleanses the intestinal tract where I think the seat of the trouble lies. Others use colocynth, while yet others use irrigations of the colon, all of which remedies, for the reason assigned above, are good. Castor oil and bismuth in large doses with a diet of whole wheat bread, vegetables, and other food that leaves much residue, have given me best results in preventing the formation and absorption of these products from the intestinal tract. As to the administering of arsenic, it is immaterial which form of arsenic is used, the essential point being to give an amount sufficient to counteract the poisons. I have seen one patient who was apparently cured by taking fifty drops of Fowler's solution three times a day, but very few people can take by mouth enough arsenic in any form to do much good. Atoxyl and soamin in very large doses hypodermatically give the best results; soamin can be given in larger doses than atoxyl without toxic effect, and therefore is preferable. Salvarsan or neosalvarsan can be used and will give excellent results if a number of doses are given to each patient, but this makes the treatment very costly as well as dangerous.

Arsenic, it should be borne in mind, only eliminates the poisons already absorbed in the tissues of the body; it has no effect on the production of the poisons, and, unless the patient be placed on a proper diet so as to correct the intestinal fermentation, in the course of time the system will become saturated and the symptoms will return.

423 Fayetteville Street.

A PLEA FOR MORE CARE IN THE TREATMENT OF FOLLICULAR TONSILLITIS.

By WILLIAM LAPAT, M.D.,

NEW YORK.

I FULLY realize that the medical literature is overloaded with papers written on the tonsil and its diseases and that very little of this is new; nevertheless, I have the presumption to add to this literature an article on one of its supposedly most common and least dangerous of its diseases, with the idea in mind to emphasize that this disease is and always will be liable to dangerous sequelæ, and that more care should be taken in its treatment.

In most of the hospital dispensaries follicular tonsillitis is treated with very little respect; the patient is given a purgative or a gargle (sometimes both) and is told to return in two or three days. No warning is given as to the importance of staying in bed, and in fact the patient is made to feel that he is suffering from one of the very mildest of ailments.

We must remember that although at first this disease is a local infection, it is only a few hours before it becomes a general systemic affair, often lodging in the joints, causing an arthritis with sometimes a subsequent endocarditis. I have had in the past four years a number of cases of arthritis which came on during attacks of tonsillitis. The history of one of these cases, which resulted in an endocarditis, is as follows:

I was called to see M. M., a boy nine years old, who showed all the clinical symptoms of an attack of follicular tonsillitis. I saw him first on the third day and he was then developing pains in both knee-joints, which in twenty-four hours became a severe arthritis from which he suffered two and a half weeks and finally developed an endocarditis. This boy never gave any past history of rheumatism nor could I in any way account for the heart lesion except as a result of the arthritis which came on during his attack of tonsillitis.

Various observers have noted the close relationship between the tonsils and different infections of the body. Ballenger tells of two cases of endocarditis following a tonsillitis.

Wood says: "The rapid and marked systemic intoxication seen in cases of simple tonsillitis shows that some toxins at least are readily absorbed from the tonsil into the general circulation."

Emil Mayer says: "There is not yet sufficient evidence to prove that the tonsil is only or ever the chief portal of entrance for rheumatic poisons. Considering, however, that in all probability acute articular rheumatism represents a mild type of septic hematogenic infection of the joint, there is no reason why the tonsil with its notorious facility for infection with pyogenic germs should not, possibly even frequently, assume the rôle of an infected wound leading to septic consequences of a systemic nature."

Forchheimer, in his book on "Treatment," tells of an investigation of D. J. Davis in forty-five cases of rheumatism in which he found in the crypts of the tonsils pure or nearly pure cultures of a streptococcus, representing various strains, nearly all of which when injected into rabbits in small doses produced an arthritis and in large doses a septicemia.

If we regard the tonsil as a port for the entrance of various infections, even when the tonsil itself is not showing to the naked eye any special changes, that is, when it is not undergoing any process of active inflammation, surely much more are the chances for a systemic infection when we have a pathological condition as we do in follicular tonsillitis. Such being the case, I think it is important that we treat this infection with much more care and give our dispensary patients more explicit instructions with regard to the treatment, so that we may lessen as much as possible the danger of serious sequelæ.

Treatment.—For the past year and a half I have

been laying a great deal of importance on the early and active local treatment of this disease, looking upon it in the first few hours as a local infection and treating accordingly by applications which would tend to destroy the action of the bacilli. The drugs which have given me excellent results are hydrogen peroxide and a solution of the tincture of iodine, which is 5 per cent. stronger then the official tincture. A number of those cases which I have seen early I have been able to abort. The hydrogen peroxide I use on a cotton applicator to remove the patches from the tonsils, then with another applicator I apply the iodine into the crypts, taking care that none of it flows into the pharynx. These applications are made twice a day on the first two days, and at the same time the patient uses a spray of icthyol as follows:

Icthyolis,	8.0
Olei anisi,	0.2
Aqua anisi, ad.,	60.0

M. Sig: Shake well and use as a spray every two hours. This is a mixture used by Dr. J. Abraham of the Polyclinic and I find that it has an excellent effect on the reactionary inflammation in the mouth and pharynx.

The general treatment should be carried out as in any other acute infection; the patient must be put to bed and kept there until all symptoms have disappeared. Calomel is given at the outset, diaphoretics for the fever, and the various complications should be treated as they arise. It is especially important that one should be on the lookout for the slightest sign of joint implication, as most of the serious results have been due to this cause.

916 Southern Boulevard.

TWO CASES OF TREATMENT BY RADIUM EMANATION.

By FRANCIS E. PARK, M.D.,

STONEHAM, MASS.

These two cases are remarkable not only from the prompt benefit that was derived, but also from the fact that the patients were twins. The first one consulted me last December.

Case I.—The patient was a tall, well built man of 59 years, but much emaciated, and with the face of a constant sufferer. From 1881 to 1904 he was the "lead man" in a large chemical works, and from the constant inhalation of the fumes he became so badly poisoned by this mineral that he had to give up work. From that time until I saw him he had been an invalid and under constant medical observation. There early developed an arteriosclerosis associated with constant pain in the heart and head, with frequent exacerbations of each. Of late years the anginal pain had become so severe as to cause grave apprehension for his life. Over each eye was a pigmented spot, that would swell up quite perceptibly with the headaches. The arteries that could be palpated were hard to the touch, and the blood pressure ran from 220 to 240. Apart from the angina the heart was normal. For the first two weeks there was no noticeable improvement, then it came steadily. At the end of four weeks practically all the pain, pain that had been persistent for ten years, had stopped. The blood pressure was reduced to 160. At the end of ten weeks he went home, saying that he felt like a new man. He certainly looked and acted like one and now after five months the improvement has persisted, and he has gone back to work. The treatment consisted of subcutaneous injections of isotonic sea-water freshly charged with radium emanation, given at two-day intervals. Once in four days he had an intravenous injection of thorium X, which seems to act the same as the radium emanation, of 80,000 units. Daily he sat in a hermetically sealed room for two hours, breathing an atmosphere containing about 12 Mache units of radium emanation to the litre of air and drinking 60 c.c. of water, containing 180 Mache units, every fifteen minutes. Over the heart and forehead he wore constantly a pad containing a quantity of concentrated pitchblende; that is, pitchblende ore that had been subjected to intense heat for a long period of time, during which most of the mineral present except the radium was volatilized. There was also a small amount of iodine given by the mouth to help eliminate any lead that might be still in the system.

Case II.—A twin brother of the preceding. Previous history was that of a hard working healthy man, a foreman for 21 years in a large construction company. Seven years ago he fell from a derrick and sustained what was diagnosed as a hemorrhage of the cord. His legs were totally paralyzed for several months and he was confined to his bed sixteen months. Gradually he got around, but has never been able to work since that time. When he came into my office, he walked with a sort of shuffle, and steadied himself with a cane. He was unable to open and shut his hands except very slowly and could not entirely close them. If he wished to put his foot in a chair he would have to lift it bodily with both hands. On stooping, in the attempt to touch his hands to the floor, he would instantly grow dizzy and pitch forward. There was also a slight paralysis of the throat, which bothered him considerable in eating. He had been under treatment during this time, but had never got any help beyond what had very gradually come back. This man was under treatment six weeks and went out practically a cured case and has gone back to work. In general appearance he looks about ten years younger. He is able to walk easily without a cane, can stoop and touch the floor without becoming dizzy, the paralysis in the throat has entirely disappeared, and he can open and shut his hands with ease. The improvement began to show within a week of his initial treatment. This latter was very similar to that of his brother's (radioactive sea-water, thorium X, and the radium emanations).

These two cases were very striking ones to watch. Twins, both with apparently incurable affections, of many years' duration, apparently cured, and put back into the wage-earner ranks again.

Medicolegal Notes.

Liability for Substitute—Abandonment of Case.—In an action against a physician for injuries to the plaintiff's wife while confined in childbirth resulting from the defendant's furnishing an incompetent substitute, it was held that a physician is responsible for an injury done to a patient through the want of proper skill and care in his apprentice or assistant. Likewise partners in the practice of medicine are all liable for an injury resulting from the negligence, either of omission or commission, of any one of the partners within the scope of their partnership business. The theory upon which this holding is based is that partners in the practice of medicine are sureties for the faithful performance of their engagements by each of them.

It is also an established rule that a physician, responding to the call of a patient, thereby becomes engaged, in the absence of a special agreement, to attend to the case so long as it requires attention, unless he gives notice to the contrary or is discharged by the patient. He impliedly contracts that he possesses, and he is required to exercise that degree of knowledge, skill and care which physicians practicing in similar localities ordinarily possess, but he does not impliedly warrant a cure, and can be held as a guarantor of success only in virtue of an express agreement. If he makes provision for the attendance of a competent physician upon his patient, he may leave temporarily, but for the unwarranted abandonment of a case at a critical period resulting in increased pain and suffering on the part of the patient he will be held liable in damages.

In the present case it was held that the question whether the fact that the defendant expected to attend court on that day and had other pressing professional engagements to which he could not give his attention and at the same time attend the plaintiff's wife furnished a sufficient excuse for his failure to attend in person when called by the plaintiff was one for the jury.—Lee vs. Moore, Texas Court of Civil Appeals, 162 S. W., 437.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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New York, August 29, 1914.

THE FIXATION OF POISONS BY THE CENTRAL NERVOUS SYSTEM.

THE subject of the selective affinity between certain poisons and the central nervous system is one that presents many points of interest, with respect not only to general pathology but also to the pathology of the nervous system. A number of observers have pointed out that in various types of intoxication the nervous system contains an amount of toxin greater than any other part of the body. Ogier and Skolosuboff demonstrated the presence of arsenic in the brain in cases of slow intoxication by this drug and the presence of a large amount of hydrocyanic acid in the brain and spinal cord in cases of rapid poisoning by this substance. Similar observations have been made with respect to lead and the anesthetics.

This subject has been approached from the viewpoint of the microbic poisons, particularly those produced by the diphtheria bacillus, in a series of investigations performed by Georges Guillain and Guy Laroche. The results of their studies were first reported five years ago when they described the fixation of the diphtheria toxin by nerve tissue. A comprehensive survey of this subject is presented by these investigators in *Le Progrès Médical*, July 11, 1914. In their original work they had shown that the medulla oblongata of patients who have died in the course of severe diphtheritic paralysis contains toxic substances that are not present in the case of individuals dying from other affections. The toxicity of the above substance was determined by the fact that emulsions of the medulla oblongata in physiological salt solution when injected into guinea pigs caused the death of these animals. There is a direct path of the diphtheria toxin from the pharynx by way of the nerves to the spinal bulb. The affinity between the diphtheria toxin and the nerves is a particularly close one. Thus these investigators in collaboration with Grigaut showed that if diphtheria toxin is brought into contact with nerve tissue the toxic properties imparted to the latter cannot be removed even after repeated washing with physiological salt solution. It was found that the phosphorized lipoids of the phosphatid group (lecithin, cephalin) have an intense fixing power with respect to this toxin, while the non-phosphorized lipoids, such as cholesterin, are entirely inactive in this respect. Diphtheria toxin when combined with nerve tissue undergoes a marked activation of its toxic properties, the period of inoculation of the experimental disease and the duration of the latter being considerably shortened.

The toxin of tetanus is likewise fixed by the nerve tissues, but is contrasted with the diphtheria toxin in one respect, namely, the nerve tissue of an animal or human being that has succumbed to tetanus, if inoculated into a laboratory animal, will not evoke the disease unless the amount of tetanus toxin present exceeds the amount that has been neutralized by the nerve tissue. Another distinguishing characteristic is the fact that the phosphorized and non-phosphorized lipoids, with the exception of protagon, possess but slight fixing power with respect to this toxin, while the albuminoids are strongly fixative. The clinical differences between diphtheria and tetanus are probably to be explained on the basis of the above differences: the diphtheria toxin which causes paralysis is fixed and activated by the phosphorized lipoids, while the tetanus toxin which evokes muscle spasm is partly fixed and neutralized by the protein substances.

The poisons of the tubercle bacillus are fixed and activated by the nerve tissues. Tuberculin when mixed with nerve tissue has its power increased as much as fourfold. This fact may serve to explain some of the phenomena of tuberculous meningitis. The adult or the child affected with the latter dies before a local defense has been set up. Frequently at autopsy on cases of tuberculous meningitis there are observed but few local lesions; there may be only a congestion of the meninges. The rapidity and intensity with which the convulsive and paralytic symptoms of tuberculous meningitis develop are to be attributed to the avidity with which the poisons of the tubercle bacillus combine with the nerve tissue, particularly in the regions of the medulla and the basal ganglia. It has been shown that in the nerve centers the tubercle bacilli are quickly destroyed. This bacteriolysis which is a mode of defense nevertheless sets free toxins which become more potent by being combined with the cells that are responsible for their liberation.

This subject is one of engrossing interest and eminent clinical importance, and many of its ramifications can only be hinted at. One may allude to the selective affinity of strychnine for the cells of the anterior horns of gray matter of the spinal cord, to the fixation of alcohol by the brain, to the avidity with which chloroform and ether combine with nerve tissue, and to the predominance of lead in the same tissue in cases of plumbism. Oxalic acid is likewise seized by the nerve tissue to a greater extent than by any other part of the body. The symptoms of anaphylaxis are to be attributed largely to the fact that the anaphylatoxins expend their virulence upon the nerve cells with which they combine.

Important from many viewpoints of internal medicine is the hypothesis that endogenous poisons may behave in the same manner as those mentioned above. Nervous symptoms such as paralysis, tremor, convulsions, contractures, delirium, etc., are probably the result of a fixation of toxic bodies by

the nerve centers. This is a conception of fundamental significance in psychiatry and deserves extended investigation.

THE ETIOLOGY OF ACUTE ARTICULAR AND MUSCULAR RHEUMATISM.

Poynton and Paine and others a number of years ago called our attention to a specific streptococcus which they believed to be the cause of that much diagnosed and much abused condition known as rheumatism. Many other investigators, however, failed entirely to isolate streptococci from the joints, while others only rarely succeeded in finding them there present. As a natural consequence of these negative findings this view of Poynton and Paine failed to receive general acceptance.

More recently Rosenow (*Journal of Infectious Diseases*, xiv, 1, 61) claims to have isolated three types of organisms from the joints in rheumatism, and to have demonstrated that each of these could be transformed or transmuted into any of the others with considerable ease by modifying the environmental conditions. From the cases in which there was no muscle involvement he isolated two types of organisms—one a very long chain producer, the other resembling a micrococcus. These two types, after inoculation into animals, generally produced arthritis, endocarditis, and pericarditis, but as a rule no visible myocarditis and never a myositis. The third type of organism was a diplococcus in short chains, isolated from cases of rheumatism with definite muscular involvement. This organism also produced arthritis, endocarditis, and pericarditis, and more particularly myocarditis and myositis. From a study of the cultures in man and of the results of animal experimentation, Rosenow inclines to the view that acute articular rheumatism is due to streptococci which have peculiar properties, and that muscular rheumatism (or "rheumatic myositis") is caused by streptococci which are quite intimately related to those found in joint rheumatism.

Although Rosenow favors the retention of the name *Streptococcus rheumaticus* for the present, since the streptococci which produce the symptoms and lesions of rheumatism have certain specific features sufficiently distinct to distinguish them from streptococci from other sources, yet it must be understood that the so-called *S. rheumaticus* does not always produce rheumatism. Rosenow found that when first isolated these organisms had an affinity for the joints, the endocardium, and the pericardium, and frequently also for the myocardium and the muscles, but that this affinity tended to disappear on cultivation though it could be restored by animal passage. Moreover, it was observed that under certain conditions other strains of streptococci would assume the characteristics of the strains of streptococci isolated in cases of rheumatism. Rheumatic strains of streptococci might acquire the cultural characteristics of hemolytic streptococci, at the same time losing their affinity for the endocardium and pericardium but possessing an even more marked affinity for the joints. It was furthermore found that rheumatic strains may apparently be converted into pneumococci of a certain grade of virulence so as to produce, following intravenous injection, pulmonary hemorrhage and pneumonia, and even death from pneumococcemia. For these reasons Rosenow suggests the possibility that "previous to an attack of rheumatism various types of the streptococcus group, especially hemolytic streptococci, may acquire in the tissues of the infected individuals the features which give them the simultaneous affinity for joints, endocardium, pericardium, and myocardium."

This investigator also seems to have demonstrated that *Streptococcus viridans, S. mucosus, S. hæmolyticus, S. rheumaticus*, and the pneumococcus can be transformed one into the other by the experimental modification of environmental conditions *in vitro* and by injection into and passage through animals. It is in the tonsils, the various sinuses, the appendix, and about the gums and the teeth that such transformation is most apt to take place. Thus, assuming the truth of Rosenow's claims, not only should the importance of focal infections as an atrium for bacteria be appreciated, but we must also recognize that these foci further serve as places where bacteria may take on new properties and virtually become transformed into microorganisms of another kind, representing a more virulent strain. It is to be particularly noted that the strains from muscular rheumatism, more especially after one or two animal passages (and this applies also to other streptococci which have become equally virulent), show a decided affinity for the mucous membrane of the stomach, the pelvic mucous membrane, the medullary portion of the kidney, and the gall-bladder, the proof of this being given in the finding, in dogs and rabbits injected with these strains, of ulcer of the stomach, so-called "ascending" nephritis, and cholecystitis with beginning gallstone formation.

The International Red Cross.

It is a singular coincidence that the eve of one of the greatest battles of modern times was also the fiftieth anniversary of the signing of the Geneva Convention which inaugurated the International Red Cross movement. For it was on August 22, 1864 that there was terminated the conference whose object was "the relief of the wounded of the armies in the field." It was Henry Dunant in his "Souvenir de Solferino" who first suggested the idea of creating in times of war auxiliary societies for the relief of the wounded. At the call of the Society of Public Utility of Geneva an international conference met in that city in October, 1863, and formulated a set of resolutions which established that wonderful humanitarian movement which forms the bright background in the dark picture of modern warfare. In order that these resolutions might have the force of a treaty a diplomatic conference met in Geneva at the request of the Swiss National Council under the patronage of Napoleon III. The representatives of twelve nations signed the famous pact which has since been known as the Geneva Convention. Too well known to need repetition is the story of the remarkable growth of the Red Cross movement which received its official impetus on that day—the movement which has enlisted the cooperation of every

nation on the globe, and which has extended its sphere of usefulness beyond the battlefields of war to scenes of famine, of pestilence, and of industrial disaster. It may be of interest to Americans to know that the Geneva Convention was signed in the hall which was later named the "Hall of the Alabama" after the court of arbitration which met to settle the *Alabama* claims which had been a bone of contention between Great Britain and the United States. France was the first nation to become a signatory to the Geneva Convention and although the United States had taken part in the original conference, it did not ratify the action of its representatives until 1882. The last nation to fall in line was Ecuador in 1907. In the meantime the articles of the Convention of 1864 were superseded by those of the Convention of 1906, of which the United States had the honor of being the first signatory. Apart from participation in the International Red Cross the different nations have established their own national Red Cross organizations, the first of which was founded in Würtemberg in 1863. The American organization was born in 1866. The worldwide efficiency of the latter needs little comment. Of the contributions made to the Red Cross funds for the relief of the wounded of the five nations that took part in the Balkan Wars of 1912, the largest sum of money came from the United States.

Successful Treatment of Tetanus Neonatorum

The undoubted power of magnesium sulphate as used by intraspinous injections over the convulsions of tetanus is offset by the fact that death may still occur from severe complications, which may well be ascribed in part to the paralyzing action of the drug. Attempts are naturally being made to neutralize the overaction of the magnesium. Before the Pedriatic Section of the Verein für innere Medizin und Kinderheilkunde, Berlin, which met last July (*Berliner klinische Wochenschrift*, July 27) Falk reported three cases of tetanus neonatorum, seen within four months, in all of which recovery ensued. The solution of magnesium sulphate employed varied from 8 to 25 per cent. To offset the paralyzing action chlorate of calcium was injected. In discussion Finkelstein added that the duration of the disease was not diminished, but the treatment certainly prevented the violent convulsions which often terminate life suddenly and, moreover, gave opportunity to push nourishment while the jaws were relaxed. Falk stated, that feeding must be done early, and that one must be sure that the magnesium has not caused deglutition paralysis. Late feeding might set up spasms.

News of the Week.

To Muzzle Dogs.—As the result of numerous complaints made recently and the death of a boy from rabies in Bellevue Hospital last week, the Department of Health has ordered that all dogs in New York City must be muzzled, the order to become effective on September 15.

Typhoid Fever on Hart's Island.—An outbreak of typhoid fever among the prisoners on Hart's Island, New York, has made it necessary for the Department of Health to assume control. The city reformatory for boys and a branch of the workhouse are situated on the island, and the inmates number about 800. During the first two weeks of August 15 cases of typhoid fever were reported, and investigation showed that some of the patients had picked vegetables from a garden near the potter's field on the island, and that others had eaten clams found on a beach contaminated by sewage. The Health Department will inoculate all of the inmates with anti-typhoid serum.

Call for Nurses.—The American Red Cross on August 15 sent out its first call for nurses to join the relief expeditions which it is preparing to send to Europe. Great Britain, France, and Russia, through the American embassies in those countries, have already formally accepted the offer of surgeons, nurses, surgical equipment, and hospital supplies, from the Red Cross. One of the Red Cross units will also be sent to Servia.

Decrease in Infant Deaths.—Notwithstanding the extreme heat during the week ending on August 22, the number of deaths of infants under one year was four less than that for the same week of last year. In the Borough of Manhattan the deaths were increased by eleven, but in both Brooklyn and Queens there was a decided reduction. The total number of deaths was 346.

Beef Tuberculosis Board.—The commission authorized by the New York State Legislature to undertake the scientific study of the causes of bovine tuberculosis, its economic and health effects upon the State, and to report its findings to the Legislature, with recommendations, has been appointed by Governor Glynn. An appropriation of $5,000 is available to defray the expenses of the commission, which, at the Governor's request, will meet and organize as soon as possible. The members of the commission are as follows: Dr. Theobald Smith, Director of the Division of Animal Pathology, Rockefeller Institute; Dr. Hermann M. Biggs, Commissioner of Health, State of New York; Dr. Linsly P. Williams, Deputy Commissioner of Health, State of New York; Dr. Philip Van Ingen, of the New York Milk Commission; Dr. Henry L. K. Shaw, Professor of Children's Diseases, Albany Medical College; Henry H. Law, of Briarcliff Manor; Seth Low; Prof. Veranus A. Moore, of Ithaca, Dean of the New York State Veterinary College, Cornell University; Calvin J. Huson, New York State Commissioner of Agriculture; A. L. Brockway, of Syracuse; Prof. H. E. Cook, Dean of the New York State School of Agriculture at Canton; W. H. Vary, of Watertown, Master of the State Grange; Albert Manning, of Otisville; V. Everit Macy, of Ossining; H. J. Wright, editor of the New York *Globe;* James A. D. S. Findlay, of Salisbury Hills; Judge O. U. Kellogg, of Cortland; Edward Van Alstyne, of Kinderhook, Director of the Farmers' Institutes in the State Department of Agriculture, and Henry L. Best, of West Sand Lake.

The Long Island State Hospital for the Insane, Brooklyn, which has heretofore been leased from the City of New York by the State of New Yohk for the nominal figure of $1 per year, since the State Care Act went into effect in 1895, was transferred by deed from the City of New York to the State of New York on August 10.

"Twilight Sleep" Hospital.—It is rumored that plans are under way in New York for the erection of a hospital in the Bronx where maternity cases can be treated by the so-called Freiburg method of inducing "twilight sleep" during labor.

American Electro-Therapeutic Association.—The annual meeting of this association will be

held at Battle Creek, Mich., on September 15, 16, and 17, 1914, under the presidency of Dr. George E. Pfahler of Philadelphia. Details as to the programme and the exhibit of physiotherapeutic apparatus which is being prepared may be obtained from the secretary of the association, Dr. J. Willard Travell, 27 East 11th street, New York.

Personals.—Dr. JAMES M. JOBLING, assistant professor of pathology at the College of Physicians and Surgeons, New York, and formerly pathologist to the Michael Reese Hospital, Chicago, has been appointed professor of pathology at Vanderbilt University, Nashville, Tenn.

Dr. ALEXIS CARREL will, it is now reported, be made director of the Military Hospital of Lyons, France, throughout the war. Last week it was rumored that he had already gone to the front with the French army.

Dr. JOHN E. B. BUCKENHAM, first assistant resident physician in the Philadelphia Municipal Hospital for Contagious Diseases, has been appointed acting superintendent, vice Dr. Wm. H. Walsh, who has been granted a month's leave of absence prior to assuming the duties of medical superintendent of the Children's Hospital.

Obituary Notes.—Dr. JAMES ROBIE WOOD of New Brighton, N. Y., a graduate of the Bellevue Hospital Medical College in 1867, a surgeon in the Confederate Army during the Civil War, and formerly in charge of the Ward's Island Hospital, New York, died on August 9, on board the United States transport *Logan*, while en route from Manila to San Francisco, in his 77th year.

Dr. CHARLES SEGERLUND, of Caledonia, Ill., a graduate of the Bennett Medical College, Chicago, in 1897, and a member of the American Medical Association, and the Illinois State and the Boone County Medical Societies, was struck and instantly kiled by a railroad train at Caledonia on July 24, aged 47 years.

Dr. THOMAS E. HEENAN of Philadelphia a graduate of the Medical Department of the University of Pennsylvania, but for many years past in the diplomatic service of the United States, and recently consul-general at Fiume, Hungary, died at his post, from heart disease, on June 26.

Dr. ROBERT P. PAGE of Berryville, Va., a graduate of the Medical Department of the University of Pennsylvania, Philadelphia, in 1861, a surgeon in the United States Army during the Civil War, died at his home on July 27, after a short illness, aged 76 years.

Dr. CHARLES P. GARLAND of Rock Island, Va., a graduate of the Hospital College of Medicine, Louisville, Ky., in 1891, died recently at the Tucker Sanatorium, Richmond, from pellagra, after a long illness, aged 47 years.

Dr. HENRY KNOX STRATFORD of Chicago, Ill., a graduate of the Eclectic Medical College of Pennsylvania, Philadelphia, in 1865, died at his home on July 28, aged 93 years.

Dr. WALTER FREDERICK APPLETON of Passaic, N. J., a graduate of the New York Homeopathic Medical College and Hospital in 1906, died at White Haven, Penn., on July 30, aged 35 years.

Dr. JACOB JACQUES FABIAN of Grand Rapids, Mich., a graduate of the University of Tennessee, Medical Department, Memphis, in 1907, and a member of the Michigan State and Kent County Medical Societies, and secretary of the latter, was drowned while bathing at Ottawa Beach, on July 28, aged 30 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA —INTERNATIONAL DENTAL CONGRESS.

LONDON, August 7, 1914.

THE Clinical Congress of Surgeons of North America has come to London for the celebration of its fifth annual session, which I think may be pronounced a great success. The meetings were numerously attended by enthusiastic members. But the great feature of this congress is not theoretical discussion but the visiting of surgical wards of hospitals and here that method of studying one another's clinical work was duly carried out by a number of our general and special hospitals. We were able to show also a number of cases illustrating the after history of patients who had been subjected to serious and special operations. Sir Rickman Godlee delivered an address of welcome and invited the visitors to inspect the Hunterian Museum, which they were actually eager to do. At the Royal College of Surgeons a lecture was given by Mr. S. G. Shattock on the origin and growth of tumors and the visitors seemed glad to hear him state the views he holds on cancer. He repudiates the common belief as to its hereditary character. Further he insists that it is not transferable from one person to another, though he admits it may perhaps be transferred from one part of the body to another part of the same patient; that is, he cannot dispute the possibility of autoinoculation. Many cases of cancer were seen in the course of the visits to the hospitals and operations for it witnessed. The skill of our surgeons in dealing with this and other diseases has been fully acknowledged and, I may say, admired. At the Westminister Hospital there was quite an exhibition—excision of mammary cancer, laperatomies, removal of part of stomach and of various abdominal and other tumors. At the London Hospital the whole of the stomach was, I am told, removed and a pouch of the alimentary canal arranged to serve as a substitute. But interesting as the rarer cases were the more general ones were perhaps on the whole better subjects for observation of the British methods, and J. B. Murphy on taking the chair referred to the difficulty of organizing a meeting at such a distance, but was glad it had been done as it gave so clear an impression of British surgery and those who practiced it. He believed the Congress would increase their admiration for each other's work and their realization of the brotherhood of science throughout the world.

Dr. Wm. Rodman, president-elect, expressed the satisfaction of the Congress at visiting London and conveyed cordial greetings to the British profession. A great number of papers were read and some elicited very instructive opinions and experiences. Among them Prof. V. Eiselberg's on the choice of operation for gastric ulcer, which was discussed by Watson Cheyne and James Sherrin; the former had himself an allied paper. Professor Schmiegelow related his results of operation for intrinsic cancer of the larynx. Sir St. Clair Thompson gave his experience of laryngo-fissure. Hyperthyroidism was well discussed *à propos* of a paper by Dr. Mayo of Rochester on the primary and late results of operations for this condition.

The Sixth International Dental Congress met

here on the 4th inst. In this as in other meetings the outbreak of war has had a marked effect. A dutiful message to the King was sent and one of thinks to the government regretting that the President of the L. G. B. who was to have been present was prevented under the changed circumstances. Mr. Howard Mummery, president, gave an address in which he touched on questions of medical interest. Caries, he believed, was a preventable disease, but only by the co-operation of government, medical men and the public—not a very costly event, I think. As to treatment there were two schools, one advocating the preservation, the other the removal of all diseased teeth. He regarded a hard and fast rule as a mistake. The state dealt with diseases which threatened life directly, but made no provision for the more subtle courses of degeneracy.

Mr. Paterson of the International Dental Federation lamented that war had deprived the Congress of so many delegates from European countries, but war could not stay the progress of dental science or destroy the friendship of its votaries and their efforts for the benefit of humanity.

Representatives of the Australian Commonwealth, of New Zealand, Canada, Argentina, Finland, Greece, Italy, Mexico, Russia, Spain, Japan, Sweden, Egypt, Hungary and the United States took part in the proceedings. The president said the government was unable to give the entertainment which had been arranged for and the usual banquet had been abandoned. The scientific addresses by representatives of French and German dentistry could not be given. Dr. E. C. Kirk of the University of Pennsylvania, however, dealt ably with the tendencies of dental education, holding that the scope of character of the special dental curriculun must be improved to meet the demands of modern education. Dr. W. Guy of the Edinburgh school and president of the British Dental Association gave an address on "Narcosis." He said the man who gave chloroform for dental operations was either ignorant or deliberately sinning against light, as ether was less dangerous. For prolonged operations nitrous oxide and ether, in mixture or in sequence, was of value and with the addition of oxygen still better. A mixture of nitrous oxide with oxygen ought to supersede all and it was the urgent duty of all anesthetists to become expert in its administration.

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

TREATMENT OF LEPROSY—COCCIDIOSIS IN CATTLE—IMPROVED HEALTH CONDITIONS IN MANILA—CONTROL OF THE PHILIPPINE GENERAL HOSPITAL NATIVE GRADUATE NURSES.

MANILA, P. I., July 11, 1914.

THE regular meeting of the Manila Medical Society was held at 8:30 P.M., Monday, July 6, in the College of Medicine and Surgery. The first paper read was by Dr. Heiser upon the treatment of leprosy with a mixture of Chaulmoogra oil, resorcin, and camphor. He stated that nothing especially new was claimed for the treatment but that the results up to the present time show that it has the apparent effect of arresting the disease regardless of its type in almost every instance. Statistically, the results of the 9 cases which he reported were as follows: Apparent cures, 11.11 per cent.; apparent clinical recoveries, 44.44 per cent.; showing marked improvement, 33.33 per cent.; showing only slight evidence of improvement, 11.11 per cent. The prescription used is the following: Chaulmoogra oil, 60 c.c.; camphorated oil, 60 c.c.; resorcin, 4 gm. Mix and dissolve with the aid of heat on a water bath, and then filter. He gave the following details as to the treatment: The injections are usually made at weekly intervals, in ascending doses. The initial dose is 1 c.c. and this is increased to the point of tolerance. Much difference exists among the cases as to the amount of the mixture which they are able to take. In some cases a few cubic centimeters produce marked reactions in the lesions accompanied by fever and cardiac distress. Sometimes it is better to reduce the amount of the dose and inject at more frequent intervals. The object sought is so to regulate the dose as to prevent reactions of too violent a character. Quicker results are also apparently obtained when it is possible to inject the mixture into large leprous deposits or to divide the dose by injecting it into a number of smaller infiltrations. Experience so far leads to the inference that with additional study the prospects seem fair for greatly improving upon the results that are obtained at present. Attention is drawn to the fact that no strychnine was used. Many writers have regarded it as an essential part of the Chaulmoogra oil treatment. Saline purgatives are freely employed. Two per cent. hot sodium bicarbonate tub baths are prescribed every other day. Those who take prolonged baths regularly seem to improve more rapidly than those who do not. Dr. Heiser drew especial attention to the fact that it was important to remember that there are many treatments for leprosy which apparently cause some improvement, and it not infrequently happens that when cases of leprosy are placed under better hygienic conditions and have hospital care, or for other reasons not understood, that often the disease is arrested, in a few instances improvement results, and that apparent cures may take place without any treatment.

The next paper read was entitled "Clinical Observations on Coccidiosis in Cattle and Carabaos," by Dr. C. H. Schultz. Dr. Schultz showed cultures of the organism which he had found in the cattle of the Philippines and gave much clinical detail as to the differential diagnosis between rinderpest and coccidiosis. He stated that the mortality from coccidosis was apparently as great as from rinderpest and no doubt was frequently mistaken for that disease. He further said that its spread was perhaps principally due to infected water supplies.

The improvement in Manila's death rate still continues. During the month of June the very low rate of 17.65 per thousand was reached, which was very much lower than any mortality which has been reported since the American occupation of the Philippines and when contrasted with the mortality of 44.28 per thousand of June 10 years ago may be regarded as an index of the improvement which has been brought about in the health situation.

The controversy as to whether the Philippine General Hospital should be transferred from the control of the Bureau of Health to the College of Medicine and Surgery of the University of the Philippines has apparently been definitely settled. The Secretary of the Interior held both public and private meetings and went into the question at length with the result that the Hospital is to continue as a division of the Bureau of Health, and the College of Medicine and Surgery is to be re-

lieved of the treatment of government employees and pay patients. One hundred or more beds are to be available for teaching purposes. There has also been created an advisory board to be composed of prominent citizens who are to assist in settling administrative questions which arise in connection with the hospital. It is hoped that this board will prove useful in disseminating information among the public with regard to the functions of a modern hospital. The Philippine General Hospital was organized on a thoroughly modern basis but when it is remembered that the public of the Philippines has had very little experience or opportunity to become familiar with the objects and purposes of a large general hospital, or the customary rules by which such institutions are governed, it is not strange that misunderstandings should occur from time to time.

There has been a gradual extension in the employment of graduate Filipina nurses to assist provincial health officers in the discharge of their duties. The results, for instance, in the province of Cebu have been very satisfactory and the nurses have been of great assistance in disseminating useful information. They have been of great assistance in the management of a "Gota de Leche" depot for the distribution of safe milk; in giving public lectures and practical demonstrations in the homes of the people of how bacillary dysentery may be avoided; in settlement work, etc. A provincial nurse is on duty in Samar and arrangements have been about completed for the employment of similar nurses in the provinces of Albay, Ambos, Camarines, and Bulacan. Within the next few weeks it is proposed to detail nurses to health stations in the city of Manila in order that they may give practical demonstrations in the homes of the people with regard to infant hygiene and other sanitary matters.

FIFTH ANNUAL SESSION OF THE CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA.

(From Our Own Correspondent)

LONDON, July 30, 1914.

AMONG the many splendid papers read at the Congress, none was more practical and valuable than that of Dr. George E. Armstrong of Montreal. The subject chosen by Dr. Armstrong for discussion was typhoid perforation and some highly instructive points were brought out. As was the case at all the sessions, the session on Wednesday evening, July 29, was fully attended and the papers read were followed with keen interest. Dr. Armstrong commenced by pointing out that in the two provinces of Quebec and Ontario in Canada there were during the five years 1908-1912 inclusive 6,011 deaths from typhoid fever, an average of 1,202 deaths per annum. In the province of Alberta during the five years 1908-1912 inclusive there were 852 deaths from typhoid fever, an average of 170 per annum. In the United States of America during the four years 1909-1912 inclusive there were 45,833 deaths from typhoid fever, an average of 11,458 deaths per annum. The average death rate was a little over 20 per 100,000 of population. Dr. Armstrong went on to say that the responsibility for the enormous waste of human lives could not be laid at the door of the medical profession. It was a reflection upon the humanitarianism and business acumen of the laity in these countries. It had again and again been proven to a demonstration that pure water and efficient drainage prevented typhoid. Typhoid could be arrested by an Act of Parliament and by municipal legislation. Regarded as a purely economic question the money spent in removing the causes of typhoid would earn larger dividends than if invested in the best bonds in the world. Why should not municipalities, towns, and cities be made as responsible financially for the loss of time and loss of life from a preventable disease like typhoid as were the transportation companies by land and water made responsible for preventable accidents? However, typhoid was still with us, and was still attended by a mortality from several complications, 75 per cent. of which were surgical.

As for prognosis, attention was drawn to the fact that a typhoid perforation not closed by the surgeon was almost always a fatal complication. Emphasis was laid upon the need for early diagnosis, and the diagnostic symptoms mentioned in Choyce's "Surgery" and Howard's "Practice of Surgery" were criticized as inaccurate. According to Armstrong the first indication that a perforation had occurred was usually pain. And an important point in the training of a typhoid nurse was to teach her to send for the interne whenever a typhoid patient complained of abdominal pain. In 25 per cent. of cases not having pain at onset the following conditions were found: In 11 per cent. toxemia obscured all signs; in 4 per cent. the condition was obscured by severe concurrent hemorrhage; 4 per cent. were not diagnosed; 1 per cent. had chills; 2 per cent. had rigidity, and 4 per cent. had vomiting. The symptom that Armstrong would place second because of its constancy and significance was change of expression. This change of expression was manifested in a picture of suffering from pain, a sudden pallor, a change from a feeling of comfort to that of distress, restlessness, cardiac failure, vomiting, painful defecation, loss of rallying power after hemorrhage, a chill, profuse sweat, general malaise, an unaccountable change for the worse in the general condition, or sometimes a feeling on the part of those in attendance that something had happened that they could not account for. Tenderness was present in some degree in 88 per cent. of the cases and absent in 12 per cent. Eighty-five per cent. of the cases showed distinct rigidity and 15 per cent. did not.

Little or no value could be attached to the absence of liver dullness. If the area of liver dullness had been noted from day to day and then suddenly disappeared in association with abdominal pain, it was significant. It was valueless in a distended abdomen. It was obliterated in 45 per cent., unchanged in 15 per cent., and not mentioned in 39 per cent. The fall in temperature so often spoken of rarely occurred. Occasionally there was a fall of one or two degrees in six or eight hours, but only in a few cases did any spectacular drop, such as from 103° F. to normal, take place. The pulse changes were always clear. A sudden change from slow and good volume to rapid and small often occurred. In 95 per cent. of the cases the pulse quickened. Of the change in blood pressure he could not speak. Those who had seen many typhoid perforations would appreciate Fitz's statement that perforation of the intestine in typhoid fever might take place without any suggestive symptoms, and that suggestive even so-called characteristic symptoms might occur without any perforation having taken place.

The following were the symptoms which in Arm-

strong's opinion called for immediate incision, or rather were the minimum of signs that might demand surgical intervention: Persistent pain, definite change for the worse in the expression of the patient, tenderness, either abdominal or rectal, rounding up of the abdomen, and increased resistance to pressure. If these symptoms were present, even if the temperature and pulse were not decidedly altered nor vomiting present, the likelihood of a perforation was very great.

Local anesthesia, it was pointed out, had very materially altered our attitude towards early operations. It was no longer necessary to administer a general anesthetic. The closing of a typhoid perforation was one of the simplest operations in surgery, one that could be quite well performed by any one capable of carrying out a perfect surgical technique. After describing his own mode of operation, Armstrong laid stress on the point that the percentage of recoveries was gradually increasing. In the Royal Victoria and Montreal General Hospitals, 140 perforations had been closed and 38 had recovered, or 27.14 per cent. The paper concluded with the expression of opinion that an important point was to let the house staff of a hospital feel that it was a reflection on their professional attainments to overlook a perforation. When once they really appreciated that fact cases were sent to the operating room promptly.

Sir Anthony Bowlby of London, in discussing this paper said that he had gained a considerable amount of experience of typhoid and its surgical accidents during the South African war. He held the view that most cases of supposed recovery after perforation without surgical treatment were not really cases of perforation; perforation was almost invariably fatal without operation. Early diagnosis which could generally be obtained and prompt operation should be the routine treatment. The difficulty of diagnosis was in direct proportion to the severity of the illness. A patient stupified by toxemia could not describe his symptoms. More than half of all the cases of perforation were not given a chance of operation. He mentioned among the premonitory symptoms large sudden hemorrhages as conducing to the liability of perforation. Pain, often very sudden, severe, and diffuse over the whole abdomen was an important symptom in proportion as the patient was mentally alert, nor was its abeyance to be taken as a restorative sign. A blood count should be made two or three times a week as part of the routine examination in typhoid fever. A sudden rise in white cell count suggested the onset of some inflammatory lesion. He agreed with Dr. Armstrong on the importance of observing the patient's expression, for even if the patient were unconscious he showed a restlessness after perforation contrasting strongly with his previous lethargy. A rigor after the second week should always excite suspicion. The point was earnestly emphasized that perforation might be multiple, therefore the surgeon should not be content with discovering and dealing with a single perforation.

The next paper read was also of exceptional value and interest. It dealt with hyperthyroidism from a surgical standpoint, and although the views of the author, Dr. C. H. Mayo, are probably known to a large proportion of the American medical profession, to the English part of the audience in the Cecil Hotel on the evening of July 24, many of the theories and facts concerning hyperthyroidism expressed by the distinguished Rochester surgeon were more or less new. Moreover, the subject was presented in a singularly attractive manner, if it were allowable to use such an expression in referring to a surgical subject. Dr. Mayo did not read from manuscript, but in an easy and natural way discoursed of the matter from several aspects. He pointed out that the term "hyperthyroidism" was so expressive of a group of symptoms, the symptom-complex of which has been seen and described under various names in all countries, that it was chosen as the title of the study.

In discussing hyperthyroidism the following points were noted: (1) Practically all cases of clinically true exophthalmic goiter showed marked primary hyperthrophy and hyperplasia of the parenchyma of the thyroid. Furthermore, the clinical stage of development of the disease was paralleled by the stage of development of the pathological condition in sufficiently marked degree that one might estimate the clinical condition from the pathological examination with about 80 per cent. of accuracy. The degree of severity of the clinical condition was similarly paralleled by the pathological condition of the gland. The relationship between hypertrophy and hyperplasia of the thyroid and the clinical symptoms of true exophthalmic goiter was remarkably constant. (2) While a mild degree of hyperthrophy and hyperplasia within physiological limits might be present in the gland, particularly in the young and during pregnancy, yet the absence of this condition in the thyroids of adults coming to operation for toxic, nonexophthalmic, and nontoxic goiters was most striking. Without making any allowance for either clinical or pathological errors of diagnosis, less than 1 per cent. of all cases coming to operation for goiter showed any considerable primary hypertrophy and hyperplasia of the parenchyma of the thyroid except as associated with clinical symptoms of true exophthalmic goiter. (3) The pathology of atoxic simple goiter was marked essentially by atrophic parenchyma, decreased function and decreased absorption. The process was a chronic one. (4) The pathology of toxic nonhyperplastic goiter of Plummer's clinical group 2, that is, those resembling exophthalmic goiter, was one of increased parenchyma through regenerative processes in atrophic parenchyma or the formation of new parenchyma of the fatal type with an increase in each instance of secretory activity and of absorption. The process was a chronic one, but sufficiently active to cause the patient to consult a surgeon earlier than did those in clinical group 1. (5) The nearer the cases of clinical group 2, toxic nonhyperplastic, approached in age and symptoms true exophthalmic goiter the shorter the duration of the period of goiter before operation and the smaller the average weight of the gland at the time of its removal. (6) The cases of toxic goiter of clinical group 1, that is, those in which the symptoms were of the cardiovascular variety, much more closely resembled cases of simple goiter in their pathology in all respects than did the cases of clinical group 2. A larger number of them were of the colloid goiter type; the enlargement of the thyroid had existed for a longer period before operation and the portion of the gland removed was materially larger than in those cases of clinical group 2. (7) Finally, it might be stated that all the above pathological evidence pointed to a constant relative association of increased secretion and increased absorption from the thyroid proportional to the degree of

toxicity on the part of the patient. There had been as yet no absolute proof that such secretion and absorption were the causes rather than coordinate with the symptoms, but the evidence presented strongly pointed to that conclusion. In answer to the question: What caused an oveactivity of the thyroid? it was possible that the condition might arise from extra demands made upon the gland in its capacity for nutrition or defence in toxic conditions. Possibly in its latent sex relationship such demands might be temporary or long continued. For a time the excess secretion might be neutralized. When shock was regarded as the cause of the sudden onset of hyperthyroidism it was often only an evidence that the equilibrium of the nervous system had been upset in the presence of a latent hyperplastic thyroid, thus producing the sudden symptoms which had previously been controlled or neutralized. It was stated that up to June 15, 1914, 6,868 operations had been performed for goiter in St. Mary's Hospital, Rochester. Of these, 3,295 had been performed upon patients with hyperthyroidism.

Mayo was of the opinion that the various types of goiter should be treated both medically and surgically. Exophthalmic goiter was essentially a disease of a chronic character, presenting exacerbations and ameliorations of symptoms extending over a period of months or several years. After the first year the gland often underwent a regression. However, while the disease was amenable to medical treatment by the removal of a large amount of the hypersecreting gland it was by no means urgent surgery, and all patients during periods of exacerbation should be considered as medical cases. The technics of operative procedure of ligation, sympathectomy and thyroidectomy were described and then the fact was referred to that the great lowering of mortality following operation for exophthalmic goiter was due less to trivial details of technique than to better judgment in the preparation of patients, the selection of a time, type and extent of operation, and its division into stages, with varying intervals of rest. The high mortality of the past was no longer a determining factor against surgical treatment. As many as 275 consecutive operations had been made on the thyroid between deaths occurring from the operation. The average operative mortality at present probably varied from one to three per cent. Relapse of some degree occurred in a small percentage of cases through the removal of too small an amount of the thyroid. Such cases should be reoperated upon.

Mayo concluded his paper by a reference to the effect of pregnancy upon the disease or following the operation. A few of these patients were in much better health during pregnancy; however, in the majority the symptoms were worse. He believed that the risk to life incident to pregnancy and labor was less than from abortion, which rarely should be produced, since most of such patients improved after child birth.

Mr. James Berry of London said that he would speak chiefly on the clinical side of hyperthroidism. His experience had been in hundreds and not in thousands as had been that of Dr. Mayo. He had done 966 operations for the removal of goiter, or adding operations for ligation of thyroid arteries, somewhat more than 1,000. For some time he had been opposed to operating upon exophthalmic goiters, but experience and improvements in technique and in methods of producing anesthesia, especially local analgesia had changed his views, though even now he was careful as to the selection of cases. Dr. Mayo had emphasized the need to avoid operations during mental irritability, muscular weakness and acute cardiac dilation. In many severe cases, however, it was unnecessary to perform the larger operations as ligation of a superior thyroid artery was not only a safe but a satisfactory procedure whether preliminary to subsequent thyroidectomy or not. Berry divided cases of hyperthyroidism for practical purposes into (1) those with the classic symptoms and (2) ordinary goiters on which any one or two of these symptoms might be grafted. The second class could be cured by operation with little risk. He had performed 215 operations for hyperthyroidism since 1912. In his Lettsomian lectures he had recorded his experience up to that time. Of the 215 operations 82 had been for true exophthalmic goiter with one death and there had been two deaths among the other 173. In the cases of ligation of the thyroid no deaths had occurred.

Progress of Medical Science.

Boston Medical and Surgical Journal.

August 13, 1914.

1. Remarks Upon the Effects Observed in the Use of Mixed Toxins (Coley) in Certain Cases of Sarcoma. T. W. Harmer.
2. On the Diagnosis of Incomplete Forms of Pyloric Stenosis by Means of the X-Ray. F. H. Baetjer and J. Friedenwald.
3. Easily Made Dialyzer for Abderhalden Test. H. Greeley.

1. Coley's Mixed Toxins in Sarcoma.—T. W. Harmer concludes that the treatment of primary or recurrent inoperable sarcoma with mixed toxins must be intensive. The severity of the reactions may be lessened by certain measures and the author sees no contraindication to the treatment. The increment of dose and the interval between injections require some experience, but even after a considerable experience this method of treatment is always uncertain. Indeed, it is so uncertain and distressing that its institution is unjustifiable in any case in which operative measures of reasonable safety offer a possible hope of cure. A frank statement of the nature and severity of the reactions and the possibility of benefit should be made to the patient or to some responsible person before the treatment is instituted. This should be used in no case unless the tumor has been proven microscopically to be sarcoma. The percentage of apparent cures may be regarded as varying from 9.4 to 18.8. The author's study suggests that the toxins offer no expectation of benefit in cases of multiple melanotic growths, in cases of mixed cell growths, in cases with intraabdominal growths, and in cases with growths arising from subcutaneous tissue or bone, excepting, perhaps, giant cell growths. The Coley toxins may be legitimately tried in cases of single melanotic growths. They are apparently of value in cases of sarcomata arising in the nose and accessory sinuses, whether spindle-cell, giant-cell, or round-cell. The operative treatment of true giant-cell tumors gives in the majority of cases such good results that the toxins are not indicated. Their use is, however, warranted in those cases in which the growths are so situated that complete surgical eradication is impossible (such as giant-cell tumor of the spine) and in these cases the author believes that the attack should be primarily surgical, followed immediately by toxin treatment.

3. Easily Made Dialyzer for Abderhalden Test.—H. Greeley describes this device as follows: Take a small-sized test tube and file off the closed end, smooth the raw edge and fold over the cut end a piece of lens-

paper which should be held in place by a small rubber band twined over it about one-quarter of an inch above the edge of the tube. With a camel's-hair brush paint collodion over the outside of the lens-paper, dry it, and suspend the tube in one of larger size, upon whose lip the lip of the smaller tube should rest. Sterilize the apparatus in Arnold's sterilizer and apply the usual permeability tests. A little practice may be necessary before one learns to properly regulate the thickness of the coat of collodion applied.

New York Medical Journal.

August 15, 1914.

1. The Scope of the American Society for Physicians' Study Travels. J. M. Anders.
2. National Quarantine. L. E. Cofer.
3. The Value of Skimmed Milk and Its Dilutions in Fever. L. Fischer.
4. The Effects of Caffeine and Nicotine on the Activity of the Intestinal Musculature. W. A. Frankland.
5. The Campaign Against Pulmonary Tuberculosis. A. Robin.
6. The Value of Renal Functional Tests to the Surgeon and the Limitations of these Tests. J. T. Geraghty.
7. Pyloric and Duodenal Obstruction. F. Buckmaster
8. Further Development of the Usefulness of the Sanatorium. C. B. Slade.
9. The Treatment of Diabetes Mellitus with Bacillus Bulgaricus. P. Horowitz.
10. A Sputum Trap for Lung Examinations. G. E. Barnes.

3. The Value of Skimmed Milk and Its Dilutions in Fever.—L. Fischer believes that in pneumonia one should give no more than one-half of the quantity of milk formerly given. The frequency of feeding should also be reduced. Solid food should be prohibited during an acute febrile attack, regardless of the diagnosis, so that eggs, meat, vegetables, and bread should be prohibited. On the other hand gruels may be permitted in many diseases. Thus a farina or oatmeal gruel, or a barley gruel made with diluted milk is well borne and may be ordered. Fruit juices, such as orange juice and pineapple juice, are grateful and quench thirst. One of the best remedies to give is water for its antipyretic and laxative effects, and because it stimulates the kidneys. The tolerance for carbohydrates during fever is limited and in many cases they are contraindicated. Fat in the form of butter or cream is also contraindicated. Skimmed milk should be diluted with an equal quantity of water. By this method of feeding there is given a very low percentage of sugar and casein and practically no fat.

4. Effects of Caffeine and Nicotine on the Intestinal Musculature.—W. A. Frankland states that the effects of caffeine and nicotine on the activity of the intestinal muscles are important because a large number of patients with digestive disorders use coffee, tea, and tobacco. The effects of caffeine appear to be stimulating to the nerve centers from which come impulses to the intestinal muscles, causing contractions which are not coordinated for peristalsis. There does not seem to be any increase in the activity of the reflexes in the intestinal wall causing the peristaltic wave which would push the mass of intestinal contents downward. The tendency is to intensify contractions which narrow the lumen of the intestine and add resistance to the passage of its contents. On injecting nicotine in small doses into the jugular vein of dogs, Bayliss and Starling found that Auerbach's plexus was paralyzed by intense stimulation of the splanchnic nerves whose influence is not motor, but inhibitory. Under nicotine an intestinal contraction caused by pinching was not propagated in either direction. The rhythmical contractions become stronger, and as they pass in either direction do not perform the function of normal peristalsis. Cushny states that "nicotine produces nausea and vomiting with repeated evacuation of the bowels. Tetanic contractions of the whole intestine may occur with almost complete contraction of the lumen." Nicotine "first stimulates, then paralyzes the sympathetic ganglia" and stimulates the spinal reflex centers. In the light of these facts it is necessary to forbid the use of coffee, tea, and tobacco in the spastic stage of chronic constipation and in the conditions which result therefrom, as mucous colitis, mucous colic, and stercoral diarrhea. Coffee and tobacco taken at the same time unite their effects and form a combination opposed to rational therapeutic measures—an opposition too important to be neglected. Perhaps these articles are not often etiological factors without the assistance of other influences, but their evil effects are undoubted when the disease is once established.

6. Renal Functional Tests.—By J. T. Geraghty. (See MEDICAL RECORD, April 11, 1914, page 683.)

7. Pyloric and Duodenal Obstruction.—F. Buckmaster states that of the patients with gastric complaints each one must be studied individually and completely with the aid of a written history taking in all the details; complete physical examination in relation not only to the stomach but also to all other parts, as the cause of 90 per cent. of all stomach distress rests outside the stomach; associated with these the various test meals and special stomach and *x*-ray examinations should be made regularly. Clinically, pyloric or duodenal blockade begins to be important when gastric drainage is interfered with, just as is the case in blockade in the vesical neck. In either case with retention once initiated, fermentation and added infection result, and the condition progresses from bad to worse, in proportion to the amount of retention, as determined from time to time by the obstructing lesion. In both organs one may have an early muscular hypertrophy, with cramps and spasms of the outlet, and pains due to irritation and inflammation of the mucous linings; and in both, as the degree of obstruction increases, one will get motor insufficiency and dilatation, together with a sagging down of the base of the organ; and finally a complete inability to function. A correct diagnosis can be made in the early stage of these conditions of retention, before great damage has been done, and the proper treatment can be applied to the cause, which is better than to treat the one case indefinitely for chronic gastritis, and the other for chronic cystitis. A diagnosis of chronic gastritis, nervous dyspepsia and indigestion, hyperchlorhydria, hypersecretion, gastralgia, etc., in itself means nothing, and these should be dropped as diagnostic terms. It is wrong to wait for hemorrhage before one diagnoses ulcer; or for tumor, emaciation, cachexia, and coffee-ground vomit before making a diagnosis of cancer; or extreme emaciation, large dilated stomach, and daily vomiting before diagnosing pyloric blockade. Most cases of pyloric and duodenal obstruction are clinically curable. The doomed malignant ones may receive much relief by gastric drainage, hence early diagnosis and proper treatment in these cases is a very important matter to the sufferer. Likewise more attention should be given to the timely treatment of the causative conditions.

Journal of the American Medical Association.

August 15, 1914.

1. Anatomical Structure and Function. W. Ophüls.
2. The Present Status of Pyelography. F. E. Keene and H. K. Pancoast.
3. A Report of Twenty-seven Unilateral Exclusions of the Pyloric Region, with Special Reference to Operative Technique. W. Bartlett.
4. A Microcephalic Idiot with Malformation of Brain. Report of a Case. A. K Petery.
5. Fundamental Intrapelvic Perineorrhaphy. A. Goldspohn.
6. Chief Factors in Failure of Operations for Retrodisplacement of the Uterus. F. C. Holden.
7. Enucleation with Transplantation of Fat Into the Orbit. E. Stieren.
8. Report of a Case Simulating Elephantiasis. P. W. Howle.

9. Infection of Nasal Cavity from Diseased Tooth-Root. Specimen Showing Pathway of Infection Through the Maxillary Sinus. W. R. Butt.
10. Cerebrospinal Examinations in "Cured" Syphilis. Cases in Which the Biological Method as a Control Has Been Used. B. C. Corbus.
11. The Treatment of Syphilis of the Nervous System. J. A. Fordyce.
12. The Sero-Enzyme Test for Syphilis. F. W. Baeslack.
13. The Intravenous Administration of Mercury in Syphilis. J. Kingsbury and P. E. Bechet.
14. The Etiology of Phlyctenular Ophthalmia. Is Tuberculosis Really as Important a Factor in the Causation of this Disease as is Now Commonly Taught? S. Theobald.
15. A Study of the Effect on Heterophoria of the Correction of Ametropia, with a Consideration of Some Associated Conditions. W. Zentmayer.
16. Functional Heart-Block in Pneumonia. S. Neuhof.
17. The Toxicity of Camphor (Camphorated Oil). D. J. M. Miller.
18. Rapid, Painless, Bloodless Method for Removing the Inferior Turbinate. W. P. Porcher.

2. The Present Status of Pyelography.—By F. E. Keene and H. K. Pancoast. (See MEDICAL RECORD, July 4, 1914, page 37.)

3. Unilateral Exclusion of the Pyloric Region.—By W. Bartlett. (See MEDICAL RECORD, July 4, 1914, page 37.)

5. Fundamental Intrapelvic Perineorrhaphy.—By A. Goldspohn. (See MEDICAL RECORD, July 4, 1914, page 38.)

10. Cerebrospinal Examintaions in "Cured" Syphilis.—B. C. Corbus points out that too little attention is still paid to the diagnosis of syphilis at the time of the presence of the primary lesion. A great majority of physicians fail to realize the golden opportunity that an early diagnosis presents. Control of the treatment by the biological examination of the blood serum must be supplemented by spinal fluid examinations. Intensive intravenous injections should always be tried first, in early cases, before intraspinal injections are resorted to. Based on clinical observation, there is a strong possibility of a specific spirochete for the nervous system.

12. The Sero-Enzyme Test for Syphilis.—F. W. Baeslack states that through the parenteral incorporation of foreign or changed protein into the organism one may observe the formation of enzymes in the blood of the body. The formation of these enzymes may be stimulated in the experiment at the will of the investigator, or it may take place in diseases of infectious origin, when the organisms themselves or the products of their action on the cells of the body, or both, are swept into the blood stream and there cause the development of the ferments which are capable of breaking up the complex foreign substances into their simpler non-specific component parts, which are either assimilated or thrown off. There is in syphilis a disease simulating many other conditions in which cell proliferation and destruction occur, so that the resorption of these broken-down foci by the blood will further stimulate the formation of enzymes against the protoplasm of the cells undergoing degeneration as the result of the presence of the *Treponema pallidum* in the body. The sero-enzyme test for syphilis, when carried out with syphilitic testicular tissue, is probably a specific reaction, since the somatic cells are highly specialized, presupposing a specific enzyme for their cleavage. Thus in the use of the gumma produced in rabbits by inoculation, one makes use of a substratum which, when free from contamination, is superior to tissue prepared from the tissue of syphilitic patients, which of necessity is contaminated and is likely to give rise to positive reaction in other conditions. The reaction is not applicable in cases in which cerebrospinal fluid is to be tested. The reaction is more specific than the Wassermann reaction, for it has always given a positive reaction with the serum of tabetics, while the Wassermann reaction in this condition is negative in about 40 per cent. of cases. The authors also point out nine cases of tuberculosis which gave a positive Wassermann reaction, although no sign of syphilis could be found in any of these patients. The specificity of the test is further shown in the eight cases giving a negative Wassermann reaction and a positive sero-enzyme test. The technique of the reaction demands cleanliness and careful control of shells, tissue, and serum and the carrying out of the ninhydrin reaction. The sero-enzyme test for syphilis represents, with the exceptions indicated, a true biological test for this disease.

14. Etiology of Phlyctenular Ophthalmia.—S. Theobald concludes that the evidence adduced in support of the doctrine that phlyctenular ophthalmia is a turebculous or pseudotuberculous lesion is far from convincing. The frequency with which the subjects of phlyctenulosis give a positive reaction to diagnostic tuberculin tests is of little significance in view of the fact that the same tests show a scarcely smaller percentage of positive reactions in healthy persons. There is excellent authority for the contention that "until some responsible observer has demonstrated the presence of the tubercle bacillus in an extended series of phlyctenules," or, at least, until it has been shown to be sometimes present, the assertion that the affection is in any sense tuberculous is without warrant. In the present state of knowledge of the etiology of phlyctenulosis, the employment of tuberculin as a therapeutic agent in this affection is unjustifiable, not only because the ill-considered use of tuberculin is capable of doing much harm, but also because the clinical evidence shows pretty clearly that, if it is not actually harmful, it surely is not helpful. Definite clinical signs of the existence of tuberculosis, apart from the ocular inflammation, may justify the administration of tuberculin, but even in such circumstances the effect on the eye could be only indirect. As phlyctenulosis is essentially a disease of childhood, and the typical cases occur, not in adult life, but in children, it is from the study of these cases that trustworthy conclusions as to the etiology of the affection are to be drawn. The study of these childhood cases shows, from the almost constant association of facial eczema with the ocular inflammation, that phlyctenular ophthalmia, as was formerly very generally held, is an ocular eczema, due, for the most part, like facial eczema, to intestinal intoxication, and that tuberculosis is seldom if ever an etiological factor.

The Lancet.

August 8, 1914.

1. Cancer of the Uterus. C. Ryall.
2. The Nature of Peritoneal Adhesions. A. Keith.
3. Osteoarthritis of the Hip: Diagnosis of Its Early or Pre-osteophytic Stages. R. L. J. Llewellyn and A. B. Jones.
4. The After Cure of the Consumptive. H. W. McConnell.
5. Treatment of Yaws by Intravenous and Intramuscular Injections of Salvarsan and Neosalvarsan. P. Harper.
6. Pneumosan in the Treatment of Pulmonary Tuberculosis. A. E. Carver.

3. Osteoarthritis of the Hip.—R. L. J. Llewellyn and A. B. Jones are convinced that careful physical examination suplemented by a discriminating analysis of the subjective symptoms will enable one to diagnose the oncoming of an osteoarthritis even prior to the formation of bony outgrowths. The early symptoms consist of pain (local and referred), tenderness of hip, alterations in attitude and gait, with limitation of mobility. Like tuberculous coxitis the pains of osteoarthritis in this joint may either be localized to the hip region or referred along one or all of the nerve trunks from which the articulation derives branches. Quite in the initial stages a feeling of pain, or rather of painful stiffness, is felt in the joint itself. Sensitiveness to palpation of the capsule of the hip is a very common sign, but needs careful examination for its detection. Referred pains at their onset are more often than not

dismissed as examples of pure sciatic or crural neuralgia, and regarded as of gouty and rheumatic nature the unhappy victim for years roams from spa to spa in search of relief. The chief peculiarity of these pains is not so much their intensity as the extraordinary length of the period they endure. Thus patients with well-marked malum coxæ always assert that they have not only for years, but for two or even three decades suffered with these pains. Almost invariably these subjects suffer at the same time with pain in the loins, which, of course, enhances the liability to confusion with sciatica—a condition so commonly associated with lumbago. In the initial stages no change in gait and attitude can be detected save in the temporary limping that follows the occasional incarceration of the enlarged synovial villi. But with their growth and the advancing involvement of the membrane the intra-articular irritation produced gives rise to spasm of the related muscle, and this to malposition through slight flexion of the hip-joint. Relative fixity of the joint is, of course, the sign of chief diagnostic importance, and even in the very earliest stages there is present some limitation in the arc of motion in the hip. The presence of flexion contracture is of prime value as an indication of the articular site of the affection, but there are always present also further restrictions of movement. The diagnosis of osteoarthritis of the hip in its terminal stages presents no difficulty, but unfortunately at this period in its life history treatment is of little avail.

British Medical Journal.

August 8, 1914.

1. Vis Medicatrix Naturæ. J. A. Thompson.
2. Antidysenteric Vaccination. W. Broughton-Alcock.

1. Vis Medicatrix Naturæ.—J. A. Thomson states that the healing power of Nature may refer to the extraordinary capacity that many living creatures have of healing their wounds and regrowing lost parts. Another very interesting aspect of the healing power of Nature is the way in which organisms defend themselves from injurious intruders, or parasites, or poisons. The title, Vis Medicatrix Naturæ, might also well enough apply to the part Nature plays in hygiene—a most alluring subject: how the sunlight is the most universal, economical, and effective destroyer of many disease germs; how various bacteria and infusorians make a clean thing out of an unclean, etc. The healing power of Nature might also refer to the fundamental healthfulness of wild Nature. The author conceives of the healing power of Nature as a means by which Nature ministers to the human mind all more or less diseased by the rush and racket of civilization, and helps to steady and enrich human lives. There are deeply rooted, old-established, far-reaching relations between man and Nature, which one cannot ignore without loss. It is a condition of sanity to know the country and the seasons, the hills and the sunrise, the birds and the flowers; to know—not merely to read about—the sting of the wind-driven snow and the changeful music of the sea. "There would be less 'psychopathology of everyday life' if we kept up our acquaintance with the bonnie briar bush and the cry of the whaup on the moorland." It is necessary to keep in touch with Nature in order to get the fundamental impressions of power, of largeness, of pervading order, of universal flux, of intricacy. The healing power of Nature is manifested thirdly in the beauty that is everywhere. Another healing virtue in Nature is to be found in the perennial interest and orderliness of Nature, which speaks to the moral as well as to the intellectual ear.

2. Antidysenteric Vaccination.—W. Broughton-Alcock, after recognizing from practical experience on man the impracticability of the employment of heated Shiga bacilli in subcutaneous injections in single or multiple doses, tried several other methods and at length arrived at a simple and practical one which may render service should the occasion for its use arise during the present war. Any race of *B. dysentericus* may, when treated, be so employed. The strains of all varieties of dysenteric bacilli at the Pasteur Institute show in man an extreme reaction, this being due to their endotoxicity, which is present in both recent and old laboratory strains, living and dead. The author's method consists in taking a twenty-two to twenty-four hours' culture of *B. dysentericus* on a test tube of peptone agar. This culture is washed in saline 0.9 per cent., and is centrifugalized. The deposit is diluted in 2 c.c. fresh saline and heated to 56° C. for one hour. The author counts or otherwise enumerates the bacilli per c.c., and places the 2 c.c. in 20 c.c. normal, heated, pooled (two or more) human serums for 10 c.c. normal heated horse serum. They remain together over night. If the author uses the former, he places the mixture in the ice house so that any possible spirochete may be destroyed. After well centrifuging twice (the second time after adding saline to wash the bacilli), the deposit is mixed with 0.9 per cent. saline, so that 1 c.c. contains 350,000,000 bacilli to the c.c. Preventive injections are made four at a time, and when possible in the afternoons; first dose, 1 c.c., that is, four injections of ¼ c.c. each made in the left side of the back over muscular tissue, and where the braces or kit to be carried by the soldier do not press (not in the arms). The skin is well raised and injections are made into the loose subcutaneous tissue. The second dose of 2 c.c. follows about eight or nine days later in similar fashion. A third similar dose may be made. The reactions most carefully followed have never in over 200 subjects been marked nor have they caused any inconvenience. The reduction in both local and general reactions to the untreated microorganism is really striking. All subjects the author has vaccinated live in endemic areas; so far there have been no cases among them. The above method is noted for its marked simplicity and for the rapidity with which a vaccine may be made—and used prophylactically and therapeutically—from the first pure culture of the particular microorganism that is causing an epidemic, despite the numerous varieties in any group.

Tongue Chewing.—B. Myers notes that this condition consists in the chewing of one side of the tongue by the teeth after practically the identical manner in which some children chew gum. In the process the premolars and molars of the particular side of the jaw move inward over the tongue for about a quarter of an inch, and then glide over until the upper and lower molars are in apposition again; then the movement is repeated. The rate is about ninety per minute. The chewing movement may be kept up for a few seconds or minutes, or for half an hour. It may be performed once or twice daily, or intermittently, at various intervals. The repetition of the habit makes part of that side of the tongue distinctly red, and occasionally inflamed and indented. Tongue-chewing is first noticed about the second year of life, and persists until middle age, or, perhaps, throughout life. It tends to be less noticeable with advancing years. Either sex may suffer from it. It occurs, apparently, in healthy families, in which certain members suffer from habit-spasms. Several members of one family may suffer from it. The habit is inherited, as far as one can see, and not copied. The same side of the tongue is always chewed in the same individual. The mental condition is quite normal, and the general health is not interfered with in any way. Bromides stop the tongue-chewing, but in time, after the patient leaves off the drug, the habit recommences.—*British Journal of Diseases of Children.*

Insurance Medicine.

Indigestion, a Forerunner of Diseases of the Cardiovascular and Renal Systems.—In the past few years all medical directors and insurance men have been very much interested in diseases of the cardiovascular and renal systems and their terminal results, especially apoplexy, myocardial degeneration, coronary sclerosis, and uremia following chronic nephritis. In spite of the care in selecting risks our mortality from the above diseases seems to be increasing. Dr. Fred M. Hodges, Assistant Medical Director Atlantic Life Insurance Company, Richmond, Va., says that he has for the last three or four years been very much interested in a certain class of cases that may be overlooked at the time of examination, although a few years later many of the ordinary methods of examination would exclude them from insurance. During this time in a personal examination of 2,000 cases he has noted about thirty cases which would seem to him to come under this class. Cases having no symptoms or history of syphilis, alcoholism, or organic disease of stomach, appendix, or gall-bladder, etc., were selected. These persons seem to complain of slight indigestion, some discomfort after meals, and constipation before any cardiovascular or renal changes are noted. The cases may be divided into two groups. In Group I are those giving a history of constipation, indigestion, etc., followed by cardiovascular and renal changes with elevated blood pressure. In Group II those with a history of constipation and indigestion followed by low blood pressure, marked indicanuria, and neurasthenic symptoms with very few or no cardiovascular or renal changes.

In order to show the development of cases in Group I this group has been divided into three stages, as follows: (1) Those where there was only a complaint of indigestion and constipation; (2) those where there was this complaint and where complete uranalysis and the sphygmomanometer would exclude them from standard insurance; (3) cases showing very little previous history except indigestion and constipation with well-marked cardiovascular and renal changes. From his study of these cases Hodges draws the following conclusions: (1) Indigestion and constipation may in a small percentage of cases be the only impairment and forerunner of disease of the cardiovascular and renal systems, and this is of especial significance where there is a family history of cardiovascular disease. (2) Home office uranalysis and the sphygmomanometer are usually the first methods of examination to exclude the cases later showing cardiovascular and renal changes. (3) Routine examinations for indican should be made in all cases of chronic constipation and indigestion and especially those showing low blood pressure readings. (4) Applicants about forty years of age and over, with heavy responsibilities and twenty per cent. or more over maximum weight, make up the majority of the cases of the first group. (5) Whatever may be determined to be the actual cause of indicanuria, from these cases it does not seem to be a prominent factor as a forerunner of cardiovascular and renal disease, but is found in a certain percentage of cases in association with low blood pressure. (6) This subject presents a very interesting and important field for further study, and we should direct our attention to scientific research in this direction.—Proceedings of the Fourth Mid-Year Meeting of the Medical Section of the American Life Convention, March, 1914.

Dangers Attending the New Treatment of Syphilis.—Dr. George Parker, Medical Director Peoria Life Insurance Company, Peoria, Ill., states that one of the many things that have occurred to him as he has watched the progress of salvarsan and neosalvarsan, is that both will prove distinctly harmful in a way: Physicians in small country towns are using both salvarsan and neosalvarsan, and it is from these towns of three or four thousand inhabitants that we get many of our insurance risks. From one to three injections are given to each patient. The remedy is neither given properly nor properly controlled in many cases. This produces a chaotic condition, because prior to the advent of these remedies, mercury and potassium iodide were being used in a manner more or less effective, which under the newer treatment does not seem to be the case. Another danger—the patient with active syphilis receives one injection of salvarsan, witnesses the rapid disappearance of all his symptoms, and goes away overjoyed. He does not realize the seriousness of his condition, and fails to return for treatment. This places him farther from cure than he would have been under the old method of treatment. The statement that first came out that one injection cures is still prevalent in some of the smaller towns, where men are not posted thoroughly in regard to the treatment of syphilis, and this is doing harm. One advantage, however, appears to be the result of the new treatment. Syphilitics receive an injection, and while they may return to their old habits of living, as a result of the injection of the salvarsan or neosalvarsan, they are no longer liable to spread the disease.—Medical Section of the American Life Convention, March, 1914.

Cancer as Cause of Death in Prussia.—Two tables of statistics bring this subject up to 1912, the mortality for ten years being represented. The remarkable increase shown is of course disputed by those who claim that the mortality is a fixed annual quantity and that the percentages are not adapted to facts. The steady increase of the past few years with the completed methods of investigation should do away with this sceptical attitude. One table gives the joint mortality which in the decade 1903-1912, inclusive, increased from 21,258 to 30,045. The increase is considerably less marked in males (9,678 to 13,587) than in females (11,580 to 16,458).

A table based on relation of mortality percentages to 10,000 living persons, shows that the combined figures rose from 5.98 in 1903 to 7.32 in 1912; the ratios for males corresponding were 5.52 to 6.69; for women 6.42 to 7.92.—*Blätter für Vertrauensärzte der Lebensversicherung*, May-June, 1914.

After-Results of Operation and Life Insurance.—At the meeting of the British Life Assurance Medical Officers' Association held on November 5, 1913, the after-results of operations in relation to life insurance was discussed. Dr. F. de Haviland Hall pointed out that from time to time life insurance medical officers were confronted with cases where gastrojejunostomy had been done for non-malignant diseases, presumably of the pylorus. He had accepted one or two cases, but with a considerable addition. Dr. Ogier Ward said that if six months after operation the patient had regained and kept up his weight and was otherwise well, one might safely take him.

Book Reviews.

DIE PROGNOSENSTELLUNG BEI DER LUNGENTUBERKULOSE, mit eingehender Berücksichtigung der physikalischen und serologischen Befunde und der therapeutischen Prognostik. Dr. D. O. KUTHY and Dr. A. WOLFF-EISNER. Price, paper, $4.50; cloth, $5.00. Berlin and Vienna: Urban & Schwarzenberg, 1914.

THIS volume of 572 pages is perhaps the largest work ever written on the prognosis of a single disease. The authors are both well known through their previous works on tuberculosis. Under the chapter on general prognosis of pulmonary phthisis, they speak of an anatomical cure, a definite cure, and an economical cure. Under anamnestic data which must always be taken into consideration before deciding on the prognosis, the authors consider the age of the patient, his occupation, his financial condition, his temperament and character, the inherited disposition, diseases in childhood, acquired predisposition, in women condition of menses, and the duration of the disease.

Concerning the age at which cures are most frequent, it is interesting to note that the ages of 16 to 20 are here given first. Then 20 to 30, 30 to 40, and 40 to 50. The authors base these observations on the results obtained in the Hanseatic Insurance Sanatoria. Turban is quoted as having observed the greatest number of lasting cures under the age of 15 (66 per cent.).

The second chapter deals with the prognostic value according to status præsens, and here are enumerated for consideration the general condition of the patient, the degree of pain he experiences, his sleep, and the amount of dyspnea. The objective symptoms which the authors consider of importance in the prognosis are the color and condition of skin, the endurance of the patient, his former and present weight, temperature and the degree of hyperhidrosis, character of cough hemoptysis, character, quality and quantity of sptum, number and virulence of the bacilli, mixed infection, the physical findings resulting from a careful examination of the lungs, the *x*-ray picture, condition of heart, blood, digestive organs, kidneys, and nervous system.

Quite considerable space is devoted to the value of the diazo reaction. After quoting many conflicting opinions, the authors come to the conclusion that the absence of the diazo reaction is a favorable sign. Intermittent diazo reaction, not quite as good and constant reaction, is a decidedly unfavorable sign. Most interesting, if not novel, are the authors' conclusions on the prognostic value of the tuberculin reactions. They certainly differ with the conclusions of other authorities. Thus, they say that one must not assume that the intensity of the reaction has anything to do with the extent of the lesion. On the contrary, the tuberculin reactions are often most intense in cases to be considered clinically as well as pathologically favorable and these reactions lose their intensity as the disease progresses toward a fatal termination.

The third chapter deals with the prognosis as a result of therapeutic intervention. Here it is gratifying to see the fact emphasized that in order to obtain a favorable prognosis with the aid of tuberculin therapy, we must give this culture product in doses small enough to avoid even slight reactions. The authors do not speak enthusiastically of the ultimate results from a cure obtained by the hygienic and dietetic treatment in sanatoria and come to the conclusion that only by a combination of a sanatorium and specific treatment can results worth the while be obtained.

A short chapter is devoted to the favorable prognosis resulting from successful artificial pneumothorax. All in all, the book is one of the best of its kind and should be in the hands of all teachers and students of tuberculosis.

ZUR PROGNOSE UND AETIOLOGIE DER KINDER-HYSTERIE. Von Dr. A. TOBIAS, in Bremen. Mit einem Vorwort von Prof. Dr. E. FEER, in Zurich. Price 3.50 marks. Berlin: S. Karger, 1913.

THIS interesting dissertation on the hysteria of childhood is based upon the abundant material of the Pediatric Clinic of Heidelberg. There are presented the histories of thirty cases which are classified as follows: I. Cases of genuine hysteria; A. Those that are cured during the period of childhood, including cases that result from emotional stresses, those that follow trauma, those that follow acute diseases, those that follow chronic diseases, and those of unknown origin. B. Cases that are cured after childhood has passed. C. Cases that are not permanently cured. II. Cases that are not pure hysteria, including cases of organic disease and cases of epilepsy. Some of the important conclusions reached by the author are that a definite prognosis in these cases is more favorable than in the cases of adult hysterics. Particularly favorable is the prognosis in children of sound mind. In those of psychopathic inheritance the prognosis is always doubtful. But education and environment may influence the future of these children to an important degree. In the female sex and at a later age the prognosis is less favorable. It is also the less favorable the longer the disease has existed and the more powerful the original exciting factor may have been.

CLINICAL EXAMINATION OF THE BLOOD AND ITS TECHNIQUE. A Manual for Students and Practitioners. By Professor A. PAPPENHEIM, Berlin. Translated and Adapted by R. DONALDSON, M.A., M.B., Ch.B., F.R.C.S. Ed., D.P.H., Pathologist, Royal Berks Hospital Reading. Price, $1.25 net. New York: William Wood & Company, 1914.

THE material in this book appeared first as a chapter in Carl Neuberg's "Handbuch der Ausscheidungen und Körperflüssigkeiten" and later as an independent volume in German. It is intended as a guide, merely, to the examination of the blood and deals with only what is absolutely essential and of first importance. Chapter one presents a method of staining a description of the cells found in the blood and a differential diagnosis of the most important blood changes. Chapter two considers hemocytometry and chapter three hemoglobinometry. The cell descriptions are, of course, in accord with Professor Pappenheim's well-known theories and are particularly clear and illuminating. He recommends the Bürker chamber for counting the cells and a rather complicated pipette for diluting the blood for this purpose. For the estimation of the hemoglobin he favors the Autenrieth-Koenigsberger Hemocolorimeter. Two plates have been taken from his "Atlas." It is an excellent book to give any one the essentials of blood pathology.

THE FUNDAMENTAL BASIS OF NUTRITION. By GRAHAM LUSK, Professor of Physiology, Cornell University Medical College, and Scientific Director of the Russell Sage Institute of Pathology. Price, 50 cents. New Haven: Yale University Press, 1914.

THIS lecture was delivered at the New York Academy of Medicine last November and is published in its present form "that educated people may be able to obtain a better understanding of the principles of nutrition than is to be derived from current popular writings." Professor Lusk is one of the highest, if not the highest, authority in the world on this subject and he has compressed into about fifty pages all the essential elements of this important department of both economics and physiology. It is condensed, necessarily, but is exceedingly clear and to the point. It would make salutary reading for the food and diet faddists and can be highly recommended to all both in and out of the medical profession.

THE SOURCE, CHEMISTRY, AND USE OF FOOD PRODUCTS. By E. H. S. BAILEY, Ph.D., Professor of Chemistry and Director, Chemical Laboratories, University of Kansas. Price, $1 60 net. Philadelphia: P. Blakiston's Son & Co., 1914.

IN this volume the general principles of food production, manufacture and preparation are treated in such a way that the reader may have a practical knowledge as to what constitutes a good food, and where it is obtained. The important foods and beverages are discussed as to their source, method of preparation for the market, methods of packing, preserving and shipping, their composition and nutrient and dietetic value and their use by people of different countries. In handling such an extensive field the matter is necessarily condensed to the essentials, yet the author has managed to include much of historical and general interest. The book really should be issued as a companion volume to the cook book and used as constantly for it is packed with valuable information for the housewife. We cannot agree with the statement (page 157) "that the rice leaves the blood acid and the potato alkaline" and it is probable that the author does not mean just that. The quantity of milk for the Babcock test is erroneously given as 15.6 c.c. The volume is well bound and printed, but the proofreading has been sadly neglected so that the text contains many obvious errors.

Society Reports.

AMERICAN GYNECOLOGICAL SOCIETY.

Thirty-ninth Annual Meeting, Held at Boston, May 19, 20, and 21, 1914.

THE PRESIDENT, DR. J. WHITRIDGE WILLIAMS, OF BALTIMORE, IN THE CHAIR.

Forward Fixation of the Cervix as a Predisposing Cause of Some Retrodeviations of the Uterus, and an Operation for Its Release.—Dr. EDWARD REYNOLDS of Boston stated that the supports of the uterus were largely muscular, with the exception of the forward attachments of the cervix. The shortness of the latter formed an essential element in the anteflexion of the cervix. Firm forward fixation of the cervix while the fundus was comparatively movable, created a predisposition to the retrodeviations. The release of the forward fixation of the cervix as a preliminary to the performance of the standard operations for the retrodeviations added greatly to their percentage of success. The author described in detail the operation he performed.

Dr. HERMAN J. BOLDT of New York City stated that for what was called anteflexion of the cervix by Dr. Reynolds, and he believed by all other writers, he had been accustomed to use the term retroversion of the cervix, considering the direction of the cervix from the position of the external opening. It was a condition which was always congenital unless caused by pelvic inflammation. Heretofore he had always looked upon the shortened and not infrequently indurated condition of the sacrouterine ligaments as being the main factor in causing this position of the cervix, and he had, on a number of occasions in the last twenty years, cut the shortened ligaments to overcome the backache of which many persons so afflicted complained, several times relieving this symptom by the surgical intervention. That the holding forward of the fundus was due to the action of the round ligaments was, in his opinion, questionable in the greater number of such instances. These ligaments were not taut, except when the bladder and the rectum were full. The condition was usually an association of anteflexion of the body of the uterus with a retroversion of the cervix, and unless there be an atrophy of the anterior cervicocorporal junction, probably as a result of long standing of the condition, we would find the tissue at this junction unyielding; indurated, if we might call it so, since it was impossible to straighten it permanently by manual or mechanical means. Hence the mechanical dysmenorrhea of which many patients frequently complained. The usually present shortened anterior vaginal wall was part of the congenital malformation and was, of course, an additional factor in causing the retroversion of the cervix. He had always regarded the shortened and thickened sacrouterine ligaments to be a low-grade inflammatory process, a parametritis posterior. Furthermore, when the condition was of long standing and more or less atrophy had taken place in the anterior part of the cervix at the flexion angle, due to long duration and not infrequently increased size of the body of the uterus, the organ could not straighten itself by any physiological factor brought to bear upon it. We might, indeed, see the uterus assume a position farther backward in the pelvis, thus constituting a retroposition, and then the intraabdominal pressure might cause a still more acute flexion angle.

Dr. HENRY T. BYFORD of Chicago said he had usually regarded this condition of forward fixation of the cervix with retroversion of the uterus very much as the rest of the members. He had in many cases separated the bladder from the uterus quite extensively through a transverse incision and had drawn the parts together from the side to the median line, but he had not done exactly the same operation as that described by Dr. Reynolds. He had operated with the idea that when he drew the connective tissue from the sides of the cervix as far back as he could, he was drawing the tissues taut, getting support in front of the cervix which would hold it back more, making lateral support, drawing from the connective tissue around the sides of the cervix, and in that way replacing the cervix backward by the support of the connective tissue to the side of the cervix, instead of releasing the cervix merely from the traction of the anterior abdominal wall.

Dr. I. S. STONE of Washington, D. C., said that it seemed to him Dr. Reynolds' suggestion had been more or less covered in effect if we remembered the Mackenrodt fixation operation for retroversion. That is, denudation and separation from the anterior vaginal wall, dropping forward of the body of the uterus and fixing the anterior vaginal wall would answer the same purpose and overcome permanently the retroversion.

Dr. J. WESLEY BOVEE of Washington, D. C., stated that about fifteen years ago he began doing this work. He received his inspiration and instruction from one of the editions of the work on gynecology by Dr. William H. Byford, in which he (Dr. Byford) stated that if the cervicovaginal junction was less than two and one-quarter inches from the pubic arch, it was abnormally short and should be remedied. Taking his instruction from that, he devised procedures, working on the lower ligaments of the uterus. He studied the subject carefully and found we had another characteristic in certain anomalies of development to deal with; that is, an abnormally high attachment of the uterosacral ligaments to the cervix and abnormally low attachment of the anterior wall of the vagina, so that he realized many of these cases needed to have the defects remedied, and he did this by severing the anterior wall from the cervix, attaching it to a higher point and severing the uterosacral ligaments from the cervix and attaching it to the lower point which changed the leverage of the anterior wall more from the junction of the cervix with the body, thus giving stronger posterior leverage on the posterior wall of the uterus. He did this procedure in two ways—one very much after the plan mentioned by Dr. Reynolds by detaching the anterior wall from the cervix and attaching it again higher, and the other by making a transverse incision and lengthening the anterior wall, except he added this modification: he did it with interrupted sutures, and he inserted a small amount of soft rubber on account of oozing into the opening between the cervix and the bladder, which was attached to a piece of gauze with suture, the gauze being placed in the vagina and the gauze, when removed, pulled the rabber drainage out. The uterosacral ligament operation was beneficial in those cases in which there was traction of the uterosacral ligaments from inflammation, such as Dr. Boldt called posterior parametritis.

Dr. JAMES R. GOODALL of Montreal stated that after listening to Dr. Reynolds' paper it struck him that two classes of cases were being placed in one category; that the type of acute anteflexion of the uterus and the type of retroflexion were two distinct types which could not be considered as belonging to one class. For instance, if we took young girls who complained of severe dysmenorrhea, we would find associated conditions of the vagina and pelvis. Associated with an acute anteflexion of the uterus there was a short anterior lip of the cervix and a long posterior lip. This type of uterus when removed from the body and held by the cervix could not be undone. The anterior uterine wall was very fibrous in part and it was a type of uterus which in his experience, seldom if ever, became retroverted or retroflexed. That type of girl was big, muscular, whose physical development had gone on to an advanced stage, but the pelvic organs had remained somewhat infantile. In the other type of cases in which retroversion and retroflexion took place there was a lack of tone and a tendency to enteroptosis even before pregnancy had taken place, and with that type of uterus the fundus could be flopped about in very few hours after death. In one type of case, with acute anteflexion, the cervix was drawn into the hollow of the sacrum; in the other type of case, we did not get a long cervix, such as we expected to find in a case of acute anteflexion. These were absolutely two different types of cases which should not come in the same class, for in the one class we had tautness of the uterosacral ligaments, while in the other there was a laxity of everything and marked elongation of the uterosacral ligaments.

Dr. REYNOLDS, in closing, and in reply to the remarks of Dr. Goodall, stated that there was a distinction between these two classes of retroverted and anteflexed uteri. Retroversion seldom occurred in the class in which the anterior wall at the angle of flexion was hard and firm, and when he began to work with Dudley's operation he was doubtful whether the anteflexion could be corrected for any purpose in that class of cervix. Where we thought the cervix was the cause of the mechanical dysmenorrhea, release of the anterior fixation and posterior discission would straighten the

An Internal Alexander Operation.—Dr. HENRY T. BYFORD of Chicago considered the Alexander opera-

tion the most satisfactory for replaceable retroversion due to relaxation of the pelvic tissues. If lacerations about the vaginal entrance were present, they were also repaired. Operations upon the uterosacral ligaments were not advocated in ordinary cases because, according to the experience of the author, these ligaments would gradually grow shorter after an Alexander operation, if a small-sized pessary was worn for a few months to protect them from overstretching. When a median abdominal incision had to be made for pelvic conditions the ligaments were shortened through the incision in such a way that they drew toward the internal inguinal ring, as in the Alexander operation, and in such a way that the sutures were extraperitoneal. A fold was taken in each ligament and sutured. These folds were drawn through a peritoneal puncture near the internal ring and attached along the inner surface of the abdominal wall at this point, but extraperitoneally. This was easily accomplished by separating the peritoneum from the abdominal wall on either side as far as the internal ring.

The Effect of Laparotomy upon the Circulation.—Dr. W. D. GATCH of Indianapolis stated that the anatomical arrangement of the abdominal vessels presented three points of special significance. (1) The circulation through the abdominal viscera was through two sets of capillaries, separated by the portal vein and its radicles. This must slow down the rate of the circulation through the abdominal organs. It was well known that the pressure in the vessels of the liver was very low. (2) The veins of the abdomen had walls so thin that they were easily compressed by the slightest pressure upon them. (3) None of the abdominal veins had valves. In a series of experiments carried out on dogs he took simultaneous tracings of the intrathoracic pressure, of the intraabdominal pressure, of the pressure in the inferior vena cava, and of the general blood pressure. The pressure in the vena cava was taken by thrusting a cannula up through an opening in the femoral vein. He raised the intraabdominal pressure by injecting warm salt solution into the peritoneal cavity. The tracings showed that the intraabdominal pressure and the pressure in the inferior vena cava were always equal and rose and fell together. When the intraabdominal pressure was elevated until it was higher than the blood pressure, the circulation through the abdomen was abolished, the abdominal viscera being found bloodless at autopsy. What was the explanation of these findings? Suppose that the intraabdominal pressure be increased above the venous pressure, the veins would be compressed and no blood would flow through them until enough blood had been forced into them from the arteries to raise the intravenous pressure to the level of the intraabdominal pressure. Experiments had driven him to the conclusion that the chief and essential course which propelled the blood through the abdominal organs was the beat of the heart. The well-known fact that pressure upon the abdomen increased the output from the inferior vena cava was not evidence against this view, because such increase was not maintained unless the circulation was greatly depressed. The absence of valves in the abdominal veins prevented any variations in intraabdominal pressure due to movements of the abdominal walls from pumping the blood toward the thorax with any degree of efficiency, because as soon as the pressure was released there was a regurgitation. That the heart alone was capable of keeping up the abdominal circulation was proved by the experiment described. The effect of anesthesia so deep as to abolish completely the tone of the abdominal wall was to promote the accumulation of blood in the abdomen and limbs, and in his opinion not uncommonly caused a failure of the circulation during and after operation. It was fortunate that laparotomy was nearly always performed with the patient either in the horizontal or in the Trendelenburg position, for if it were usually done with the patient deeply anesthetized and in the feet-down posture many more fatalities would occur. Operations both on animals and on man were much better borne under an anesthesia so light as to preserve the tone of the muscles. This was the reason why there was much less so-called shock under nitrous oxide oxygen anesthesia than under anesthesia due to more powerful agents. In performing exploratory laparotomy which he had recently done for gunshot wounds of the abdomen, he had several times noted on opening the abdomen what he felt certain was a great increase in the hemorrhage from a severed intraabdominal vein. In one case in which the bullet wounded the vena cava there was but little blood found when the abdomen was first opened, but when he raised the transverse colon a frightful gush of blood took place. He had made similar observations in two cases of gunshot wounds of the liver.

Some Experiments Defining the Dangers of Anesthesia.—Dr. YANDELL HENDERSON of New Haven said the time was close at hand when in every well ordered and scientific operating room, where ether was used at all, instead of it being poured as a liquid over the patient's face and into his mouth, there would be a device, and it could be a very simple device, on a stand at the elbow of the anesthetist, or over in the corner, or possibly even down in the basement, in which the ether would be volatilized, and from which it would be conducted to the patient's nose and mouth as if it were merely an unusually strong variety of nitrous oxide. That this idea was rapidly gaining recognition and acceptance was evidenced by the insufflation method of Meltzer, the simple and accurate device of the speaker's colleague, Dr. J. M. Flint, and most recently by the anesthetometer of Connell. It was at once a simpler, safer, and more scientific procedure to administer the gas which we called ether vapor than it was to handle liquid ether. Insufficient breathing was an extremely common consequence of etherization. It added to evil influences of a more or less prolonged period of insufficient oxygen supply to the other conditions lowering the patient's vitality. It was clear that the logical procedure to prevent this was some method of administering ether vapor such as Dr. Gatch showed to be so advantageous as nitrous oxide and also some method of administering a sufficient amount of CO_2 in the air breathed after the anesthesia was ended to stimulate respiration to a more rapid elimination of the ether with which the body was saturated, and to prevent apnea or subnormal breathing, anoxemia and cyanosis.

Nerve Blocking.—Dr. M. L. HARRIS of Chicago stated that while experiments showed that novocain was only about one-seventh as toxic as cocaine, it should not be forgotten that serious and even fatal results might follow an overdose. The amount of novocain that could be injected without producing toxic symptoms varied considerably and depended largely upon the rapidity of absorption. If a plain watery solution was used and injected in the region where absorption was rapid 0.3 gm.—0.4 gm. might produce symptoms, but if the solution be one which absorbed slowly 0.5 gm.—1.0 gm. might be used without danger. The more rapid the absorption, the less marked the anesthesia, for it required a certain length of time for the drug to act. The addition of adrenalin to the solution materially increased the degree and duration of the anesthesia. Hoffmann had found that the addition of ¼ of one per cent. to 1 per cent. of potassium sulphate also materially increased the duration of the anesthesia, and that he was able to produce anesthesia with a much weaker solution. The speaker had found in his own work that by the addition of calcium chloride in varying strengths, the anesthesia might be prolonged for two or three hours without difficulty, and that a weaker solution might be used than without the calcium chloride. The formula which he was using at present and which had given him the best results was novocain, ¼ to 1 per cent., calcium chloride, ¼ to ½ of 1 per cent., chlorbutanol 0.8 of 1 per cent. in distilled water, to which were added four to five drops of the 1-1000 adrenalin solution to 30 c.c. of the mixture. It was very essential that the mixture be properly prepared and the method he used was the following: The distilled water was sterilized by boiling. The novocain was then added and the boiling continued not to exceed two or three minutes, as prolonged boiling spoiled cocaine. When this had cooled down to below 150° F. 1.0 gr. of chlorbutanol was added to every 100 c.c. of the novocain solution. Water dissolved only about 0.8 of 1 per cent. of chlorbutanol, but 1 per cent. was added merely as an easy way of insuring a saturated solution. The undissolved part simply settled at the bottom. A 2 to 4 per cent. solution of calcium chloride in distilled water was made and sterilized, and then the chlorbutanol added the same as to the novocain solution. The solutions were kept separately and mixed just before using. In this way the percentage of the ingredients might be quickly varied to suit the particular case. The adrenalin should never be added until just before using, as it was very unstable and soon spoiled if left standing in the solution, which was indicated by the solution gradually turning a reddish color. The adrenalin solution

should be comparatively fresh and if it had turned reddish in color it should not be used. The chlorbutanol was added because it had distinct anethetizing properties of its own, and being soluble in lipoids increased the anethetizing effect of the novocain. As to the advantages of nerve blocking, it was less dangerous. It would be admitted that practically all substances used for this purpose were more or less toxic, but the degree of toxicity was comparatively well known, and as the substances were injected locally to affect nerve trunks and not used generally to affect nerve centers, it was easier to guard against an overdose. The method was devoid of dangerous and unpleasant complications which so frequently followed the use of general anesthesia or anesthetics, particularly ether and chloroform. In his experience the great majority of patients preferred being conscious and looked upon the loss of consciousness as one of the greatest drawbacks to an operation. The psychic elements in these cases had been greatly overestimated. The horror of an operation was based on, first, the fear of pain; second, the loss of consciousness, and, third, apprehension as to the outcome. He had done under nerve blocking 234 operations on 217 patients, and in his paper he presented a list of cases showing the wide applicability of the method. The number of failures was six, and the number of deaths was seven.

Spinal Anesthesia in Gynecology.—Dr. GEORGE GELLHORN of St. Louis, Mo., pointed out that the severity of an operation stood in direct proportion to the amount of ether inhaled. The popular ether drop method was not as safe a procedure as would appear from existing statistics. The latter were incomplete in regard to the number of fatalities and did not take into consideration late complications which might either lead to death or seriously interfere with convalesence. There should not be any one routine method, but the needs of the individual case must govern the choice of the mode of anesthesia. In gynecological work, spinal anesthesia offered particular advantages and showed most impressive results. The mortality rate from spinal anesthesia could not be determined by statistics. These were unreliable. The majority of deaths occurred during the experimental stages of the method. The anesthetic itself seemed to have nothing to do with the mortality. Stovain, tropococain, and novocain were more or less equivalent. His experience was limited to the last named drug. The safety of spinal anesthesia depended upon first its accurate technic, and the strictest observance of even the minutest detail was of paramount importance. Reports of deaths, therefore, must contain all details of the technic employed before they could be admitted to serious consideration. It had been proven in thousands of cases that by painstaking technic, not only death but collapse and other alarming complications of earlier days could successfully be avoided. Contrary to popular prejudice, there was no psychic trauma connected with spinal anesthesia. Nausea and vomiting during operation were reduced to a minimum or altogether absent. The abdominal walls were fully relaxed, and the intestines remained quietly within the peritoneal cavity. Therefore, all operative manipulations were rendered easier, and the brusque handling of the viscera was obviated. All this tended to lessen the operative shock, and as nerve impulses did not touch the brain, spinal anesthesia was the ideal measure of anoci-association. In a certain small percentage analgesia was incomplete, then a few whiffs of ether sufficed to render the operation painless. In a list of 127 abdominal and 42 vaginal operations he showed that every kind of gynecological operation, not including those on the kidney, could be performed under spinal anesthesia. There had been no death from this method. In all four patients died, two of these from sepsis after radical operations for cancer of the cervix. The post-operative care of spinal cases was strikingly easy. The usual post-operative symptoms appeared in greatly mitigated form, or were altogether absent. Patients who had had personal experience with ether and spinal anesthesia declared themselves in favor of the latter. An annoying and comparatively frequent by-effect was headache, which, however, yielded spontaneously or to bromides, and constituted no danger to the patient. Other by-effects, such as backache, paresthesias, and temporary paralysis, seemed to have become less frequent with improvements in technic, and it was the consensus of all observers that lasting ill effects were conspicuously absent. Spinal anesthesia markedly lessened the blood pressure and should therefore be used with caution in cases of pronounced hypotension. Acetonuria occurred after spinal anesthesia, as well as after inhalation narcosis, but exerted no deleterious effect upon the patient; it disappeared spontaneously about five days after operation. Spinal anesthesia enabled us to operate with safety on patients in whom ether would be contraindicated. It was thus chiefly applicable in cases where the seriousness of the affection, the magnitude of the operation, or coexisting complications (cardiac and pulmonary lesions, nephritis, diabetes, hyperthyroidism, advanced age, debility) constituted a particular risk. Minor operations should be reserved for ether narcosis. Spinal anesthesia was contraindicated in kyphoscoliosis and other marked anomalies of the spinal column, diseases of the central nervous system, profound shock, or marked hypotension from other causes; sepsis, and fevers of unknown origin; furthermore, in neuropathic individuals and where there was a strong prejudice against the method. Suppurations and eruptions near the desired site of injection forbade the use of spinal anesthesia until aseptic conditions could be established.

Dr. FREEMAN ALLEN, of Boston, said that while he was not an ardent advocate of spinal anesthesia in certain cases, yet as a professional anesthetist he felt called upon to defend ether. He felt that a great deal of the condemnation that ether had been receiving lately was due to the fact that surgeons and patients had been the victims of unskillful administration of ether. He thought that surgeons were much too apt to put up with administrations of ether by persons who were comparatively unskillful and then to blame ether anesthesia in general. If he were a surgeon and lived in a community where the services of a really skilled anesthetist were not obtainable, he should certainly use spinal anesthesia very largely, if not exclusively. He agreed with Dr. Gellhorn that there was no psychic shock whatever when a patient had been properly prepared for spinal anesthesia and was properly handled during the same.

Dr. JOHN O. POLAK of Brooklyn, New York, had had two cases of very prompt and aggravated shock coming on from the immediate use of the Fowler position after abdominal operations for general peritonitis where a stab wound incision was made and drainage instituted. It had been their custom to have these patients placed in a horizontal position or moderate Trendelenburg position for the first few hours. They got those two cases up in the Fowler position and in coming out of the anesthesia both were in the most severe shock as the result of it, and only by change of posture was the shock relieved. In regard to spinal anesthesia, during the last two years they had used it in a number of cardiac cases, in cases of tuberculosis and diabetes, and in those in which they had to do obstetrical or gynecological operations. In those extremely severe cardiac cases that complicated pregnancy the use of spinal anesthesia had brought to them a new era of obstetric surgery.

Dr. SETH C. GORDON, of Portland, Me., had given ether and chloroform for over 50 years, and had never seen but one death from chloroform. He had never seen but one death which in his opinion was traceable to ether. He believed that the main trouble had been in the administration of those two anesthetics, and that the more experience we had and the more we adopted modern methods, as for instance, the drop method of ether, we had something that was certain in any case where we were obliged to resort to a surgical operation.

Dr. M. L. HARRIS, of Chicago, found under nerve blocking there had been no deaths, so it was perfectly safe from that standpoint. He had had occasion to operate on a number of patients who had undergone previous operations under general anesthesia, and without a single exception the patients had expressed themselves as infinitely preferring nerve blocking and would never think of taking a general anesthetic again. Until we found some way of limiting spinal anesthesia to a distinct level or to a certain part of the cord, he thought peripheral anesthesia or nerve blocking might have certain advantages over intraspinal anesthesia.

Dr. GEORGE GELLHORN, of St. Louis, Missouri, said he had never done anything but gynecological operations under spinal anesthesia, but was certain that in operations upon the extremities nerve blocking would be the method of anesthesia of the future.

Ultimate Results of Surgical Intervention in Simple Cholelithiasis.—Dr. JOHN G. CLARK of Philadelphia stated that in his review of 160 cases of cholelithiasis he emphasized the fact that modern surgery had en-

tirely recast the clinical history of cases of cholelithiasis, and that in the newer interpretation symptoms which were formerly considered as essential for the establishment of a diagnosis of cholelithiasis were now looked upon as terminal rather than initial indications of biliary defects. In one group he had included cases in which there was an operation for cholelithiasis without any associated gynecological conditions. In the second group were found all of the cases in which gallstones were discovered in association with gynecological or other abdominal operations. In only 14 per cent. of his series of 160 cases had he failed to secure accurate notes as to the outcome. In this list, no case had been included which had been operated upon under nine months. It was to the ultimate recovery that he had particularly directed his attention in this study of cases. In all cases where there was nausea after twenty-four hours, he attached a saline reservoir to the drainage tube and under one foot of hydraulic pressure permitted the fluid to drop slowly into the gall-bladder. Great care was observed to avoid the slightest excess of pressure which might induce a rupture about the point of insertion of the tube in the gall-bladder. The drainage in this series had usually been maintained for ten days. This rule was an arbitrary one and in some cases the length of the drainage period might be extended. Within the last two years he had turned towards cholecystectomy in a greater proportion of cases, for experience had shown that if the wall of the gall-bladder was thick and indurated, or if it was dilated and very thin, or if, on inspection of the interior of the organ, the mucosa was eroded or showed a strawberry mottling, he performed cholecystectomy. Occasionally he had closed the gall-bladder without drainage after the removal of uncomplicated gall-stones, but he preferred to use a simple drain for fear of the rupture of the gall-bladder and escape of bile into the peritoneal cavity was thus avoided. From this series of cases he concluded that (1) simple drainage was sufficient in all cases of cholelithiasis where there was no symptom attributable to their presence. (2) When the gall-bladder was thickened, greatly dilated, or was the seat of the so-called strawberry change as described by Moynihan, cholecystectomy was preferable. So-called gastralgia, indigestion and dyspepsia he would place in heavy type and let it stand out so boldly that it would serve as a target to be immediately demolished. In gynecological cases with coincident symptoms in the upper abdomen, the gall-bladder was by far more frequently the seat of disease than any other organ. In a vastly larger series of gynecological cases, gastric or duodenal ulcers, or cancer of the stomach, had been so infrequently found as to be almost negligible. In estimating the immediate and remote results of these combined operations he had arranged his cases under three separate headings: First, simple gall-bladder cases, in which the surgical treatment was directed to the relief of cholelithiasis; second, the cases in which some pelvic operation was performed and gall-stones, not producing symptoms, were discovered, and, third, gynecological cases in which there were unmistakeable symptoms of associated gall-bladder disturbance. So far as immediate mortality was concerned, the first group consisting of 51 cases was attended by 6.1 per cent. immediate mortality, the second by 4.3 per cent., and in the third there was no fatality. Of six fatalities in his series of cases, four of the cases died from destructive results of advanced cholelithiasis. In only two could death be attributed to any defect in operative technique. In one there was a leakage with the formation of a subphrenic abscess; in the other, a peritonitis. These two deaths might have been avoidable. In none of the combined operations where there were no symptoms attributable to gall-stones was there a fatality.

Dr. Reuben Peterson of Ann Arbor, found in about one thousand abdominal sections that there were gall-stones present in about 12 or 14 per cent. This included his own private cases as well as the University Hospital cases. He had adopted the one operation of simply removing the gallstones and draining. He had not removed the gall-bladder in any case. He had found quite a percentage of cases where he did not think it was advisable to perform any operation upon the gall-bladder. He had found an unusually large proportion of cases of cancer that had gallstones. In the pus cases he had refrained from operating on the gall-bladder.

Dr. Philander A. Harris of Paterson, N. J., had not often removed gallstones from patients when operating upon them for gynecological troubles. He did not think he had removed the gallstones in more than half a dozen cases. He did not believe he had found gall-stones in more than four or five per cent. of the cases he had palpated through the abdominal incision, so that his experience did not correspond with that of Dr. Peterson. He had removed the gall-bladder in at least 70 per cent. of the cases on which he had operated, something less than 200. Removal of the gall-bladder was good practice.

The New Efficiency Systems and Their Bearing on Gynecological Diagnosis.—Dr. Robert L. Dickinson of Brooklyn, New York, said that many of the methods of Taylor's "Scientific Management" of factories were adaptable to office, dispensary, and hospital group diagnosis. He gave an outline suggesting how responsibilities might be recast and grouped by function; how all processes might be standardized, then reduced to writing, instruction carried on, and then constant inspection to check up every one's results, while studies of time and waste motion in the operating room and ward were undertaken. Attention was drawn to the need of systematic study of fatigue among nurses, as had been done in other occupations. Reference was made to co-operative methods, as instanced in the Associated Out-Patient Clinics of New Cork; of the Hospital Efficiency Committee of the Philadelphia County Medical Society, representing fifty-five hospitals; of the great new Mayo building just opened, and in associations of groups in cities. Some examples of printed forms were submitted, such as a full preliminary history to be made out by the patient herself, and also printed directions to gynecological and pregnant patients.

Hospital Efficiency with Particular Reference to Product Rather than Expenditure.—Dr. E. A. Codman of Boston, stated that at present trustees of hospitals gave attention to the efficiency of their institutions in expenditures, but they had made little or no effort to find whether the treatment of the patients which was given by their medical and surgical staffs was good or bad. It had been taken for granted that the public preferred to be treated by a physician or surgeon who had a great reputation, even if he was hurried or careless, than by an individual or lesser reputation who could afford the time and pains necessary to obtain a good result in the treatment of disease which afflicted the patient. Hospitals in which promotion was made by a seniority system could not help tending to the inevitable practice of allowing the more capable surgeons to do the easier and more brilliant cases, while the more tedious and difficult and grave cases might be referred to the younger men whose private reputations made little demand upon their time. There seemed to be some ground for the contention that it would be better to have a young surgeon do a large number of easy operations, so that when he was older his experience might benefit the more difficult cases which fortunately were much fewer in number. Dr. Codman pointed out the value of the "End Result System," and said it tended to bring this change about.

A Critical Review of 500 Published and Unpublished Cases of Abdominal Cesarean Section for Eclampsia.—Dr. Reuben Peterson, Ann Arbor, Mich., read a paper on this subject, in which he presented the following summary and conclusions: (1) Since the 500 cases of abdominal cesarean represent the work of 259 operators they are a very fair index to the present status of the operation as a method of treating antepartum eclampsia. (2) Since the results of operative obstetrics, especially abdominal section, are far better at the present time than formerly the value of the operation as a method of treatment of eclampsia can only be judged by grouping the cases chronologically. (3) Between 1903 and 1913 there were 283 cases of eclampsia treated by abdominal cesarean section, with 73 deaths, or a maternal mortality of 25.79 per cent. Up to 1908 there were 198 cases, with 95 deaths, or a mortality of 47.97 per cent. Hence the maternal mortality in the five-year period has been reduced nearly one-half. (4) Hence the old figures of a 40 or 50 per cent. maternal mortality from abdominal cesarean section for eclampsia are incorrect and should no longer be quoted. (5) The mortality percentage quoted above (25.79) can be considerably lowered by care in technique and by not making use of the suprapubic route when there is great probability that the woman has been infected from below. (6) Nearly one-fifth of the entire series, 91 operations, were performed by thirteen men having five or more cases to their credit, with 17 deaths, or a maternal mortality of 18.68 per cent. (7) Deducting 15 cases

where the proportion of moribund and septic patients was very high, the remaining 76 cases, with 10 deaths, give a maternal mortality of 13.15 per cent. (8) Although an eclamptic may die after a single or survive after many convulsions, the latter must be utilized as an indication of the degree of eclamptic poisoning until we have a better method of estimating the patient's condition. (9) Emptying of the uterus either spontaneously or by artificial means, while it puts a stop to the further elaboration of toxins from the fetus, the placenta or both may not be sufficient to prevent further convulsions or in certain cases death of the mother from intoxication. (10) In the present series convulsions were caused after abdominal cesarean section in 251 out of 457 cases, or in 54.92 per cent. These statistics agree with those made up from those obtained from thousands of cases of eclampsia showing that convulsions cease after emptying of the uterus either spontaneously or artificially in from 52 to 62 per cent. of the cases. (11) Even when the convulsions cease after delivery a certain proportion of the patients die. In 146 cases where the convulsions ceased after abdominal cesarean section during the five year period (1908-1913) there were 41 deaths or a maternal mortality of 19.8 per cent. (12) While the above percentage of patients died after emptying the uterus by abdominal cesarean section after cessation of the convulsions the mortality is much less than where the convulsions continue, since in 130 of such cases there were 41 deaths, or a maternal mortality of 31.53 per cent. (13) The operative treatment of eclampsia has never been given a fair trial. To do this the uterus should be emptied quickly, as soon as possible after the onset of the first convulsion, not emptied after all kinds of medicinal treatment have been tried and failed. (14) In the present series there were 25 deaths after 124 operations performed after one to five convulsions, or a maternal mortality of 20.32 per cent. (15) The best results in the operative treatment of eclampsia are bound to follow immediate emptying of the uterus in cases where the woman has not been infected by frequent vaginal examinations or attempts at delivery from below. This is shown by the following: (16) In 60 of the 124 cases where the operations were performed after from one to five convulsions, where no or only one or two vaginal examinations had been made and where no attempts were made to deliver from below, there were only 9 deaths, or a maternal mortality of 15 per cent. (17) The increase in mortality due to delay is shown by a mortality of 30.33 per cent. where the operations were performed after the sixth convulsion. This is 10 per cent. higher than after quick delivery and 5 per cent. higher than the total mortality resulting during the same period (1908-1913). (18) In 60 cases where the convulsions ceased after operations performed after from one to five convulsions there were 8 deaths or a maternal mortality of 13.33 per cent. The mortality is twice as high (26.92 per cent.) after operations performed under the same conditions except that the convulsions continued. (19) When the abdominal cesarean sections were performed after more than five convulsions there was a resulting mortality of 26.31 per cent., where there was a cessation of the convulsions, and 36.36 per cent. where they continued. (20) The average number of convulsions in 386 cases of eclampsia in the abdominal cesarean series was 9 where the cases were not grouped. The average was 10 up to 1908 and 8 from 1908-1913. (21) Twins occurred 31 times in 500 cases of abdominal cesarean section for eclampsia, or in 4.02 per cent. of the cases. This is over three times as frequent as are twins in normal cases. (22) Excluding premature children and counting as living all children who survived one hour after delivery, there were 9 deaths from 1908 to 1913 where 248 children were delivered by abdominal cesarean section, or a fetal mortality of 3.62 per cent. Under the same conditions fetal mortality was 10.69 per cent. if children dying the first three days after delivery were counted among the deaths. Even estimating the fetal mortality by this method it is much better than by any other method of treating eclampsia. (23) The fetus as well as the mother is affected by eclamptic poison. The greater the number of the eclamptic convulsions before delivery the greater the fetal mortality. Hence, for the sake of the fetus, the uterus should be emptied as soon as possible after the first convulsion. If other factors in the case call for abdominal cesarean section the chances of the fetus will be much better than if another method of delivery be employed. (24) In 474 cases of eclampsia in the present series, 83.75 per cent. were primiparæ and 16.17 per cent. multiparæ. The relatively larger proportion of primiparæ was due to the fact that primiparous conditions, such as undilated and rigid cervix and rigidity of the soft parts more often called for the abdominal operation than for other methods of delivery. (25) The maternal mortality is higher after abdominal cesarean section in multiparous women than in the case with primiparous eclamptics. In the present series in 225 primiparæ the maternal mortality was 24.44 per cent., while in 48 multiparæ the mortality was 27.08 per cent. (26) The fetal as well as the maternal mortality is higher in multiparæ after abdominal cesarean section. This is probably due to the greater degree of intoxication among the multiparæ, since in both primiparæ and multiparæ the children, because of the nature of the operation employed, escape the traumatisms of labor. The greater intoxication among the multiparæ is probably due to their being on the average older than the primiparæ, the average of the former in 77 cases being 32.6 years, while the average age of the latter in 397 cases was 24.6 years. (27) The maternal mortality in eclampsia after abdominal cesarean section steadily increases with the age of the patients, it being 23.63 per cent. between the ages of 16 and 20, and 31.11 per cent. between the ages of 31 and 35. (28) The number of eclamptic cases in the present series steadily increased from the fifth month of gestation up to full term, also the farther advanced the pregnancy the lower the maternal mortality. (29) Unless the aseptic technique employed in attempts to deliver from below be known, abdominal cesarean section is contraindictated, so great are the dangers of fatal peritonitis when the patient is infected. (30) The high death rate of abdominal cesarean section after operative procedures is shown by the fact that there were 10 deaths in 29 such cases, or a maternal mortality of 34.48 per cent. This 9 per cent. increase in mortality over the total mortality (25.79 per cent.) during the same period was undoubtedly due to sepsis, shock and delay in emptying the uterus. (31) The mortality is distinctly higher after abdominal cesarean section in eclampsia if vaginal examinations have been made prior to the operations. The danger increases directly with the number of examinations made and the lack of asepsis employed. (32) Any obstetric condition which makes delivery by the natural passages prolonged and difficult, may be an indication for abdominal cesarean section in eclampsia. If delivery be decided upon the uterus should be emptied by the method which will perform the work the quickest and with the least trauma and shock to mother and child. However, it must be borne in mind that there is more danger of sepsis when the peritoneal cavity is opened. (33) With the present state of our knowledge of this operation for eclampsia it cannot be denied that older and more tried methods of emptying the uterus in eclampsia give better results in eclamptics with normal pelves and soft parts, hence should not be lightly discarded in favor of the more brilliant and more easily performed abdominal operation. (34) But with a maternal mortality after abdominal cesarean section of 18.68 per cent. in 191 cases of eclampsia in one series, 13.13 per cent. in 76 cases in another, and 15 per cent. in 60 cases where the uterus was emptied after a few convulsions, the operation under consideration has reached a stage where it can no longer be disregarded by obstetricians who have based their opposition to the procedure upon statistics which were altogether too high.

Mechanics Involved in the Cause and Surgical Relief of Downward and Backward Displacement of the Uterus.—Dr. Geo. H. Noble, of Atlanta, Georgia, spoke of the measurement of intraabdominal pressure in the abdomen and vagina of normal subjects and compared the same with the tests made in cases of cystocele, rectocele and procidentia. He spoke of the anatomy, arrangements, and comparison of uterine supports and the effect of force upon them, and the results of relaxation, whether due to mechanical force or inflammatory disease. He referred to the resistance offered by the pelvic organs and the pelvic floor to the force originating in the abdomen, its decrease and absolute loss following lesions of the pelvic floor. No single set of ligaments was sufficient to support the uterus, and no single operation would meet the indication of surgical repair in all cases. He described the operations suitable to various lesions and conditions.

The Clinical Results in the Treatment of Procidentia

of the Uterus by the Interposition Operation.—Dr. THOMAS J. WATKINS, of Chicago, drew the following conclusions: (1) Vesicouterine transposition should be made before much protrusion through the vaginal orifice resulted, as the prolapse rapidly increased after this took place; the more the prolapse the greater the dangers of recurrences following the operation. (2) Vesicouterine transposition cured cystocele, the most important pathological feature. (3) An occasional recurrence of the uterine prolapse would occur, except in cases where the vaginal canal could be practically obliterated. This recurrence, however, was not serious, as it could be easily remedied. (4) The operative technique should be adapted to each individual case.

A Study of the End Results of Interposition of the Uterus.—Dr. JOHN OSBORN POLAK of Brooklyn, N. Y., said that the normal supports of the uterus might be enumerated as follows: (1) The uterine ligaments, especially the uteropelvic and uterosacral, which maintained the cervix in its normal position. (2) The pelvic floor and pelvic fascia which made the pelvic diaphragm. (3) The supporting action of the adjacent pelvic organs. (4) The action of the intraabdominal pressure. And, finally, the axial relation of the uterus to the vagina. He drew the following conclusions: (1) That interposition should be limited to women at or past the menopause, with a relatively small uterus, and that when the procedure was elected in those still menstruating, sterilization by tubal ligation should be done at the time of the operation. (2) The cases of prolapse in which sliding took place in the postpubic cleavage plane, were not corrected by this procedure. (3) That the morbidity was wholly due to technical defects, namely, improper preparation, imperfect hemostasis, vesical injury, etc. (4) That in anteverting the uterus the anterior wall of the uterus should rest on the fascial plate just behind the pubis, the fundus should not be brought under the arch, as excessive anterior displacement not only favored recurrence, but antiflexed the uterus and interfered with drainage. (5) That the curettings from uteri about to be transposed should always be examined, as degeneration might occur, and hysterectomy was easy after this operation.

An Original Technique for Separately Uniting the Five Structures Injured in Lacerations of the Pelvic Floors.—Dr. BARTON COOKE HIRST, Philadelphia, said that for a number of years in his clinic in the University Hospital of Philadelphia he had had the recently delivered women placed upon an operating table in the dorsal gynecological position and anesthetized. This had been done in different series of patients on every day of the puerperium up to the seventh. As a result of this study, embracing hundreds of patients, it was possible to state the following facts in regard to lacerations; of the pelvic floor: The pelvic fascia over the levator ani muscle showed a split running parallel with the descending ramus of the pubis; the levator ani was torn loose from its attachment to the pubis and ischium, the injury began close to the bone and ran downward and inward toward the mid line of the posterior vaginal sulcus; the fascia between the levator and the deep transversus perinei showed a triangular split with the apex above. This deep transversus perinei was torn apart in the middle line and the two halves were retracted so that there was a gap between the ends of an inch or more; the junctions of the two halves of the superficial transversus perinei and of the bulbocavernosus muscles were torn apart if the perineal body was injured, as was commonly the case in laceration of the perineum. These facts being established, and it was only necessary to look at a sufficient number of recently delivered women to establish them, the rest of the problem was easy of solution. Such a denudation of the injured region must be made in secondary operations as to expose the component and anatomical parts, and then these component structures should be united separately at the site of the injury and restored to their original condition. But in either case the levator ani must be exposed by cutting through the pelvic fascia, under which it lay. There the belly of the muscle was attached to the portion arising from the pelvic bones; the deep transversus was brought out of its cavity in which it had retracted and was united in the middle line; the pelvic fascia between the levator ani and the deep transversus was united, and finally the perineal body was repaired. For convenience of illustration the sutures were represented as interrupted, but as a matter of fact the buried continuous tier catgut was used for the levator and the fascia; buried interrupted for the deep transversus and perineal body. The skin of the perineum was finally united over the catgut sutures by Michel's clamps.

President's Address: "Has the American Gynecological Society Done Its Part in the Advancement of Obstetrical Knowledge?"—Dr. J. WHITRIDGE WILLIAMS of Baltimore stated that in the conversion of cesarean section from the most dangerous operation in surgery to one whose results were so good, it was in imminent danger of being abused by "knife-loving" obstetricians, and by surgeons who knew nothing of the resources of obstetrics. The early accounts of tardy operations for the removal of a dead child from an exhausted and infected woman stood in marked contrast to the first elective operation performed by Lusk in 1887, but particularly to the long series of successful operations which were afterwards reported by many of the members. One of the most interesting phases of obstetrical history was afforded by the 51 papers upon extrauterine pregnancy. In these one could trace the evolution of a pathological curiosity into a condition of everyday occurrence. For purposes of analysis he classified the 346 obstetrical papers into 32 groups and presented them in tabular form. One of the most important factors in the lack of productivity was to be found in the system of medical education. Until recently university ideals were entirely lacking in the medical schools, and even now in many institutions affiliated with universities the connection was purely nominal. How many obstetrical departments were provided with proper accommodations for a sufficient number of patients for the instruction of students, with adequately paid and enthusiastic assistants, or with suitably equipped laboratories for research work, not to mention a salary for the director in any way commensurate for the ability and efforts necessary to supervise the work in anything like an ideal manner? Real university departments are just beginning to be organized in some other branches of medicine, but he knew of none in gynecology or obstetrics. From extensive investigation he knew that in most of the schools obstetrics was the least well cared for department, and must ordinarily be content with what was not wanted by others, while the professor was frequently regarded by his colleagues as being engaged in an almost unworthy pursuit. No doubt some professors were poorly trained and fulfilled their obligations lightly, but he knew many who took them seriously and who felt depressed whenever they considered the status of their department and their inability to do better work. So long as such conditions existed it was scarcely conceivable that many professors would be scientifically productive or would often be able to induce promising young men to devote themselves seriously to this branch of medicine, for the few men in this country who were really doing their duty did so with great personal sacrifices and against odds with which they should not have to contend. A third reason for the low state of American obstetrics was that this was the only country in the civilized world in which obstetrics and gynecology were sharply divided. While it was debatable whether a union of gynecology and obstetrics was feasible for those engaged in private practice, or would materially improve the matter in most medical schools as at present organized, there was no doubt in his mind that the professorial chairs in the university medical schools needed to be filled by broadly trained scientific men, who were prepared to give their time to their duty. He hoped to see a number of such institutions scattered over the land, and then no future president of this or any other society would be able to say that its members had not done their part in the advancement of obstetrical or gynecological knowledge.

The Clinical Manifestations of Disease of the Glands of Internal Secretion in Gynecological and Obstetrical Patients.—Dr. ROBERT TILDEN FRANK of New York gave a summary review of the influence of the individual glands of internal secretion (exclusive of the ovary) on (*a*) the anatomy of the genital organs; (*b*) the function of the genital organs, and (*c*) the secondary sex characters. He pointed out the differences of effect ascribable to the interaction of the various glands, the effects ascribable to the ovary, etc.

Iodine as a Sterilizing Agent in Supravaginal Hysterectomy, with Remarks upon Morbidity.—Dr. I. S. STONE, Washington, D. C., said he would not deal with the nearly perfect results of skin sterilization, but the application of iodine and alcohol to the vagina and uterine mucosa had been productive of results which appeared to approach the ideal. The patient was

brought to the operating table after the proper examinations had been made which showed her condition to be satisfactory for operation. She was placed in the lithotomy position, and a 25 per cent. (1.75 idodine) diluted alcoholic tincture of iodine was applied over the genitals and introitus vaginæ. The catheter was used immediately after this, and a perineal retractor introduced into the vagina and a volsellum used with which to grasp the cervix. The cervix was dilated to admit the conical nozzle of a two-ounce glass syringe. An ounce of the same 25 per cent. alcohol solution was then slowly injected into the cavity of the uterus. The fluid was not allowed to remain long nor was great force used. After the injection the cervical canal should be again gently dilated to make sure of the discharge of the excess of the solution. Every part of the vagina was exposed and the assistant who made this application to it made this feature of the technique an important one. The operation was preceded by a second application of iodine to the skin over the abdomen, the first having been made before the anesthetic was given. After this the operation was proceeded with as usual and a final application of the iodine-alcohol was made to the stump before closing the flaps if there was the slightest intimation that infectious matter had been handled, such as in an appendix, pus tube, etc. Finally, the iodine solution was applied over the closed abdominal incision before the usual gauze dressings were applied.

Complete Sterilization of the Skin by Iodine.—Dr. J. Wesley Bovée of Washington, D. C., related that in ten instances between May 9 and June 17, 1913, scrapings were made from skin prepared by the alcoholic solution of iodine (31.2 per cent.) and then subjected to thorough scrubbing with a strong solution of hyposulphite of soda until the iodine color was gone, the patients being anesthetized at the time for operation. The technique and findings were as follows: The following four specimens were used in the tests in each of the ten cases: (1) A small amount of the solution of hyposulphite of soda was put in a bouillon tube as a control. (2) Skin scrapings two minutes after the application of the second coat of iodine were put in some bouillon in tubes. (3) Same as 2, except scrapings were made 5 minutes after second painting. (4) Skin scrapings from the same field after thorough washing, scrubbing, and decolorizing by the sterile hyposulphite solution. At the end of five days incubation for the 40 specimens from the 10 patients showed absolutely no growth. In attempting to determine whether perfect sterilization of the skin could be produced by the painting with iodine, the following technique was used in preparing the specimens for the bacteriologist. The skin was lightly painted twice (the patient being anesthetized for operation) with the iodine preparation and a strip of skin 4 inches by ½ to 1 inch was cut from the median line of the abdomen 2 minutes after the last coat was applied. This strip was at once dropped into a container in which was 1 quart of physiological salt solution. Some of the same solution was previously put into a bouillon tube as a check. The tube and large container were taken to the laboratory and turned over to Dr. Briggs. In case 1 the iodine was of 10 per cent. strength, but in all of the other 11 it was the same as he had used for four years in surgical operations, 31.2 per cent. The interim between the coats varied from 16 to 92 minutes and the number of experiments was 12. In the last five a vigorous culture of *Bacillus subtilis* was rubbed into the skin to be removed 13 to 18 hours before the painting, and the area covered with a sterile dressing until the first coat of iodine was applied. These specimens were all transported a mile and not particularly well wrapped, which might in a measure account for the contamination of the control solution in three cases. This report showed that the salt solution containing the skin pieces was not inhibitory to bacterial growth; that the skin was sterile in practically every case, the few instances of growth being reasonably attributed to contamination, and that the *Bacillus subtilis* was killed. The spores of this latter species were known to be remarkably resistant, being able to withstand a 1-1000 solution of mercuric chloride for periods up to one hour. This notable resistance prompted their employment in this series of experiments. He had not been convinced that a 10 per cent. alcoholic preparation of iodine would not destroy these spores in from two to five minutes, even when painted on the skin. He was inclined to believe the extent of the germicidal power of the iodine depended more than a little on the manner of its application as well as upon the strength of the solution used. If the coating be made at first thick before a thin one is allowed to dry, penetration should be deeper or the deep penetration more perfect. If a thin coating was made the skin recesses might be but partly filled, and when evaporation of the iodine had occurred a thin, impermeable barrier of iodine was left. Whether this layer was free iodine or an albuminoid he was not prepared to state at this time. He expected later to determine whether a preparation of iodine stronger than used in this work would destroy the spores of *Bacillus subtilis* in the skin recesses.

The Behavior of the Abdominal Cutaneous Reflexes in Acute Conditions within the Abdomen and Pelvis.—Dr. Richard R. Smith of Grand Rapids, Michigan, said the behavior of this reflex had been noted in 175 cases in which diseased processes existed within the abdomen. The greater part of them were acute. The results had been compared with the findings at the operation which followed. This reflex and its behavior had been a test frequently used by neurologists, and attention had been called to it in local conditions within the abdomen by several writers. The reflex was obtained by stroking the skin of the abdomen, which normally produced an almost simultaneous contraction of the rectus and oblique muscles on the corresponding side. It was common to distinguish four reflexes—two above and two below. The reflex was very constant in healthy young people, though uncertain in very young infants and in old people or those with very relaxed or very obese abdominal walls—exceptions which might be definitely borne in mind. In the acute inflammatory diseases within the abdomen it was common to find this reflex involved to a greater or less extent, and the test might be made use of in the diagnosis and in estimating the extent of this lesion. He had found that in 75 cases of acute appendicitis the reflexes were more or less involved in 65. It was sometimes involved where rigidity was absent. The reflex was commonly impaired over the seat of the lesion when circumscribed, and in more extensive processes the other reflexes were also impaired. It was commonly, though not uniformly, involved in ectopic pregnancy cases. Its normal presence in cases of bowel obstruction would help to eliminate any acute infectious condition, and in the subacute infections of the pelvis he found the lower reflex almost uniformly absent. He believed that, although the test had a certain limited view, it might be of distinct advantage to the surgeon, and it was well worth his careful study.

Can Surgery Be Eliminated in the Treatment of Fibroid Tumors of the Uterus?—Dr. John A. McGlinn of Philadelphia read a paper on this subject in which he presented the following conclusions: (1) Surgery was the best treatment in fibroid tumors of the uterus and could not be supplanted by any other known form of treatment. (2) Roentgentherapy had an important place in the treatment of those tumors. (3) Surgeons and roentgenologists should not enter into competition with each other, but should work hand in hand for the relief of womankind.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

South Dakota State Board of Medical Examiners. *January 13 and 14, 1914.*

(*Continued from page 319*)

THERAPEUTICS AND PRACTICE.

1. Define hyperchlorhydria. Give the causes, symptoms, diagnosis, and treatment. 2. If summoned to a middle-aged person discovered in a comatose condition, explain how to recognize on what disease the condition depends, and give treatment for the uremic type of coma. 3. Differentiate between pyelitis and cystitis. 4. What are the four characteristic symptoms of exophthalmic goiter? Give the supposed etiology. 5. Differentiate catarrhal from croupous pneumonia. 6. On what symptoms would you base a diagnosis of typhoid fever? 7. How should acute nephritis accompanying or following scarlet fever be treated? 8. Name four diseases contraindications for general anesthesia, and state which of the four named you would consider the most important. 9. In the treat-

ment of syphilitic node or gumma, state which should be used, a mercurial or an iodide, and give the reason therefor. 10. Describe the treatment of a case of diphtheria.

OBSTETRICS.

1. Conduct a case of normal labor. 2. Would you use chloroform in labor? If so, why? If not, why? 3. What is meant by puberty? What is meant by nubility? What is meant by menstruation? At what age in this climate do these begin? 4. How many, and describe briefly the different circulations during fetal development and immediately after birth. 5. Give the usual length of time in normal gestation. Give maximum and minimum length of time. 6. Give positive signs of pregnancy. 7. What is placenta prævia, and how would you manage a case? 8. Give indication for the use of forceps. 9. Give indication for version, and how would you proceed to accomplish it? 10. Give cause for post-partum hemorrhage and how would you manage the same?

GYNECOLOGY.

1. What advice about bathing, sponging and exercise during normal menstruation would you give to a healthy young woman accustomed to warm tub-bath twice per week, cold sponging every morning and 2 miles' brisk walk daily? Why? 2. Give all causes of uterine hemorrhage. 3. Diagnose, treat and prognose chronic gonorrhea. 4. Diagnose, treat and prognose chronic leucorrhea. 5. Name all probable ailments and treat the most probable one: A patient, unmarried, aged 16, 5 feet 2 inches, 125 pounds, erect, pale, walks into your office at 4 p. m. Temperature 98.6°, pulse 100, respiration 20, mucous membranes pale, teeth bad, complains of having missed two menses, always regular before, sharp pain and tenderness 2 inches below ensiform process, constant for three weeks, worse at 4 p. m. daily, better after eating. Pain in lumbar, sacral, uterine, and ovarian regions; no discharge. Dyspnea on exercising; no heart-murmurs; constipated as a rule, sometimes blood in stools. Nausea in morning and when pain is bad, vomits almost daily, some days several times. Mother was sick in same way at same age for two years. Tired all the time.

SURGERY.

1. A man is brought into your office with both lower limbs crushed off, having fallen under a passing engine; he is in full shock, has lost considerable blood, and is almost pulseless. What would be your immediate treatment? 2. Called to attend a patient who is suffering from a troublesome epistaxis. Describe the method you would pursue to check it. 3. How would you treat a perforating gunshot wound of the abdomen? 4. Describe a Colles' fracture and give your treatment for same. 5. How would you manage a case of empyema? 6. Give the technique of an operation for the cure of a mastoid abscess. 7. Give the technique of taxis in inguinal hernia. 8. Describe the operation for strangulated hernia. 9. Describe a proper method of amputating the hip-joint. 10. Under what circumstances would you consider circumcision a proper procedure?

ANSWERS.

REGULAR THERAPEUTICS AND PRACTICE.

1. *Hyperchlorhydria* is the condition in which the acidity of the gastric juice is greater than normal. It is associated with neurasthenia, gastric ulcer, gastric dilatation, hysteria, locomotor ataxia, and other disorders. It is due to local irritation, nervous strain, eye-strain, or gastritis. There is a sense of weight and burning in the epigastrium occurring an hour or two after meals, particularly after the chief meal of the day; vomiting and eructations of sour fluid may occur. The diagnosis is made by an analysis of the gastric contents, and finding an excess of hydrochloric acid. Treatment consists in the removal of the cause, a milk diet, and sodium or potassium bicarbonate or nitrate of silver.

2. The following table (from Eisendrath's *Surgical Diagnosis*) gives the diagnosis:

COMA FROM INTRACRANIAL INJURY.	APOPLECTIC COMA.	UREMIC COMA.	ALCOHOLIC COMA.	OPIUM POISONING.	DIABETIC COMA.
Deep coma; may have history of onset after fall or injury. Evidence of fracture of vertex or base.	Deep coma; sudden onset. If any injury, only a scalp wound.	Deep coma. Slow onset unless convulsions have preceded the coma.	Can be aroused by supraorbital pressure unless very profound.	Can be aroused unless very deep.	Deep coma. Sweetish odor to breath.
Pupil dilated on side of lesion. Choked disc.	Pupils unequal or dilated. Contracted in hemorrhage into the pons.	Albuminuric retinitis.	Pupils normal or somewhat dilated.	Pupils contracted to pinpoint size.	
Pulse very slow.	Pulse full and slow, often arteriosclerotic high-tension pulse.	Pulse rapid.	Pulse more rapid than normal and full.	Pulse rapid, may be irregular.	
Respiration slow and stertorous.	Respiration slow and irregular.	Respiration frequent and irregular.	Regular respiration.	Respiration very slow — may be 6 to 8 per minute.	
Temperature higher —101°.	Temperature higher on paralyzed side, but lower in rectum.		May be low or normal.		
Urine normal or contains trace of albumin.	Urine contains trace of albumin, but may be same as in uremia.	Urine shows albumin, casts, and low urea percentage.	Normal.	Normal.	Urine contains a variable amount of sugar and diacetic acid.
Hemiplegia on opposite side to that of injury. If contusion of brain is also present, may have generalized convulsions.	Hemiplegia with convulsions on one side.				

Treatment of uremic coma: One drop of croton oil diluted with sweet oil should be placed on the patient's tongue; a hot pack should be applied, and pilocarpine administered; inhalations of chloroform may be necessary; digitalis, caffeine, nitroglycerin, or sparteine may be given; diuretics are required.

3. In *pyelitis* the pus comes from the kidney, and the urine is turbid and fairly uniformly mixed with pus, washing out the bladder hardly affects the quantity of pus. In *cystitis*, pus in the urine appears at the end of micturition, and if the bladder is washed out the quantity of pus in the urine is markedly diminished.

4. The *four characteristic symptoms of exophthalmic goiter* are: Protrusion of the eyeballs, enlargement of the thyroid gland, increased frequency of the heart beat, and muscular tremors. The *supposed cause* is some perversion of function of the thyroid gland.

5.

CROUPOUS PNEUMONIA.	CATARRHAL PNEUMONIA.
Generally a primary disease.	Generally secondary (to bronchitis or an infectious disease).
Age has little influence.	Generally found in very young or very old.
Sudden onset.	Gradual onset.
Fever is high and regular.	Fever is not so high, and is irregular.
Ends by crisis between sixth and tenth day.	Ends by lysis, at no particular date.
Generally only one lung affected.	Generally both lungs affected.
The physical signs are distinct, and there is a large area of consolidation.	Physical signs indistinct, and the evidences of consolidation are indefinite.
Sputum is rusty.	Sputum is rather streaked with blood.

6. A *diagnosis of typhoid may be based on:* The characteristic rose spots, the temperature chart, Widal's reaction, Ehrlich's diazo reaction.

7. Acute nephritis accompanying or following scarlet fever should be treated by rest in bed, milk diet, hot packs, hydragogue purgatives (but not mercurials); potassium acetate and spirit of nitrous ether are useful.

8. The following *contraindications* for ether and chloroform are from Hare's "Practical Therapeutics": "*Ether* should not be used by inhalation in bronchitis or acute nephritis because of its irritant properties; in peritonitis or gastritis, because it is apt to induce vomiting; in aneurysm or in the presence of marked vascular atheroma, because it may rupture a blood-vessel by raising arterial pressure; nor in diabetes, lest it produce diabetic coma; and if anemia is present and an examination of the blood shows that the hemoglobin is below 50 per cent., the use of the drug should be avoided if possible. *Chloroform* is not to be used in cases of fatty heart or dilatation of the heart, in those with a known idiosyncrasy, nor in the so-called lymphatic persons with overgrowth of lymphoid tissues, as, for example, adenoids. In the latter case it is particularly apt to cause sudden death. In valvular disease of the heart chloroform may be used with caution, although ether is preferable. Given a case of valvular disease that must be subjected to operation, the chances are bettered with an anesthetic than without it, as the pain and mental shock are worse for the heart than is the anesthetic."

9. "If at any time during the case there appear tertiary symptoms, the patient should be put on mixed treatment. In any case, after two years of mercury add iodide of potassium to the treatment. White's rule is to use mixed treatment for at least six months (if any symptoms appear), the six months' course dating from their disappearance. This emphasizes the fact that the iodide alone will not cure tertiary syphilis."—(Da Costa's *Surgery.*)

10. *Treatment of diphtheria:* The patient should be in bed and isolated; the family should be quarantined; infected articles should be soaked in some antiseptic solution and then boiled; a milk diet is indicated; the nose and throat should be kept clean by the use of some mild antiseptic solution; calomel in divided doses should be given to keep the bowels open; tincture of the chloride of iron is indicated; and early administration of diphtheria antitoxin in adequate doses (3,000 to 10,000 units) must be given at once; if there is no improvement within twelve hours, the dose must be repeated.

OBSTETRICS.

1. *The patient* should receive a full bath before labor begins and all bed-clothing and personal clothing should be clean. If there are any pathological discharges from the genitals, the vagina should be thoroughly scrubbed with tincture of green soap and hot water, followed by a mercuric chloride douche (1:2000); this followed by a douche of sterile water. The physician's hands should be scrubbed for ten minutes with tincture of green soap and hot water, followed by alcohol, and immersion in mercuric chloride (1:1000). All instruments should be boiled for ten minutes or immersed in mercuric chloride 1:1000 for half an hour. Examinations should be made when necessary to determine the position, presentation, size of the fetus, etc.

During the first stage a rectal enema of soapsuds with turpentine (5i) should be given, and when the os is dilated to the size of a silver dollar, the patient should be placed in bed, lying upon the side toward which the fetal back looks. If the pain is severe, chloral hydrate (gr. 15) may be given every half-hour for three doses.

During the second stage, examinations should be made only when necessary. In multiparæ, the membranes may be ruptured with the finger or with some aseptic instrument. Care should be taken not to injure the child's scalp or the lower uterine segment. The pain may require the administration of chloroform or ether, but not to the extent of complete anesthesia. The expulsive force of the abdominal walls may be increased by directing the patient to pull upon a sheet firmly secured to the foot of the bed. Attempts may be made to prevent laceration of the perineum by making firm backward and upward pressure against the occiput during the pains; by restraining voluntary expulsive efforts during the pains; and by securing expulsion of the head between the pains. The head should be supported when born; the eyes should be cleansed with sterile water; and if the cord is coiled about the neck, it should be loosened or slipped over the head. Delay in delivery of the shoulders may be overcome by stimulating the uterus by friction through the abdominal wall or traction. The cord is ligated and cut when pulsation has ceased, and the child is placed by the mother's side with its face turned away from the maternal discharges.

During the third stage, 5i of fluid extract of ergot is administered and irritation of the uterus by friction through the abdominal wall is practised for ten to fifteen minutes. If the placenta is not expelled by this time, the uterus is firmly grasped between the thumb and four fingers and compressed. Firm pressure is then made from above downward and backward in the direction of the pelvic canal. This usually causes delivery of the placenta. A vulvar pad of salicylated cotton and carbolized gauze and an abdominal pad and binder are then applied.—(*Pocket Cyclopedia.*)

2. I would certainly use chloroform in labor if it were indicated. The main indication is to deaden the severe pains before the actual birth of the child, and to render the patient unconscious during the birth of the head, and also in abnormal and operative cases.

3. *Puberty* is the period when the child becomes sexually mature; and, in the case of the female, when menstruation commences. It begins at about fourteen or fifteen years of age.

Nubility is the period when a woman is mature, and fit for marriage and pregnancy. It begins at about twenty years of age.

Menstruation is a periodical disturbance in the female, characterized by a bloody mucus discharge from the uterine cavity; it lasts during the period of woman's sexual activity, but is temporarily suspended during pregnancy and early lactation. It begins at about fourteen or fifteen years of age.

4. *The fetal circulation:* "The arterial blood coming from the placenta to the fetus travels along the umbilical vein to the liver. After giving off several branches to the left lobe it divides into two streams, the larger joining the portal vein and thus entering the liver, the smaller passing directly into the inferior vena cava through the *ductus venosus*. In the inferior vena cava the blood carried by the hepatic veins and ductus venosus mixes with the blood which has circulated through the lower extremities. On entering the right auricle the blood of the inferior vena cava is directed by the Eustachian valve, through the foramen ovale into the left auricle, and from thence into the left ventricle. The left ventricle forces it into the aorta, and it is then distributed to the head and upper extremities, a small quantity only passing into the descending aorta. The blood which has circulated through the head and upper extremities returns to the heart along the superior vena cava, the blood then passing into the right ventricle and pulmonary artery. A small part of the blood in the pulmonary artery is conveyed to the lungs, but the major part passes through the ductus arteriosus into the aorta at the commencement of the descending portion. This blood is distributed to the lower extremities, a certain portion of it entering the hypogastric arteries and being conveyed to the placenta."—(Ashby's *Physiology.*)

The changes occurring in the circulation at birth are: The hypogastric arteries become obliterated, the foramen ovale closes, the Eustachian valve atrophies, the ductus arteriosus and ductus venosus become impervious and shrivel up.

5. A normal pregnancy usually lasts about 280 days or ten lunar months; this is only approximate. Cases have been reported where a pregnancy terminated in the birth of a live child at the sixth month, and it is also possible for a pregnancy to be prolonged eight weeks. There are no absolute limits.

6. *Positive signs of pregnancy:* (1) Hearing the fetal heart sound; (2) active movement of the fetus; (3) ballottement; (4) outlining the fetus in whole or part by palpation; and (5) the umbilical or funic souffle.

7. *Placenta prævia* is the condition in which the placenta is attached in the lower uterine segment, and may be near or over (partially or completely) the internal os. *Symptoms:* Sudden hemorrhage, accompanied by syncope, vertigo, restlessness, and feeble pulse. *Treatment:* Stop the hemorrhage by vaginal tampon; this must be tight and thorough. *Accouchement forcé* is indicated; this consists of dilatation of cervix, version, and immediate extraction of the child.

8. *Indications for the use of forceps* are: "1. *Forces at fault:* Inertia uteri in the presence of conditions likely to jeopardize the interests of mother or child. (*a*) Impending exhaustion; (*b*) arrest of head, from

feeble pains. 2. *Passages at fault:* Moderate narrowing, 3¼ to 3¾ inches, true conjugate; moderate obstruction in the soft parts. 3. *Passenger at fault:* A.—Dystocia due to (*a*) occipito-posterior, (*b*) mento-anterior face, (*c*) breech arrested in cavity. B.—Evidence of fetal exhaustion (pulse above 160 or below 100 per minute). 4. *Accidental complications:* Hemorrhage; prolapsus funis; eclampsia. All acute or chronic diseases or complications in which immediate delivery is required in the interest of mother or child, or both."—(From Jewett's *Practice of Obstetrics.*)

9. The *indications for version* are: (1) In transverse presentations; (2) in placenta prævia; (3) in malpresentations of the head; (4) in simple flattened pelvis, and in minor degrees of pelvic contraction; (5) in prolapsed funis; (6) in sudden death of the mother, and (7) in any case where speedy delivery is imperative.

Braxton Hicks' method of bipolar (podalic) version: "The patient should be placed in the lithotomy position and be deeply anesthetized, to relax the parts and allow the whole hand to be pushed into the vagina. The external hand is placed over the breech, so as to depress it; while the presenting part is tilted away from the brim by the fingers inserted through the os. The fingers press against the front of the child and flexion is lessened. When the head is out of the brim the external hand can be used to elevate it towards the fundus. As soon as a knee or foot comes within reach of the internal fingers, it should be caught and brought into the brim, the membrane being ruptured at the same time. If the os is fully dilated, delivery may be finished at once, as in an ordinary breech case; but if the os is only partially dilated, it must be left to nature, to allow of dilatation."—(Jardine's *Delayed and Complicated Labor.*)

10. POST-PARTUM HEMORRHAGE. *Causes:* Anything interfering with the firm contraction of the uterus after the expulsion of the child; retained placenta, or membrane, or clots; weakness of the uterine muscle; rapid labor; delayed labor; poorly developed uterine muscle; inflammation or disease of uterus.

Treatment: Grasp the uterus at once, through the abdominal wall, and massage it firmly. Anything in the uterus should at once be cleaned out. Pass one hand into the uterus, and with the other on the outside make firm pressure. A hypodermic of ergotin or ergot can be given by an assistant. An intrauterine douche of hot sterilized water (about 115° F.) may be given. Sometimes a very thorough packing and plugging of gauze of uterus and vagina may be necessary. Whatever is done must be done promptly; and everything likely to be needed for this emergency should be prepared beforehand in every labor.

GYNECOLOGY.

1. Unless there was some positive contraindication I would advise the healthy young woman to continue her bathing, sponging, and exercise during normal menstruation just the same as at other times.

2. The following (from *The Cyclopedia of Medicine and Surgery*) is a useful classification of uterine hemorrhages, and also gives the causes of the same:

I. *Hemorrhages complicating pregnancy, labor, or the puerperium:*

A. Hemorrhages of pregnancy: Caused by (1) placenta prævia; (2) premature separation of a normally situated placenta; (3) apoplexy of the decidua or placenta.

B. Hemorrhages of labor: Caused by (1) placenta prævia; (2) premature separation of a normally situated placenta; (3) relaxation of the uterus; (4) laceration of cervix; (5) rupture or inversion of the uterus.

C. Hemorrhages of the puerperium: Caused by (1) retained secundines; (2) displaced uterus; (3) displaced thrombi; (4) fibroid tumors; (5) hypertrophied decidua; (6) carcinoma.

II. *Hemorrhages occurring in the non-pregnant woman:*

A. In virgins before the age of thirty: Caused by (1) uterine congestion, the result of cold or exposure; (2) endometritis; (3) polypi and fibroid tumors.

B. In married women before the age of thirty: Caused by (1) subinvolution; (2) laceration of the cervix; (3) endometritis; (4) retrodisplacements of the uterus; (5) polypi and fibroid tumors.

C. In women after the age of thirty: Caused by (1) carcinoma of the cervix; (2) carcinoma of the body of the uterus; (3) sarcoma of the uterus.

3. GONORRHEA. *Symptoms:* Pain and burning in the vulva; pain and burning on micturition; dyspareunia; yellowish or greenish discharge, in which the gonococcus can be found; the vagina is hot, red, swollen, and tender. *Possible results:* Cystitis, urethritis, vulvitis, endometritis, salpingitis, septic peritonitis, sterility, condylomata of vulva, abscess of Bartholin's glands. *Diagnosis* is made from the symptoms, particularly from finding the gonococcus in the discharge. It is *so serious*, on account of the possible results, enumerated above; it often leads to chronic invalidism, and may be the cause of death.

Treatment: Rest, if possible in bed; freedom from alcoholic or sexual excitement; a mild and unirritating diet; salines and diuretics; plenty of water to drink; a warm sitz bath; douching of vagina with about a gallon of a 1:5000 bichloride solution, or of borax (1 dram to the quart), or of potassium permanganate (1 per cent. solution); the douche is to be taken in the recumbent position.

4. *Leucorrhea* is any discharge from the genital canal other than the menstrual discharge. Chronic cases are hard to cure, and much depends on the recognition and removal of the cause. *Treatment:* "Generally, local and general treatment should be combined. The patient should have plenty of substantial food, except when the cause is plethora. Her bowels should be kept open. She should be much in the open air. She should have woollen underwear. She should occupy a dry, sunny room. Change of air and pleasant surroundings have a beneficial effect. Sea baths and other cold baths are useful, but in rheumatic patients Turkish or Russian baths are better. Tonic medicines should be prescribed. Aletris cordial (a teaspoonful t. i. d.) and fluid extract of hydrastis (m. xx) sometimes arrest the discharge. In most cases a local treatment is necessary, such as applications, painting with tincture of iodine, the insertion of pledgets or suppositories containing astringents, vaginal injections of hot water or astringent fluids. A narrow cervical canal should be dilated, a diseased mucous membrane curetted or cauterized. The whole mucous membrane of the cervix may be cut away."—(Garrigues' *Gynecology.*)

5. The history is too inadequate to serve as a basis for any diagnosis. The patient may be suffering from chlorosis, piles, gastric ulcer, pregnancy, or several other conditions. As the question stands the candidate can only guess.

SURGERY.

1. "An important question is often raised as to the advisability of performing an operation during shock. As a general rule, it may be stated that operation should be deferred until reaction has come on, unless the presence of the injured organ, such as a badly crushed limb, is evidently prolonging the condition. Under these circumstances a hypodermic injection of morphine may improve matters by relieving pain; otherwise the local lesion should be at once dealt with, and it will be often found that, as the patient passes under the influence of the anesthetic, the pulse improves, and the state of shock disappears, the anesthetic shielding the medullary centres from the painful afferent stimuli."—(Rose and Carless' *Surgery.*)

"Should we operate during shock? We should only do so when death without instant operation is inevitable. It is not wise, in the author's opinion to amputate during shock. A tourniquet or Esmarch bandage should be applied, and attempts be made to bring about reaction, and when reaction is obtained the amputation should be performed. It is only just to say that some eminent surgeons oppose this rule. Roswell Park says that "shock is often alleviated by the prompt removal of mutilated limbs which, when still adherent to the trunk, seem to perpetuate the condition."—(Da Costa's *Modern Surgery.*)

2. *To arrest epistaxis:* (1) Try to cauterize the bleeding point: (2) plug the nasal cavity with gauze soaked in adrenalin; (3) inject into the nares a solution of peroxide of hydrogen; (4) plugging the nares, anteriorly and posteriorly; (5) an inflating plug may be used.

3. *Perforating gunshot wound of the abdomen.* "The treatment, even without symptoms of visceral injury, is immediate enlargement of the wound, in order to explore the abdomen, check hemorrhage, and close such visceral perforations as may be found. The abdomen is then flushed with salt solution, and closed or drained, according to the amount of soiling present. If the omentum protrudes it should be ligated

and removed, while coils of intestine should be carefully washed with salt solution and returned to the cavity. In cases in which there is doubt as to whether or not a wound enters the peritoneal cavity, such wound should be enlarged and the diagnosis positively made, being prepared at the same time to treat any visceral injuries that may be found. In gunshot wounds on the battle field an exception has been made to the rule of immediate exploration, because it has been found that the chances of recovery are somewhat better without than with operation undertaken in the absence of proper facilities."—(Stewart's *Surgery.*)

4. *Colles' fracture* is a transverse fracture at lower end of radius; it is due to falls on the outstretched palm. The line of fracture is about an inch above the wrist, and runs obliquely downwards from behind. The lower fragment is driven backwards and upwards, and rotated to the radial side, carrying the hand with it into the position of abduction, and leaving the tip of the radius at the same level as, or higher than, the tip of the styloid process of the ulna. The internal lateral ligament of the wrist is ruptured or the styloid process torn off. The fracture is usually impacted, the upper fragment being driven into the lower. The deformity is characteristic, viz.: (1) the hand is abducted; (2) the styloid process is on the same level as, or lower than, the tip of the radius; (3) the upper end of the lower fragment projects above the back of the wrist; on the front is a corresponding depression, while above it the upper fragment projects forward. Union occurs readily, but it is common to get deformity and adhesions about the site of fracture. *Treatment:* Disimpaction and reduction are brought about by grasping the hand by the "shaking-hands" grip, extending and adducting the hand and lower fragment. The arm is then fixed on a splint. It is very important in this fracture to start massage and passive movement not later than the end of the first week, to prevent stiffness. Union is firm in three weeks.—(*Aids to Surgery.*)

5. EMPYEMA. "Treatment should be undertaken without delay. Aspiration seldom cures, but may be undertaken where the dyspnea is great, and an anesthetic given afterward for the excision of a piece of rib. Drainage is always necessary, and is best done by excising a portion of the fifth or sixth rib in the mid-axillary line. The patient should be allowed to come round quickly from the anesthetic, so that the coughing which occurs will expel the masses of coagulated lymph and help to expand the lung. A big drainage-tube is then inserted. Daily dressings are necessary, but irrigation of the cavity is seldom needed. If, because of delay in treatment, the cavity does not soon close, Estlander's operation, or some modification, must be performed. The wound must be enlarged and a number of ribs exposed, and sufficient of them removed to convert the cavity into a pyramidal one, the base of which is the open wound. This is packed with gauze and allowed to heal from the bottom. If the operation has to be extensive, the flaps are allowed to fall back upon the granulating surface of the lung, and in these cases marked scoliosis and weakness of that side of the chest follow."—(*Aids to Surgery.*)

6. MASTOID ABSCESS. *Operation:* A semicircular incision of the soft parts is carried from a point about one-half inch above the attachment of the auricle, backward and downward, keeping parallel to the auricular attachment and terminating at the tip of the mastoid. The periosteum is now elevated or dissected from the bone and the osseous structure thoroughly exposed by means of retractors, which are held by an assistant, the auricle being pulled forward so as to lie upon the side of the head. The hemorrhage is controlled by the use of hot sponges and artery forceps. The surface of the mastoid is thoroughly examined for areas of necrosis or the existence of a fistulous opening, especially if a fluctuating swelling obtains previous to the operation. If these exist, the openings are enlarged by means of a gouge or a chisel and mallet, and followed inward to their origin. Should the surface present a healthy appearance, the primary opening of the mastoid is made into the antrum by means of the chisel, the point of entrance being effected just below the line of the superior wall of the meatus and about one-quarter of an inch backward from the posterior wall or anterior edge of the mastoid bone. When the antrum has been exposed, the cortex of the mastoid is chiselled away from this point downward toward the tip until a sufficient amount has been removed to expose all parts of the mastoid process. The cells are now all broken down, and every vestige of a necrotic or granulating area is completely eradicated. A free communication of the antrum with the tympanum should be established, which may be proved by syringing an antiseptic solution into the antrum, when it will escape from the external auditory meatus through a previous perforation of the drum head. The cavity of the mastoid is packed with sterile gauze, and the flaps of overlying tissue allowed to regain their former position, when a gap remains between their edges, through which the dressings may be changed.—(Alling and Griffin.)

7. "*Taxis*, or the manipulations for the reduction of a hernia, should always be gentle, and should rarely be tried for more than five or ten minutes, because of the danger of rupture of the bowel. It should not be employed in the presence of inflammation or gangrene. Reduction is facilitated by having the patient recumbent, the thighs flexed (and that of the affected side adducted in femoral or inguinal hernia), and the pelvis raised. The administration of opium and belladonna and the application of heat or cold also are useful in securing relaxation. One hand is used to steady the neck of the sac, while with the other the hernia is compressed and pushed back into the abdomen. In direct inguinal and umbilical herniæ the pressure is backward; in oblique inguinal hernia it is upward, outward, and backward; in femoral hernia it is at first downward and inward, then upward and backward. The successful reduction of bowel is sudden and accompanied by a gurgle; omentum is forced back slowly without gurgling."—(Stewart's *Surgery.*)

8. STRANGULATED HERNIA. "Operative treatment should be undertaken at once when gentle taxis has failed. An incision is made over the sac, which is then opened. There is usually fluid in the sac, so there is no danger of wounding the gut. The fluid is washed away ,then the cause of strangulation is made out, and a hernia knife guided up to it by a finger or broad hernia director. The constriction is nicked in one or two places and the gut is drawn down, so that the site of strangulation may be examined. Omentum is ligatured and removed. According to the condition of the intestine the further treatment differs. (1) If the gut, though black, has not lost its polish, it is reduced by gently compressing it to remove the edema. (2) If gangrene is suspected, the strangulated portion must be resected, and end-to-end union established. (3) If the gut is undoubtedly gangrenous, one of two methods must be adopted: (1) if the patient is profoundly collapsed and will not bear a prolonged operation, an artificial anus is established by dividing the constriction outside the sac, so as not to open the peritoneal cavity. The loop of bowel is then opened to give free exit to the feces. Most of the cases which have to be treated in this way are so bad before treatment is commenced that a fatal termination must be expected. (2) If the patient can possibly stand it, immediate resection gives the best chance, and with Murphy's button or a bobbin much time can be saved. A radical cure is advisable after relief of the strangulation.—(*Aids to Surgery.*)

9. *Hip-joint amputation:* "The most satisfactory method in the great majority of cases is Wyeth's, in which a constrictor is held in place by the preliminary passage of two steel pins. The outer pin is inserted an inch and a half below and a little internal to the anterior superior spine of the ilium, and is brought out just back of the great trochanter. The inner pin is entered one inch below the level of the crotch and internal to the saphenous opening, and it emerges an inch and a half in front of the tuberosity of the ischium. . . . After the limb has been emptied of blood by holding it in a vertical position for five minutes and stroking it from the periphery toward the body, the constricting band is fastened about the limb above the pins. . . . The hip is brought well over the edge of the table, a circular incision is made down to the deep fascia, six inches below the constricting band, and is joined by a longitudinal skin-cut reaching from the band to the level of the circular incision, and the cuff is reflected to the level of the lesser trochanter. The muscles are cut by a circular sweep at the level of the retracted cuff, the capsule of the hip-joint is opened freely, the cotyloid ligament is cut posteriorly, the thigh is bent upward, forward, and inward to dislocate the head of the bone, the round ligament is incised and the limb removed."—(Da Costa.)

10. *Circumcision is indicated* in congenital phimosis; when the prepuce is long, inflamed, or edematous.

(*To be Concluded*)

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THE IMMEDIATE RESULTS OF SALVARSAN TREATMENT OF SYPHILIS, AS JUDGED BY THE WASSERMANN REACTION. USING A CHOLESTERIN-FORTIFIED ANTIGEN.

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THIS report covers one year's work from February 1, 1913, to February 1, 1914, during which year forty-seven cases of syphilis were treated by two or more salvarsan injections. In only five instances was the Wassermann reaction rendered negative, and in thirty-six cases the reaction remained unchanged.

Of the small number of serological reports on the action of salvarsan, most are lacking in important details. Many writers, for instance, do not state whether the original technique of Wassermann or some modification was followed. Furthermore, as some antigens uniformly give less positive results than others, it is most essential to know what antigen is used; also the exact number of salvarsan injections, and because of its effect on the Wassermann reaction, any mercurial medication should be stated in full. It is to be hoped that in future, reports on the salvarsan treatment of syphilis will be given in greater detail. Not until this is done can a comparison of different methods of treatment be made. Fox[1] gives an excellent form of tabulation which, for the sake of uniformity, it would be well to follow. I have followed it as nearly as I could in my own tables.

Speaking of the effect of neosalvarsan alone Fox reports that with only four intravenous doses of neosalvarsan out of fourteen cases (eight in the secondary stage, and five tertiary cases) giving a 4+ Wassermann reaction, at the end of some months, seven were changed to 3+ and three to 2+, one to 1+, and one to negative. In these Wassermann tests an alcoholic extract of normal heart was used as an antigen. Yet he believes that the effect of neosalvarsan on the Wassermann reaction is considerably weaker than that of a corresponding amount of salvarsan. Using an alcoholic extract of syphilitic liver Nichols and Charlet[2] obtained more definite results. In three cases in the first stage showing a 3+ before treatment, after receiving 4, 5, and 4 injections of salvarsan they respectively showed 1+, 2+, and 2+ positive Wassermanns. After receiving four injections of salvarsan two cases in the second and third stages remained 2+ and 3+ respectively, two dropped from 3+ to 2+, while one rose from 2+ to 3+. Of the two cases they report in the fourth stage, one changed from 2+ to negative after nine injections, while the other rose from a negative, with five injections, to a 3+.

This antigen may be criticised as being too strong, but competent workers such as Walker and Swift,[3] and Kolmer, Laubaugh, Casselman, and Williams[4] consider it perfectly satisfactory and advocate its use.

Sachs[5] first applied the method of fortifying antigens by the addition of cholesterin to the crude alcoholic extract of normal beef heart. McIntosh and Fildes[6] also found that fortified alcoholic extracts of human heart were much superior to alcoholic extract of normal heart, of syphilitic livers, or the lecithin-cholesterin mixture of Browning. Walker and Swift[3] conclude that "the addition of cholesterin to an alcoholic extract of heart or fetal liver increases the antigenic value of the extract in the Wassermann reaction." They also state that "Both the human heart and the guinea-pig heart extract are superior to beef heart extract when the same amount of cholesterin is added to each of the extracts." Kolmer, Laubaugh, Casselman, and Williams[4] concluded that cholesterinized alcoholic extract of human, pig, and beef hearts, in the order named, are to be preferred.

The Wassermann reactions here reported were all done with an alcoholic extract of guinea pig's heart plus 0.4 gram cholesterin per 100 c.c. of alcoholic extract. The only modification of the original Wassermann was that half quantities of the reagents were used. For the hemolytic system a 5 per cent. suspension of sheep cells was used. Using an amboceptor whose strength had been determined by titration against complement of known strength, daily preliminary titrations of complement were made. In doing the test itself 2 units of amboceptor and 2 units of complement were used and .5 c.c. of a 10 per cent. suspension of the alcoholic extract of guinea pig heart plus cholesterin. The sera, complement, and antigen were incubated for one hour in a water bath, and after the addition of the hemolytic system, the tests were incubated for a second hour. The final readings were made the next morning.

In reading the results no hemolysis was reported as 3+, 50 per cent. hemolysis at 2+, less than 50 per cent. hemolysis as +, and complete hemolysis as negative.

All the cases of syphilis, both in the dispensary and in the hospital over a period of one year, which gave a positive Wassermann reaction with this cholesterin antigen before treatment was begun and who received two or more salvarsan or neosalvarsan injections are reported. No attempt has been made to compare the effect of salvarsan and neosalvarsan on the Wassermann reaction. Because of its effect on the Wassermann reaction the

DISPENSARY CASES

PRIMARY STAGE

No.	Sex	Age	Diagnosis	Age of Infection	Date First Salvarsan	Salvarsan Injections	Neosalvarsan Injections	Date Last Salvarsan	Total Number Salvarsan and Neosalvarsan Injections	Mercury Salicylate Injections	Wassermann Reaction
1	M	32	Chancre	5 weeks	Mar. 25		1 at .6 grms. 2 at .9 grms.	April 8		2½ grs.	Changed from 3— to negative.
2	M.	22	Sore on glans	5 weeks	Mar. 5	1 at .6 grms.	1 at .6 grms. 5 at .9 grms.	June 18	7	14 grs	Changed from 3+ to negative
3	M	20	Chancre, upper lip	2 mos.	Feb. 19	1 at .6 grms.	1 at .6 grms. 1 at .75 grms. 1 at .9 grms.	May 21	4	2 grs.	Changed from 3— to negative.
4	F.	20	Chancre (?) on lip	?	June 10		5 at .9 grms.	June 27	5	1 gr.	Remained 3+.
							SECONDARY STAGE				
5	M.	22	Secondary syphilis.	1½ yrs	Jan. 31	2 at .6 grms.	4 at .9 grms.	Aug. 28	6	34 grs	Remained 3+ negative after course of mercury.
6	M.	31	Mucous patches	Denied	June 4	1 at .4 grms. 17 at .6 grms.		Dec. 31	18	60 grs	Remained 3+.
7	M.	35	Secondary syphilis.	2 yrs	July 16	1 at .4 grms. 9 at .6 grms.	.....	Nov. 12	10	2 grs.	Changed from 3— to negative.
8	M.	28	Papular eruption	?	June 6	1 at .3 grms 4 at .5 grms. 1 at .6 grms.	.....	July 31	6	4 grs.	Remained 2+.
9	F.	25	Secondary syphilis	?	Oct. 29	1 at .4 grms. 3 at .5 grms.		Dec. 3	4		Remained 3+.
							TERTIARY STAGE				
10	F.	44	Tertiary syphilis	?	Jan. 24	4 at .6 grms.	1 at .6 grms. 16 at .9 grms.	Jan. 9	-	4½ grs.	Changed from 3+ to 2+, negative after course of mercury.
11	M.	27	Tertiary syphilis	3 yrs.	?	5 at .6 grm.	5 at .4 grms. 4 at .9 grms.	Sept. 10	14		Changed from 3+ to negative.
12	M.	25	Syphilis		Sept. 24	9 at .6 grms.		Jan. 21	9	14 grs.	Remained 3+.
13	F.	29	Gumma of knee	3 yrs.	Apr. 18	1 at .4 grms. 2 at .6 grms.	3 at .9 grms.	Nov. 31	11	11 grs.	Remained 3+, negative after course of mercury.
14	F.	36	Gumma labia	?	Jan. 15		7 at .9 grms.	June 24	7	17 grs	Remained 3+, negative after course of mercury.
15	M	14	Ulcers on leg	?	July 15	2 at .3 grms. 2 at .4 grms 3 at .6 grms.	4 at .9 grms.	Oct. 17	11	½ gr.	Remained 3+.
16	F.	34	Ulcers on leg	?	May 20	2 at .3 grms 5 at .6 grms.	10 at .9 grms.	Oct. 3	17	2 grs.	Remained 3—.
17	M.	20	Ulcers on leg	2 yrs.	Dec. 5	2 at .4 grms. 5 at .6 grms.		Feb. 1	7	7 grs.	Remained 3+.
18	F.	61	Ulcers on leg		Feb. 14	1 at .4 grms.	1 at .6 grms. 2 at .9 grms.	May 28	4		Remained —.
19	F.	29	Ulcers on leg	3 yrs	Apr 22	1 at .4 grms. 4 at .6 grms.	8 at .9 grms.	Jan. 30	13	11 grs.	Changed from 3— to +.
20	F.	45	Syphilitic aortitis		May 26	1 at .4 grms. 5 at .5 grms.	1 at .6 grms. 1 at .9 grms.	Oct. 29	10	10½ grs.	Remained 3+.
21	M.	35	Specific osteitis of clavicle.		Apr. 16	2 at .6 grms.	1 at .6 grms. 2 at .9 grms.	Sept. 10	5	2 grs.	Changed from 2+ to 3+
22	F.	29	Periostitis tibia	1904	Apr. 10	4 at .5 grms.	1 at .5 grms. 1 at .6 grms. 4 at .9 grms.	June 11	10	4 grs.	Remained 3—.
23	F.	40	Cerebrospinal syphilis.	16 yrs.	Feb. 21	5 at .5 grms.	1 at .6 grms. 4 at .9 grms.	Sept. 26	10	2½ grs.	Changed from 3+ to 2+
24	F.	32	Cerebrospinal syphilis.	?	May 23	2 at .2 grms. 2 at .3 grms.	8 at .9 grms.	Oct. 31	12	1 gr	Remained 3+.
25	M.	40	Tabes dorsalis	2½ yrs	Jan. 20	1 at .75 grms. 2 at .825 grms. 6 at .9 grms.	.....	July 27	9		Remained 3—.
26	M.	56	Tabes dorsalis		Aug. 21	1 at .3 grms. 1 at .4 grms. 1 at .5 grms 2 at .6 grms.		Oct. 10	5		Remained 3+.
27	M.	32	Tabes dorsalis	8 yrs.	Apr. 19	2 at .5 grms. 4 at .6 grms.	1 at 6 grms.	June 18	8	3 grs	Remained 3+.
28	M.	39	Tertiary syphilis	22 yrs.	Oct. 23	3 at .3 grms.		Nov. 12	3	2½ grs.	Remained +.
29	M.	40	Tertiary syphilis	20 yrs	Feb. 6		1 at .0 grms. 1 at .075 grms. 2 at .15 grms. 1 at .6 grms.	Mar 3	5	2 grs.	Remained 3—.
30	F.	44	Tertiary syphilis		Aug. 22	1 at .2 grms. 1at .3 grms.		Aug. 28	2		Remained 3+.
31	F.	38	Tertiary syphilis. Gumma of liver.	12 yrs.	Feb. 4	2 at .5 grms	4 at .0 grms. 4 at .6 grms. 3 at .9 grms.	July 18	[illegible]	4 grs.	Remained 3+

No.	Sex	Age	Diagnosis	Age o Infection	Date First Salvarsan	Salvarsan Injections	Neosalvarsan Injections	Date Last Salvarsan	Total Number Salvarsan and Neosalvarsan Injections	Mercury Salicylate Injections	Wassermann Reaction
32	M.	37	Syphilis of liver	Denied	Jan. 28		2 at .6 grms. 1 at .75 grms. 4 at .9 grms.	May 1	7		Remained 3+
33	F.	29	Chronic periostitis.	8 yrs.	April 10		1 at .75 grms. 2 at .9 grms.	April 17	3		Remained 3+
34	F.	40	Chronic pulmonary tuberculosis.	. .	Feb. 1		2 at .0 grms. 4 at .6 grms. 1 at .75 grms.	Mar. 14	7		Remained 3+
35	M.	41	Aneurysm of aorta.	Denied	Aug. 4	2 at .2 grms 4 at .3 grms. 2 at .4 grms.	. .	Nov. 6	8	$1^3/_4$ grs.	Remained 3+
36	M.	31	Chronic cardiac valvular disease.	15 yrs	Sept. 22	2 at .3 grms 2 at .4 grms.		Oct. 17	4		Remained 3+
37	M.	17	Chronic cardiac valvular disease.		July 9	4 at .4 grms.	.	Aug. 11	4		Remained 3+
38	F.	60	Syphilitic aortitis		May 6	1 at .2 grms 1 at .3 grms.	.	Mar. 14	2	3 grs.	Remained 3+
39	M.	33	Tabes dorsalis .	Denied	July 8	2 at .3 grms 1 at .4 grms 1 at .5 grms 1 at .6 grms		Aug. 8	5	$^1/_2$ grs.	Changed from 3+ to 2+
40	M.	47	Tabes dorsalis .	Denied	Jan. 31		4 at .6 grms. 1 at .75 grms. 2 at .9 grms.	Mar. 1	10		Remained 3+
41	M.	34	Tabes dorsalis .	15 yrs.	Mar 7		1 at .45 grms. 6 at .9 grms.	July 31	7		Remained 3+
42	M.	38	Tabes dorsalis . . .	Denied	Nov. 13	2 at .3 grms. 1 at .5 grms.		Dec. 2	3		Remained 3+
43	M.	48	Cerebrospinal syphilis.		Mar. 8	1 at .3 grms 1 at .4 grms. 7 at .5 grms.	2 at .9 grms.	.	11		Remained 3+
44	M.	38	Cerebrospinal syphilis.		Aug. 7	2 at .3 grms 2 at .4 grms.		Aug. 28	4		Remained 3+
45	M.	39	General paralysis	Denied	Nov. 21	1 at .3 grms. 4 at .6 grms			5		Remained 3+.
46	M.	28	Transverse myelitis	4 yrs.	Aug. 9	1 at .3 grms. 2 at .4 grms		Sept. 5	4	. .	Remained 3+.

amount of salicylate of mercury administered is shown. Even in this small number of cases there are three instances where the Wassermann was negative directly after a course of mercury. Unfortunately it is impossible to tell if the dispensary patients are receiving any treatment elsewhere which might modify their Wassermann reactions. During their treatment these cases in most instances had frequent Wassermanns done. As many of the dispensary cases are still undergoing treatment, the final Wassermann reactions given are those taken after the last tabulated salvarsan injection. The Wassermanns on the hospital cases were all done before their discharge from the hospital.

In a subsequent report I shall give the late results of treatment of these cases. The large majority of the cases are infections of long standing. Table I shows the number of cases who received from two to twenty-one injections of salvarsan and neosalvarsan with the resulting effect on the Wassermann reaction.

Of the dispensary cases, three primary cases, one secondary case, and one tertiary case were rendered negative. Three of the four primary cases were rendered negative and in the fourth case, which remained positive, there is some doubt if this was a recent infection as the lesion on the lip was not a typical hard chancre. Of the five secondary cases one changed to negative, one remained 2+, while three remained 3+ positive.

The proportion of positive cases among the tertiary cases is very high, as out of eighteen cases showing a 3+ positive before treatment, thirteen remained 3+ positive, two dropped to 2+, only one was rendered negative, while one case rose from a 2+ to a 3+ positive. Of the nineteen hospital cases, all in the tertiary stage, giving a 3+ positive reaction before treatment, eighteen remained 3+ positive and one dropped to a 2+. But nine hospital cases show clinical improvement. In the case of syphilis of the liver (No. 37) the liver was reduced in size, and case No. 44 felt perfectly well

TABLE 1

Number of injections of Salvarsan and Neosalvarsan		2	3	4	5	6	7	8	9	10	11	12	13	14	17	18	21
Number of cases		2	5	6	6	2	6	2	2	5	4	1	2	1	1	1	1
Wassermann reaction	3+	2	5	6	5	1	6	2	2	5	4	1	2	1	1	1	1
Before treatment	2+				1	1											
Wassermann reaction	3+	2	4	6	5	1	5	2	2	3	3	1	1		1	1	
After treatment	2+				1	1				1							1
	1+										2		1				
	Negative		1				1			1	1			1			

at the time of discharge. In the case of transverse myelitis (No. 46), whereas before treatment the patient could not retain his urine, at the time he left the hospital he could hold his urine for about two hours and his muscles were noticeably stronger.

Although the cases here reported are too few in number to draw any definite conclusions from, yet they seem to show that, when a cholesterin fortified antigen is used in the Wassermann reaction:

1—Early cases of syphilis treated by salvarsan injections may be changed from a 3+ positive to a negative.

2—Old cases of syphilis treated by numerous salvarsan injections show little or no improvement from a serological standpoint.

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AUTOIMMUNIZATION IN RESPIRATORY INFECTIONS.*

By CHARLES H. DUNCAN, M.D.,

NEW YORK.

In former papers the writer reported cures of many patients suffering from various infections, with the natural, unmodified toxin complex, or remedy that is supplied by the patient's body. In the present paper he will take up the autotherapeutic treatment of patients suffering from infections of the respiratory tract. This method of treating patients was discovered by the writer by following the rules already formulated in the regular development of autotherapy.

Before taking up the technique of this treatment, we will state briefly the principle upon which cures made by autotherapy rest, and give additional reasons for its great therapeutic value. The author believes that a natural, or spontaneous cure of an infectious disease is due to the entrance into the blood stream of unmodified toxic substances, developed in the focus of infection. When this occurs the power of the blood serum is raised, and the activity of the leucocytes is stimulated, with the resultant development of specific antibodies. Autotherapy, or autoimmunization, the physician's method of treating the patient, is based on Nature's method of cure; for by autotherapy the patient is inoculated with unmodified toxic substances elaborated within his own body by the action of the infecting agent on his body tissues. By autotherapy the physician simply inoculates the patient with the same unmodified toxic substances that Nature utilizes when a spontaneous cure is brought about; these may be obtained by filtering the pathogenic exudate of the disease through a Berkefeld filter. The bacteria-free filtrate contains all of the unmodified toxins from all of the micro-organisms, both causative and complicating, that are in the focus of infection, and when this is injected hypodermically, the same thing occurs as when Nature cures, namely, the power of the blood serum is raised, the activity of the leucocytes is stimulated by the action of specific antibodies to overcome or combat all of the microorganisms from which the patient suffers. As more antibodies are developed when the toxins are placed in subcutaneous tissues than when they are injected into the blood stream, and as by autoinoculating the patient early, the physician may often "steal a march" on the slow, natural method of "autoinoculation," autotherapy has distinct advantages over even the natural method of cure.

The unmodified toxin complex is therefore the ideal therapeutic agent for treating a patient suffering from any localized and possible non-localized, infectious disease. Furthermore, my unmodified toxin complex therapy has distinct advantages over any form of vaccine therapy for the reason that the unmodified toxins are the parent toxins, or set of toxins, that are in the patient's body, the therapeutic value of which is unchanged or unaltered by the mechanical process of filtration. On the other hand, every step in the process through which a vaccine passes in the laboratory during its preparation, alters or changes its therapeutic effect in the tissues. If a vaccine cures, such cure is due, not to the laboratory manipulation, but in spite of it.

The Therapeutic Action of All Vaccines Is Lowered.—The influence of the culture media on bacterial growth, development, biological and morphological characteristics is beginning to be pretty well understood as new light is thrown on the subject by many investigators. In France it has long been taught that the media upon which bacteria grow, modify the microorganism, both in regard to their biological characteristics, as well as their appearance. Vincent shows that it is possible to make certain non-pathogenic microorganisms pathogenic by simply incubating them on certain culture media, and then vice versa, he may change them back again into non-pathogenic microorganisms by changing back to the culture media upon which they originally grew. This is highly important, from a therapeutic point of view, as showing what grave dangers may lie in the supposedly innocent culture media. Again, one investigator has shown that certain bacteria may be made fermentative or non-fermentative at will, by simply employing certain successive culture media. By a similar process, another shows that certain bacteria may be made gas-producing or non-gas-producing at will. One investigator has gone so far as to state that it is only when bacteria are grown on culture media prescribed by the textbooks, that they behave in the manner the textbooks describe.

There are no conditions under which a microorganism can grow outside of the body that are exactly like those in the patient's body. On the contrary, there are good therapeutic reasons why they should not be so grown, if the best therapeutic effect is to be obtained by their use. There are no accidental or altered toxins from the culture media in my unmodified toxin complex, nor are the morphological or biological characteristics of the infect-

*In this article the writer would appeal to reason and thus awaken professional interest in autotherapy. The strong language he uses is unusual in medical articles; this is an unusual subject. If this article awakens in the mind of the reader a desire to know more of authotherapy and to test the truths herein stated for himself, the author believes he will make a convert of its every reader. There will be no big houses to push the physicians into using autotherapy; only the desire on the part of the physician to cure his patient is the incentive that will cause him to use it. There are many physicians who have this desire. Merely follow the simple technique given and you will have little trouble, and at times be amazed at the cures you will make.

ing microorganisms altered or changed by the simple process of filtration. For these reasons the autotherapeutic remedy individualizes the patient as can no other remedy.

The Therapeutic Value of Filtered Toxins.—The antitoxins of both diphtheria and tetanus are developed in the animal by injecting the filtered toxins of the diphtheria and tetanus bacilli respectively. The antitoxins developed in the animal in response to these filtered toxins tend to combat or antidote any further injection of toxins, they also tend to rout the corresponding microorganism if it is injected into the animal. Developing active immunity in the animal to a given microorganism by injecting the filtered toxins of that microorganism in the healthy tissues, is similar to the development of active immunity in the patient to his own toxins and infecting microorganisms by injecting him with the filtered toxins from his infecting microorganisms. By this process we autoimmunize* the patient to his own infecting microorganisms. Again when the patient is injected into comparatively healthy tissues with the unmodified filtered toxins from the focus of his infection, leucocytes are attracted to the point of injection in large numbers, and they are stimulated by the development of specific antibodies to perform a very definite function—to destroy that microorganism only to whose toxins they responded, the microorganism from which the patient suffers. There being none of these microorganisms at the point of injection, the specific leucocytes pass on into the circulation to the focus of infection, where they combat or rout out that microorganism from the soil of its recent adoption. By no other active immunizing therapy can that organism be attacked so successfully as by the reaction to the unmodified toxin complex developed in the patient by that particular organism, or by the autotherapeutic remedy.

There is no certainty of cure with any heterogeneous toxin or set of toxins, clinical experience for upward of a century clearly proves this. Administering the stock conglomerate vaccines is shot-gun therapy, and empirical prescribing pure and simple, and wholly unscientific.

We believe the two main factors that enter into every infection are, first, the degree of resistance of the tissues, and, second, the degree of virulence of the microorganism to which the patient is exposed. There are no known methods of measuring these two variable factors before an infection takes place, for we are always exposed to a vast number of pathogenic microorganisms and we never know the identity of the microorganism to which we are exposed or that an infection will occur till after it takes place. On the other hand, authotherapy presupposes an existing infection and employs the unmodified toxins of the infecting microorganism to combat that organism. Autotherapy employs Nature's remedy, developed in Nature's laboratory (the body tissues of the patient) for the sole purpose of routing that microorganism.

The danger to the patient and the grave responsibility of the physician in his relation to his patient suffering from an infection of the respiratory tract, has never been so forcibly brought to our attention as the study of authotherapy reveals; for we have never so well understood the direct relation of respiratory infections to so many diseases. Autotherapy makes it very clear that it is but a short step from a "common cold" to many of its lineal descendants, namely, sinus involvement, otitis media, hay fever, asthma, rhinitis, influenza, pneumonia, and many other infections of the deeper structures of the head, chest, and other parts of the body. In chronic infections of the respiratory tract, the resistance of the tissues is often lowered, and the tissues then offer a fertile field for other infections, and air borne contagions; namely, pulmonary tuberculosis, measles, mumps, whooping cough, cerebrospinal meningitis, diphtheria, etc.

In order that it may not be overlooked, the writer will state that in this discussion we are dealing principally with diseases uncomplicated except by bacterial infection. Many bacterial infections, especially those of the nose, pharynx, nasopharynx, larynx, etc., are so closely allied to bacterial infections of other parts of the respiratory tract that from an autotherapeutic point of view it is often unnecessary to make a differential diagnosis to treat them successfully. Ordinary common colds are a mixed bacterial infection, and should be treated as such. This was pointed out by the writer in the *New York Medical Journal*, December 14 and 21, 1912. There the writer states that "acute or subacute bronchitis may usually be cured in twenty-four hours, and a chronic bronchitis is often cured in two weeks by injecting the patient hypodermically with the filtrate from his own sputum at proper intervals."

A physician, who represents the progressive element of the profession and who is therefore a close student of autotherapy, recently remarked as he spit up mucus from a catarrhal condition of the respiratory tract: "There goes my remedy." And he was right! That mucus did contain his remedy, especially fitted or adapted to his individual needs, as could no other. It only needed to be properly filtered, and his remedy, specific for his condition, uncontaminated and unmodified by laboratory technique, would be at hand, ready for use. It could not be exactly duplicated. His condition usually need not be diagnosticated in order that the remedy might cure him properly. In the light of autotherapy, the despised drop of mucus becomes a ministering angel of mercy. It is the priceless heritage bequeathed by provident Nature to cure the patient.

The writer would emphasize that the speed, certainty, and comparative freedom from danger that nearly all acute infections of the respiratory tract may be cured by autotherapy, makes it imperative on the part of the physician to treat the patient, not the disease, autotherapeutically, if he would cure the patient in the quickest and best manner possible and prevent or abort the sequel in the shape of a chronic condition; another infection, a migration of the microorganisms or their toxins to distant parts of the body with coincident pain, increased temperature and results sequel in the shape of indurations, fibrous tissue changes, adhesions, pain, etc. The question arises, if acute inflammations of the respiratory tract or the so-called "common cold" are treated early by autotherapy, may not many of the long category of chronic conditions resulting from infections or contagions above mentioned be aborted? This question is one of great magnitude and importance, and the affirmative answer it appears we are bound to give, opens up therapeutic possibilities that are endless.

In the *American Practitioner*, July, 1913, under

*Autoimmunize is a word the writer has coined to convey his exact meaning.

the title of "Autotherapy—versus Operation," the author reported a case of colicystitis cured, and the operation aborted by injecting the filtrate of sputum hypodermically. Encourged by his success in this, and other similar cases, he employed the filtrate of sputum successfully in two cases of acute appendicitis after operation had been refused, avoiding an operation in each instance. In all of these cases the pain ceased in from six to twelve hours, as if by the action of morphine. It appears that had these cases been operated upon, the cause of the surgical condition would not have been removed, for the surgical operation would have simply removed some of the effects of the infection. The causative microorganisms proliferating in the respiratory tract may again migrate to distant parts of the body and set up constitutional disturbances, such as pain, increased temperature, etc. Autotherapy tends to remove the cause of the disease. It is the condition behind and deeper than the operation that autotherapy often removes. There is no doubt in the writer's mind that by autotherapy many conditions supposedly demanding operative measures may be cured, and the operation avoided.

The writer has employed the filtrate from sputum successfully in many conditions, some of which he could not diagnose. How often have we seen a patient suffering with a toxic disease supposedly foreign to the lungs, die from pneumonia that quickly developed. We are all familiar with this occurrence. The question that engages attention in this connection is that had the bronchial condition been recognized early, and the filtrate from sputum containing the specific microorganism been theraputically employed, might not the life of the patient have been spared? Autotherapy is no theraputic fad or passing fancy, to be discarded in a little while for some other whim method or mode of therapy. The filtrate from sputum will cure a bronchitis in a thousand years from now as well as it does today. Autotherapy is one of the few things that has endured since the earliest period of human existence, and it will endure for all time, for the principal underlying cures made by its use are everlasting and immutable. For this reason autotherapy has come to the physician's hand to stay, and the physician who does not use it in treating patients with localized infections is not employing the greatest weapon we have at our command in fighting disease. We are gradually moving away from complex medication, back to obvious natural therapy. Natural methods may appear crude and simple. The fault is not with Nature, the fault lies in the fact that we have moved so far away from Nature that we fail to appreciate the wonders of her ways. It is because we have not perceived the truths she holds out to us in all of their bearings. This accounts for the endless speculation, controversies, and uncertainty that have characterized the study of medicine through the past ages. Autotherapy marks a new era in medicine. It does not treat the disease empirically in the sense ordinarily understood by the word; it does not give the patient a little symptomatic treatment, or treat the disease locally with modern medicines with high sounding names. Autotherapy treats "the patient" with the remedy Nature designed and foreordained to fit his condition exactly. The wonderful therapeutic value of her preparations cannot be denied.

The patient brings his natural remedy with him to the physician, in his body, and it often can be obtained. Heretofore, we have been imperfectly imitating natural therapy with vaccines. Natural therapy is the conclusion of vaccine therapy. Autotherapy *is* natural therapy.

Antiseptics, oils, and mucous membrane stimulants are at times useful, after the bacterial elements of the blood have destroyed the infecting microorganisms, to assist in the repair of the relaxed condition of the mucous membrane due to the inflammatory condition accompanying the infection, and they at times do cure. Autotherapy, on the other hand, strikes at and removes the cause of the disease, and seldom requires supportive treatment of this nature, except for the physician to have the appearance of "doing something." Local treatment is not contra-indicated as far as the writer knows, except that the local medication should not contaminate the discharge from which the toxins are prepared. The writer believes that all antiseptics as such or preservatives will modify to some extent the delicate enzymes, ferments, etc., that correspond to each bacterial toxin. This is one of the reasons why the toxins should be administered fresh, for the reaction to the unmodified toxins that come out of a patient's body is the exact specific reaction to the same toxins that remain in his body. Another very important reason why the toxin complex should be administered shortly after it is obtained is that if it is kept for several weeks another microorganism may creep into the infected area during the interval, and we would not then expect to obtain the same good results, and we would not then have the additional toxin from the new complicating microorganism and its corresponding tissue toxic substances, as enzymes, ferments, toxic results of chemical changes in the protoplasmic molecule, etc., against which the tissues react in a curative manner as part of our unmodified autogenous toxin complex.

The autogenous vaccines prepared according to the method now in vogue are of altered or lowered therapeutic value. We may not be able to grow the causative microorganism outside of the body tissues. Under these circumstances, the autogenous vaccine of Wright is worthless. It takes time to prepare Wright's autogenous vaccines, while the patient is growing worse. How often have we seen a patient pass the crisis or die while it was being prepared? It is not always convenient or possible to obtain it at the time it is most needed. It requires an extensive laboratory to prepare it. It requires a skilled pathologist, one on whom absolute dependence can be placed. He is not always easy to find. Extraneous matter may creep in during the preparation, and contaminate it, thus rendering the vaccine worthless. The autotherapeutic remedy has none of these objections, for the act of filtering is simplicity itself, and can be done in a very few minutes by any family physician without a laboratory. The physician depends on no one but himself. It is cheap. The merest waif of the city streets is as rich in curative medicine as the millionaire. The remedy the patient needs is always at hand, and can most always be obtained. But the great advantage of my autotherapeutic remedy in addition to the advantages stated above over vaccines is that it contains all of the unmodified toxins from all of the microorganisms and all of the toxic tissue substances that correspond to each bacterial toxin from which the patient suffers. It may be prepared at the bedside wherever the patient may be.

The great therapeutic advantages of the autotherapeutic remedy over Wright autogenous vaccine

are thus apparent, and not open to controversy. The autogenous toxin complex is usually not very toxic. Seldom will the temperature rise above 99° F. The greatest danger is in giving subsequent injections before they are needed. The danger appears to be, not in the use, but in the abuse. This is the danger to which objections may be raised to any therapeutic agent. In its innumerable adjustments our therapeutics of the past resemble in many respects the fashion supplement of some modern trade journals. What is new today is often old tomorrow. Commercialism runs rampant throughout the various ramifications of medicine. Empiricism is at its highest point of development. With the advent of autotherapy, our ideas of medicine have changed, and they will change more as we hark back to Nature and study the beauty and completeness of her ways. If medicine were,

"Content to mark,
And work on the foundation Nature lays,
It would not lack supply of excellence."
(*Dante, Cary's Translation.*)

Therapeutic nihilism must give way to the thought that the purification of the body must come from within. As Christianity teaches, for spiritual defects, the cure must come from within, so autotherapy teaches for physical defects the cure must come from within. Autotherapy is the religion of the body. Self-therapy, or self-preservation is the fundamental principle of life. It is Nature's first law. Nature is the "true healer," the physician her servant. The history of medicine is largely the history of false gods that have been worshipped, of false doctrines that have been expounded, of medical money changers that compete in their efforts to defile God's holy temple—the human body. Their wares too often contravene and block the "true healer," Nature, in her efforts at restoration. With the advent of autotherapy, the patient will not so often have to be satisfied with a diagnosis of his disease, and then simply wait, not for the physician, but for death to relieve him. Today and tomorrow, and the day after tomorrow, are the days of therapy, principally autotherapy. Therapeutic nihilism and therapeutic agnosticism must give way to autotherapy. With the advent of autotherapy, the family physician again comes into his own. He rarely now has to send his patient suffering with an infectious disease to "highly specialized" specialists. By its use the family physician can more often treat his patients suffering with an infection of the ear, nose, throat, chest, stomach, abdomen, pelvis, and a vast number of other organs, and at the same time, be quite sure the patient is getting the remedy fitted or adapted to his individual needs, and no other. Autoimmunizing the patient to his own infecting microorganisms is being employed successfully by hundreds of physicians, in every state in the Union, and in many other parts of the world. Old Dame Nature is the pharmacist supreme. An unalterable trust may be reposed in her therapeutic preparation.

The writer knows full well that the tendency of physicians of today is to accept nothing but that has been developed in the laboratory. The fundamental basal principle that underlies the cures made with the autotherapeutic remedy is that it be unmodified in the laboratory. Demonstrated results should not be despised nor ignored because they do not seem to coincide with the doctrines or theories of men who may be temporarily in exalted positions, and who assume the rôle of virtuous infallibility.

Many of us who have lived but a short time in medicine have outlived the creed of too many who have arrogantly assumed that everything outside of their own little private flower bed was incredible and impossible. Until we know all possible changes that can transpire in complex organic chemistry and biology, it is becoming that we be more humble and broadminded. "Indifference to demonstrated results is an intolerable attitude," *Journal American Medical Association.* Meltzer says in the *Journal American Medical Association*, "Men trained exclusively in the laboratory do not seem to see that a medical fact observed critically by a capable physician deserves as much credence and consideration as a fact developed by laboratory methods. The laboratory man offers positive opinions in a field in which he has had no experience." Hippocrates insists that "observation rather than speculation is the true instrument of progress." In the last analysis the ultimate object of all laboratory investigation is therapy. Autotherapy is the keystone in the arch of the great medical superstructure that has been raised by both dominant schools of medicine. As the keystone fills out the arch joining the two leaning sides, so autotherapy joins the two great schools of medicine by strengthening and beautifying each, for this is Nature's method of curing the patient. Autotherapy is the medical "tie that binds" our hearts in therapeutic faith.

The formula given below will often have to be altered somewhat to suit the individual needs of the patient. The following technique was closely followed: Sputum, 1 dram; distilled water, 1 ounce. Mix in a two-ounce bottle, shake well, and allow to stand for twenty-four hours. Filter through a Berkefeld filter. Inject twenty minims of the bacteria-free filtrate into the loose cellular tissues over the biceps muscle. Give no further dose until the patient ceases to improve under the preceding dose. In chronic cases this will often be from the third to the fifth day, although the condition of the patient should always be the guide as to the time when another dose is needed. In very weak patients, and in very chronic cases, proportionately less should be given. One injection will, however, usually cure an acute or subacute bronchitis within twenty-four hours.

There are various modifications of this treatment that are at times useful, but the therapeutic value of none of these has been proved to be greater than that given above. For example, the writer uses the following method in treating desperate cases in which it is necessary to hurry medication. This method is used also when it is impossible to see the patient again. It is useful mainly because it saves time. The time between obtaining the sputum and giving the injection may be shortened by thoroughly grinding a dram of sputum in a mortar with powdered glass, or with fine sharp clean sand previous to mixing with water. When this is done the mixture should be thoroughly agitated in the bottle to dissolve the soluble toxins. When the microorganisms are destroyed, their toxins go into solution by autolysis, the fluid is then filtered through a Berkefeld filter, and twenty minims of the bacteria-free filtrate are injected at once. The writer has found it impossible to make the toxin complex for bronchitis too toxic by following the formula and precautions given above. The formula is well within safe limits. For this reason it is recommended that it be given in increasing doses until there is a slight systemic effect manifested between this and the next dose.

After the chill, it is often unnecessary to give another, but to make assurance doubly sure the writer gives another. Always make enough of the filtrate to last after the sputum has dried up, and the patient has been almost cured. In chronic cases the writer uses the same filtrate for three or four doses. Do not allow the sputum and water to stand longer than twenty-four hours before filtering, for the filtrate then becomes exceedingly toxic.

Pulmonary tuberculosis requires a very special autotherapeutic technique. The following cases have been selected from hundreds of others cured in a similar manner that might be reported:

CASE I.—Acute Bronchitis.—Dr. ALEXANDER VERTES of Louisville, Ky., reports the following: "Patient, male; age 9 years; had a bronchitis for ten days. There was a dull pain in the chest under the sternum and a painful cough that came in spasms, but one injection relieved the pain in twelve hours. He made a rapid and uneventful recovery. I am using autotherapy when it is applicable to the exclusion of all other medication, because it gives me results that no other medication has ever given." An acute congestive bronchitis usually has "a crisis" or resolution which sets in within twenty-four hours after the first injection.

CASE II.—Dr. FENNER, of Sacramento, Cal., reports the following: "Patient, Mrs. M. A. F., age 67 years, on November 24, 1913, took to her bed with a hard cold and congestion of the lungs. I prepared the Duncan unmodified toxins from her sputum and gave her the following doses: November 27 I gave her a hypodermic injection in the left arm. There was a light local and constitutional reaction. About twenty-four hours after the injection the cough stopped and the excretion was much less. By the third day the excretion had stopped. I gave her two other injections on December 2 and 10 for good measure. There has been no return of the symptoms, although she is subject to chronic catarrh of the throat and bowels. She claims the treatment stopped a noise in the ears that had been present for many years." Autotherapy appeals to me more strongly than any of the serums or vaccine therapies heretofore advanced." The sore throat of singers and public speakers usually responds quickly to this treatment.

CASE III.—The following letter appeared in the *New York Medical Journal*, November 1, 1913. It is self-explanatory:

"LOS ANGELES, CAL.,
"2915 South Vernon Avenue,
"October 13, 1913.

"To the Editor:—In the December 14 and 21, 1912 issue of the *New York Medical Journal*, Dr. Charles H. Duncan published an article under the title of autotherapy. In this article he stated he was able to cure acute and subacute bronchitis within twenty-four hours, and a chronic bronchitis within two weeks. I determined to try it on myself first as a patient. My father had bronchitis for forty years, and I have had it for many years. I am now 54 years old. The chief symptom in my case is severe coughing spells almost every night. These usually lasted from half an hour to forty-five minutes. I mixed one part of sputum with five parts of water and allowed it to stand for twenty-four hours, with occasional agitation, and then filtered it through a Berkefeld Filter. I had Dr. Carl Johnson, of Los Angeles, give me an injection in the lumbar region. I coughed none the night following. The second night I coughed five minutes. On the third day I had another injection. I have had four injections altogether, each four days apart. My bronchitis has been cured or aborted for I now cough none. The only symptom I have at present, if it can be called a symptom, is on rare occasions there is a slight effort at coughing, wholly unlike my previous cough. I can truly say it has been magical.

"I do not know Dr. Duncan. I never heard of him before I read his article, and I merely write this that others who are similarly afflicted may know of this grand treatment. I shall try autotherapy out in all of its various phases.

"L. C. TONEY, M.D."

CASE IV.—Patient, female; age, 23 years; occupation, school teacher, has had a catarrhal condition of the nose and throat since she was 8 years old, when she had scarlet fever. She had running ears for several years afterwards.

She has never been free from a catarrhal condition since. In recent years she has been subject to recurrent bronchitis. She would scarcely get over one attack before she would come down with another. The present attack came on September 21, 1913. When first seen on the 28th she had a deep cough which caused great pain under the sternum.

She did not have to give up her school duties but attended to them with difficulty. She coughed practically all night for the past week.

On September 30 she was given an injection of the autogenous toxin complex made from her sputum. The pain in the chest left within twenty-four hours. She coughed none the night after the injection. On October 6 there was a return of the pain in the chest and a slight cough, but she could scarcely raise enough sputum from which to prepare her toxin complex. On October 7 she was given another injection. This cleared up the whole condition quickly.

CASE V.—Chronic Bronchitis.—Patient, male; age 52 years, had a catarrhal condition of the nose and throat for the past two years. During the past six months he has had difficulty in concentrating his mind on his business. Would go half to sleep when talking business. Was drowsy and apathetic and his sexual powers were markedly diminished. He came for treatment for his mental condition. It was then that the catarrhal condition above mentioned was discovered. He did not complain of spitting mucus in the morning. This was learned during the examination. He was given an injection of the autogenous toxin complex prepared from the sputum. After the third he had a chill, and all of his symptoms disappeared and have remained absent now over two years. No other medication was given.

Hundreds of remarkable cases treated successfully both by the writer and other physicians might have been reported but space forbids. Professor Wm. H. Freeman says: "After ten months' experience in using filtered sputum hypodermatically in chronic bronchial affections especially chronic phthisis, I am convinced this is one of the great therapeutic advances of the age. Dr. Duncan's autogenous toxin complex is the most scientific vaccine ever used in medicine."

CASE VI.—Acute influenza or La Grippe.—Dr. F. B. BORROWS of Plainwell, Michigan, reports the following case of influenza treated by him: "Patient, Mrs. T. M., had an influenzal infection of both ears. Rupture occurred on the fourth day after the attack. On the eighth day I placed some of the discharge from the ears in some water, about two ounces, let it stand for twenty-four hours, at the end of which time I filtered it, through the Duncan autotherapeutic apparatus and injected twenty minims of the filtrate subcutaneously. A moderate reaction followed. In five days I repeated the process, which was followed by a complete cessation of the discharge from both ears. There was some sense of fullness and distention in the ears for a few days after, but a complete recovery followed. I have been using autotherapy in my practice now for over a year with great satisfaction; in all kinds of localized infections, almost invariably with success."

CASE VII.—Influenza or La Grippe.—Patient, Dr. Warren B. Rush of Lake City, Florida; age 64 years. The patient had been suffering with an influenzal infection of the larynx since 1893. During this interval he had several acute exacerbations that threatened his life and at other intervals he was unable to attend to his practice. The infecting organism was diagnosed microscopically many times during this period as the influenza bacillus. He has long suffered with pain in the joints, and often when the temperature was only 50° F. he was not able to leave the house on account of suffering from the cold. After an acute exacerbation during July, 1913, he came to New York and placed himself in my hands for autotherapeutic treatment. The following report is in the words of the Doctor himself: "On August 10, 1913, I went to New York City and placed myself under the care of Dr. Duncan. August 11 I received my first injection of the filtrate from sputum. Between this time and September 20, 1913, I received five other injections, and thanks to the skilful administration of his autogenous toxins

I am a well man today, September 25, 1913. The microorganisms in the sputum grew gradually less and less after each injection. After the fifth none could be found. I made these microscopical examinations myself at the New York Post Graduate Medical College and Hospital where I had gone to take a course in pathology for the express purpose of learning how to diagnose my infecting organisms. The pain and coldness have entirely disappeared. Since beginning this treatment I have gained ten pounds in weight, and feel better than I have felt in years. I am glad to give Dr. Duncan credit for this grand cure. Autotherapy has done for me what apparently no other medication could do. It means that my usefulness in life has been restored. March 14, 1914, there has been no return."

CASE VIII.—Otitis Media.—Dr. Bardes of Newnan, Georgia, reports the following case: "Patient, female; age four years had suppurative otitis media for three years and ozena for quite a while, all very offensive to the smell. February 25, 1913, I made the Duncan toxin complex from cotton saturated with the excretion from the nose and ears. I gave five minims hypodermatically. The suppuration lessened and the improvement was marked and progressive for about eight weeks. It then appeared to come to a standstill. The suppuration had ceased from the nose and one ear, and the odor was very slight. May 15 I gave five minims of fresh unmodified toxin complex in the same manner. The patient went right along to recovery, and is well and as fat as a pig."

CASE IX.—Dr. C. E. Fenner of Sacramento, Cal., reports the following case: "G. E. F., male; age 34 years, had an old chronic catarrhal otitis media, coupled with nasal and pharyngeal catarrh. The hearing gradually became dull during the summer of 1910. It became very much worse from December, 1911, to November, 1912. At the end of this time he could not hear his watch at all. Average tone conversation could not be heard. In October I received your autotherapeutic apparatus, No. 1, and prepared the Duncan toxin complex from the excretions from the nose and ear and gave him an injection on the following dates: November 1, 4, 10, 18 and 29. November 29, injection given. December 10, 15, and 27, and January 2, 9, 17, 30. At this later date I had difficulty in obtaining enough excretion from which to prepare the filtrate. The most severe reaction was after the injection given November 29. Cutaneous reaction was seven by three inches. Temperature, 102°. Immediately after this injection the patient could hear a small clock in the office. He then steadily improved and can now hear preaching. The discharge from the ear stopped after the fifth injection. I consider this case most remarkable, as nearly everything known to medical science had been done for the patient previously without relief."

CASE X.—Dr. Fenner's case: "Patient, male, age, 9 months; weak and sickly; never played or laughed; appetite, poor; digestion, poor; frequent bowel disorders; cried constantly; chronic bronchitis. December 8, 1913, he was suffering with an extremely severe cold on both lungs and in the head. The ears had been running pus and serum for several weeks, but my being called was on account of a large abscess in the right parotid gland about the size of a small orange. Right cervical glands enlarged and very hard. There was a scaly strumous area over the right ear and occipital region. There were also several large ulcerous spots scattered over the face. I instructed the mother to catch on cotton and save all the excretion from the ears, nose, and throat during the next fifteen hours. Just twenty-one hours afterwards I gave the first dose of the Duncan toxin complex of three minims hypodermically. Forty-eight hours afterwards five minims were given. There was a strong local and fair systemic reaction. In seventy-two hours after the first dose the discharge from the ears stopped. The excretion from the nose had nearly stopped. The swelling of the parotid was almost normal in size and only one cervical gland was enlarged. The child coughed but little. In five days the whole condition cleared up except some râles in the bronchial tubes, and shadow spots under the skin where the ulcer spots had been. One week later the child began to laugh and play with the other children of the family, a thing he had never done before. I gave two more doses of five minims to be certain of no return of the condition January 14. The father said: 'Doctor, that medicine you gave my baby certainly did wonders for him. I can almost see him grow. He is getting to be a healthy child."

CASE XI.—Sinus involvement.—Dr. Francis E. Park of Stoneham, Mass., reports the following case: "Abscess of the frontal sinus. Marked inflammation was present and supposed the cavity would have to be opened. I made a Duncan toxin complex from the pus and injected twenty minims of the filtrate hypodermically. There was marked relief following this. I gave two other injections, but the case was cured by the time the last was given." Dr. Park says further: "You have given the medical profession another weapon of great power against disease."

CASE XIII.—Pleurisy with effusion.—Dr. Borrows's case. "Mr. M. came to me in April, 1913, saying that during the previous October he had an attack of pleurisy and that he had apparently recovered. Beginning March 5 he had night sweats for three weeks and wanted to know why. Upon examination I found an effusion of the pleura up to the fifth rib. I withdrew thirty minims of the fluid and injected it under the shoulder subcutaneously. He reported forty-eight hours afterwards with no fluid. Five punctures failed to find any."

CASE XIII.—Hay fever and asthma.—Dr. M. L. Curtner, of Vincennes, Indiana, reports the following case treated by him: "Patient B. M. had hay fever and asthma for ten years. I prepared the Duncan toxin complex and injected one cubic centimeter intermuscularly, every second day for four doses. This stopped all symptoms and they have not recurred now nine months later.

I have treated three cases of otitis media by your method with good results. One case of lobar pneumonia with immediate and excellent results."

CASE XIV.—Dr. C. A. Sturtevant of Manchester, N. H., reports the following case treated by him: "Patient female, age 68 years, suffered with bronchitis and asthma for years. The only relief she could get was by taking some patent medicine containing cocaine. She spit up almost a pint of mucus every morning, which was thick and albuminous. I prepared the Dr. Duncan toxin complex from her sputum and injected twenty minims subcutaneously. Her cough was relieved in a day or two, and apparently cured within a week or ten days. She had no other medication."

CASE XV.—Dr. Sturtevant. "Patient female, age 60 years, has suffered with bronchitis and asthma all her life. She has an associated valvular regurgitation, intermittent with dilatation. I gave her an injection of your autogenous toxin complex prepared from the sputum. Immediately following the injection there was some cyanosis and labored breathing with palpitation, which lasted for an hour or so. I did not see her again for two weeks; at this time she said her cough was practically cured."

Dr. Sturtevant says further: "I have treated many other infections with autotherapy with equally good results."

Caution—Be sure the case is a true asthma. In acute asthma and hay fever autotherapy appears to be the specific. Many chronic cases are readily cured. Many hay fever cases require an operation before they can be permanently cured. Autotherapy is not supposed to cure when surgical operation is demanded. Autotherapy merely raises the bacterial elements of the blood to overcome the infecting microorganism."

CASE XVI.—Ozena.—Dr. Rierson of Dixon, California: Patient "G. D. V., cement worker. Ozena and chronic bronchitis of years standing. Breath so foul he would be avoided by people talking to him. There was also a pterygum on the left eye. Treated with sputum according to the Duncan method April 25, 1913, and three other injections four days apart with a cure of the ozena and bronchitis. The pterygum was diminished two-thirds in size. After this an injection was given occasionally. The patient was satisfied with the treatment. Dr. Rierson says further: "In all I have treated more than one hundred and ten cases with autotherapy; boils, rheumatism, infections, etc., with results that have been a revelation to me, and to my patients. Eight cases out of ten so treated were cured; this included those who would not allow me to finish the treatment. Sometimes we have patients to deal with like this. I believe autotherapy has a great future and that it will relieve more suffering than anything else that has come before the medical profession.

CASE XVII.—Tonsillitis.—Dr. R. L. Rierson, of Dixon, California: "F. C. Autotherapy. One dose.

Cured. The writer has had no failures when this infection is treated early, and he has treated many."

CASE XVIII.—Pneumonia.—Patient, male, age 54 years, had a chill January 12 at six o'clock P. M. That night he had painful and difficult breathing accompanied by headache. When seen by the writer the next morning he had a temperature of 103° F., pulse 120. There was consolidation over the middle lobe of the right lung. His face was flushed. A dram of bloody sputum was placed in a mortar and thoroughly ground with powdered glass. It was then mixed in a bottle with an ounce of distilled water. It was thoroughly shaken and allowed to stand for half an hour. It was then filtered through a Berkefeld filter, and two hours after obtaining the sputum he was injected with twenty minims of the filtrate. In six hours the temperature dropped to 98° F. and the pain ceased, so that he breathed easy. He was weak and remained in bed for several days longer. He progressively but slowly improved and at the end of two weeks he left the house. He has been well now two years.

CASE XIX.—Patient, female, age 45 years, was under autotherapeutic treatment for acne vulgaris by the writer. In the early part of May, 1913, she called and said that while in the subway a few minutes before she had had a severe chill. There was great pain in breathing. She had the characteristic pneumonia grunt. Temperature 103° F. A little blood-streaked sputum was raised with much difficulty, accompanied by great stabbing pains. There was consolidation over the middle lobe of the right lung. Her face was flushed and she was evidently very weak. A dram of sputum was obtained while in the office, and within two hours she was given a hypodermic injection of the filtrate. Two hours later she breathed much easier and the next morning the temperature was normal, but the patient was weak. In forty-eight hours after the first injection she was given another, of the same filtrate. In four days after the initial chill she was up and around the house but still a little weak. She made an uneventful recovery.

The mortality from pneumonia has been much greater in New York City during the past few months than that from pulmonary tuberculosis. It is imperative that these cases be treated early if the best results are to be obtained. When given within twelve or twenty-four hours after the initial chill, autotherapy appears to be the specific for pneumonia. Space alone forbids me giving a number of most interesting cases treated successfully by the writer and by many other physicians. The veterinary physicians are unanimous in vouching for the specificity of autotherapy. Their leading men say it would be a crime not to give it to horses. It may be interesting to note the simple technique they employ successfully in treating animals suffering from pneumonia: Mix the exudate and water (they employ the prune juice discharge from the nose of the horse). Boil it for five minutes. Filter through a sterile bandage or cloth and inject the filtrate hypodermically.

CASE XX.—Cholecystitis.—Patient, Mrs. N., age forty-five years, was first seen by the writer December 11, 1911, suffering from an inflammation of the gall-bladder. Under the usual treatment she alternately improved and relapsed several times during the following year. Jan. 21, 1913, she became very much worse. Her condition pointed unmistakably to pus in the gall bladder. She had pain over the region of the gall-bladder that extended to the back; the least movement even talking or deep breathing causing severe pain. She vomited at seven o'clock on the morning of the 21st, and at eleven o'clock P. M. she had a chill. The next day Dr. George F. Laidlaw was called in consultation to see the case. He diagnosed the case as cholecystitis, the same diagnosis the writer had previously made. He recommended an operation within forty-eight hours. The writer elicited the further fact that the patient had been suffering from a catarrhal condition of the respiratory tract, the beginning of which coincided with the pain in the region of the gall-bladder. Autotherapy of bronchitis and catarrhal conditions of the respiratory tract having previously been so successful in the hands of the writer, it was decided to make a test of this case and see whether the treatment of the catarrh with the filtrate from the sputum would have any effect on the condition of the gall-bladder. Accordingly 4 c.c. of the sputum were placed in an ounce of distilled water, and allowed to stand for twenty-four hours with occasional agitation after which time it was filtered. On January 22 at 10 o'clock P. M. 20 minims were injected hypodermatically into the loose cellular tissue over the biceps muscle. The next day she reported that within ten minutes after the injection the pain became very much worse and continued to be very severe until 3 o'clock A. M., after which time she went to sleep, and did not wake till seven o'clock the next morning. When seen the next day the patient was comfortable, though there was still some soreness in the region of the previous pain. She gradually improved however, and did not have another pain for two weeks. These pains were dull aching in character but not as sharp or severe as they were before. However the patient was frightened and feared the old trouble was returning. Another injection of the same filtrate was given when the pain again disappeared within a few hours. The injections were then repeated every five days as long as the catarrhal condition lasted, that is till March 20. She has not had any pain since the second injection, which is now about three months. At this time the patient had gained seven pounds in weight, and can now eat food which was restricted during the greater part of the past year. She rides in an automobile which had given her distress during the past six months. On March she reported she had no more catarrhal symptoms. The sputum had been gradually diminishing since the first injection. The patient was discharged on this day but told to return if she had any more pain or if the catarrhal condition returned. Six weeks she came to the office in response to a telephone call but a physical examination did not reveal any soreness or tenderness over the seat of the former pain. She said she was in good health and she apparently was. April 24, 1914: No return of the pain.

CASE XXI.—Dr. Fenner of Sacramento, Cal. Miss O. H., age 29 years, had been treated by three other doctors and in several institutions for three years. She complained of spasmodic recurring pain in the stomach and the region of the gall-bladder. After a careful examination and an analysis of the stool by the city laboratory I diagnosed the case as catarrh of the bile duct and bowels. After I had given my diagnosis she said that this was the diagnosis of three other physicians who had been treating her. I prepared the Duncan autogenous toxin complex from the stool and the excretion from the nose combined and gave the following doses. Nov. 26, 1913, minims five. Hypodermically. Local slight, systemic slight. She was given six others about six days apart. At the end of this time she was greatly improved. She had no pain and could eat most anything. February 27 she said she was better than she had been for a great while although she had been under a great mental strain (nothing to do with the disease) she could eat and had been eating at hotels. She got wet twice in the rain and took no cold nor had she any return of the old trouble."

If the physician treats catarrhal conditions of the respiratory tract autotherapeutically, he will often be surprised to discover that he has cured conditions supposed to be remote from the lungs.

CASE XXII.—Acute appendicitis.—Patient, male, age 35 years. Both his lodge and family physician pronounced his condition as acute appendicitis, and recommended an immediate operation which was refused. The writer not knowing their diagnosis also pronounced it appendicitis. Operation was still refused. In questioning the patient it was discovered that he had a catarrhal condition of the respiratory tract. A dram of sputum was obtained and in three hours he was injected with the unmodified toxin complex. In six hours all pain disappeared. He was given two more injections. He went to work in a week later. Three months later he had a return of the pain. He was then operated upon. The appendix was found to be full of pus with many adhesions over the abdomen. He had been subject to recurrent attacks of these pains for several years. He was then treated autotherapeutically with the pus from the wound and made a rapid recovery. The writer, being a surgeon, knows how difficult it often is to accurately determine the exact condition of the abdomen before it is entered, and for this reason he believes that every case of acute appendicitis should be operated

upon. He cites these cases mainly to show what can be expected of autotherapy in treating those patients who refuse operation.

CASE XXIII.—Patient, male, age 65 years. The diagnosis of acute appendicitis was made by his family physician, and he was referred to a surgeon. He did not like the surgeon and applied to the writer, whom he knew. He believed he would die if he was operated upon and refused operation. He was given an injection of his toxin complex made from thick sputum five hours afterwards. In six hours after the injection the pain left as if by the action of morphine. He was given five subsequent injections four days apart. There has been no return now nearly a year.

CASE XXIV.—Postoperative treatment.—Patient, male, age 60 years, fell from a ladder breaking his left arm and straining the ligaments of the left groin, with severe bruises over the shoulder, head, and legs. The abdomen was tender and the pain from an old inguinal hernia was intensified. A bronchitis he had previous to the fall became aggravated and within forty-eight hours he complained principally of severe pain incident to coughing. A drahm of sputum was placed in an ounce of water and allowed to stand for twenty-four hours with occasional agitation, at the end of which time it was filtered and twenty minims of the filtrate were injected into the loose cellular tissues over the biceps muscle. In two hours he felt better and stopped complaining. In twenty-four hours his coughing ceased entirely.

It appears from this and similar cases that a bronchitis or coughing spells following an operation may often be benefited or cured quickly by this simple treatment. There are normally myriads of pathogenic microorganisms in the lungs. When the vitality of the patient is lowered for any reason, as after an operation, or where there is irritation in the lungs due to the anesthesia or other cause, these microorganisms tend to proliferate and a true bronchitis or infection of the lungs will tend to develop.

Pulmonary Tuberculosis.—Incipient cases of pulmonary tuberculosis appear to respond well to the filtrate of sputum in the manner suggested, except that the interval between injections should usually be somewhat longer; at times they will not need another injection for from four weeks to three months. Advanced cases require the toxins from the complicating microorganisms before they require the tuberculous toxin. In order to get rid of the tuberculous toxin from the toxin complex, the writer makes a culture from the sputum on media upon which the tubercle bacillus will not grow. The toxin complex minus the tuberculous toxin is then prepared in the usual manner, *i.e.* the mixture of microorganisms and water is allowed to stand for twenty-four hours with occasional agitation, after which time it is filtered. This filtrate may then be injected very much more frequently than the filtrate prepared in the usual manner. Some advanced cases treated in this manner appear to improve when they did not improve on the repeated injections of the filtrate of sputum prepared in the usual manner.

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233 LEXINGTON AVENUE.

A SKETCH OF THE ORIGIN OF AUSCULTATION AND PERCUSSION AND OF THE STATE OF CLINICAL MEDICINE IN THE TIME OF AUENBRUGGER AND LAËNNEC.*

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IT is related of a margrave of Baden that he fell ill in Heidelberg some time about the middle of the 17th century and summoned his physician-in-ordinary, who, accompanied by two distinguished consultants, proceeded to render what aid he could to the titled sufferer. After due deliberation it was determined to apply a plaster over the patient's heart, when a dispute arose as to whether the human heart lies in the middle of the chest, as Galen had taught, or upon the left side. To settle this controversy a pig was brought in and its chest opened before the eyes of the noble patient, who perceiving that the animal's heart lay on the left side of its chest concluded that his own was also on the left side (Baas, Hist. of Med., p. 556). This led him to dismiss his family physician and incidentally to disregard the teachings of Galen, an act requiring no inconsiderable courage in a layman or a physician two or three centuries ago.

The simple device of applying the ear to the chest to determine the location of the heart never seemed to have occurred to these disputants, any more than it occurred to the learned savants, in the incident related by Chisholm, to weigh the vessel and the fish separately and together, instead of spending hours in bitter controversy over the question whether a vessel of water would gain weight or not by putting a fish into it. The conclusion arrived at was that a live fish would not increase the weight of the vessel but a dead one would. As Karsner (Lect. on Rise of Experimental Med., Mch. 13) observes, this was philosophy. A long while afterwards some skeptic actually settled the question to his own satisfaction by weighing the vessel under

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the different conditions specified. This was science.

Laënnec says that it is very singular that the passage in Hippocrates's works—in which the latter states that by applying his ear to the chest he could tell whether, if it contained fluid, this was pus or water, "seems never to have engaged the attention of physicians and there is no evidence that his experiment has ever been repeated until the present (*i.e.* Laënnec's) time." (a period of over 2000 years.) Yet he continues: "I had myself read this passage of Hippocrates many years before I entertained the idea of mediate auscultation." He then points out that it is remarkable that the great Hippocrates himself did not pursue this method of research further but adds rather sententiously "Yet nothing is of more common occurrence. It is not given to any man to comprehend all the relations and all the consequences of the most simple fact; and we know that nature's secrets are more frequently betrayed by fortuitous circumstances than obtained by the force of our scientific efforts." (P. 29 Dis. of Chest., Forbes's translation.)

Whether Hippocrates really practiced percussion or not seems quite doubtful; although Elliott claims that he did. (P. 20 Outlines of Greek and Roman Hist., 1914.) It appears also that he did paracentesis for fluid in the chest and recognized the fact that the fluid should be withdrawn gradually to prevent syncope. Baas asserts (p. 644 Hist. of Med.) that the Salernean physicians practised auscultation in the diagnosis of tympanites and ascites. But adds that "a diagnosis of the diseases of the great viscera had never been attempted in this way until finally Auenbrugger independently brought to light an ingenious use of the ear" which made possible a diagnosis of diseases of the chest and abdomen entirely unattainable before his time.

Auenbrugger was a nobleman of Auenbrugg, Germany. He was born in Graz in Styria in 1722 and died in 1809. He studied the humanities and philosophy in his native city and medicine in Vienna, where after graduation he practiced medicine for several years. In 1751 he was placed in charge of the Spanish Military Hospital and the hospital of the Holy Trinity in Vienna; where, for a time at least, he labored gratuitously, devoting himself assiduously to clinical study and observation. He was quite a musician and a friend of the arts. His musical ear, quite probably, was a great aid to him in devising the scheme of auscultation which has brought him posthumous fame. He practiced it for seven years in the Spanish Hospital before publishing the results of his labor in 1761. The style of percussion that he practiced was immediate, no pleximeter being used. He struck the chest gently with the points of the fingers brought together and stretched out straight and then flexed; the patient holding his breath; a a muffled sound or one of higher pitch than usual indicating the presumable site of disease. He insisted that either the percusser should wear gloves or that the chest should be covered with at least one thickness of cloth. This proviso was probably necessary in immediate percussion. (Garrison, p. 282.) This great discovery which seems simple enough to us, was slighted and opposed by de Haen, Sprengel and other contemporaries. The two named were, of course, eminent men, and the former especially prided himself upon his diagnostic acumen. In 1803, forty years after Auenbrugger had published his "Inventum Novum." Sprengel wrote "It is scarcely credible that he (Auenbrugger) could have diagnosed any disease of the lungs and thorax by means of the resonance," and for that matter a well-known medical writer, who died in 1861, who produced the standard translation of the works of Hippocrates and other learned and valuable medical works, is said never to have admitted the possibility of detecting the sounds of the fœtal heart by auscultation. In 1803 the great Frenchman, Corvisart, revived this forgotten and neglected discovery by translating Auenbrugger's treatise and commending it highly to his students, after he had himself tested it in his practice for a number of years. He is said to have become Napoleon's regular medical adviser partly because he practiced percussion, which struck the Emperor as a method of diagnosis of a careful and painstaking man. Corvisart's generous treatment of Auenbrugger shows his honorable and high-minded nature. After translating the treatise on percussion he gave all the credit for its discovery to Auenbrugger, although he might easily have claimed it for himself. He says with fine feeling that he would not sacrifice the name of Auenbrugger to personal vanity, adding, "It is he and the beautiful invention which of right belongs to him that I wish to recall to life" (Garrison, p. 283). Of Auenbrugger, Garrison says that "he is indeed a noble example of the substantial worth and charm of old-fashioned German character at its very best."

Laënnec was descended from a respectable family in the little city of Quimper in Bretagne. He was born in February, 1781, and died of consumption in 1826. His early education was neglected owing to poverty and other causes, although his uncle, who had charge of him, was "one of the first physicians of Nantes and a man in every way distinguished" (Baas, p. 1012). Instead of sending the boy to school he took his nephew to camps and hospitals, where this feeble lad laid the foundation of his future brilliant career as a clinician. In fact the schools in France were closed for a long time during the Reign of Terror, and yet young Laënnec, like other brilliant men in history, seemed rather benefited than otherwise by the lack of routine schooling. At nineteen he went to Paris where he so amply made up for lost time, in his education, that he acquired sufficient mastery of Latin and Greek to be able to write well in both languages. As Baas says, a rare qualification in a modern Frenchman. His medical studies also received the most zealous attention. After having published a number of valuable medical papers he made in the year 1815, in the Société de l'Ecole, his first experiments with the stethoscope. His original instrument was a block of wood about ten inches long and four inches in diameter with a central canal and at the thoracic end an obturator, upon which Laënnec himself laid great stress. According to his own account (Dis. of Chest, p. 6) he had been in the habit of making use of immediate auscultation "for a long time in obscure cases and where it was practicable." Hence we see that both auscultation and percussion, one or both, had been practiced, at least occasionally for thirty or forty years before Laënnec discovered the stethoscope. This happened accidentally in 1816, when he "was consulted by a young woman laboring under the general symptoms of diseased heart, and in whose case percussion and the application of the hand" (to the chest wall) "were of little avail on account of the great degree of fatness. The other method

(immediate auscultation), just mentioned, being rendered inadmissible, by the age and sex of the patient," he "rolled a quire of paper into a kind of cylinder," and used it as a stethoscope. The result pleased him so greatly that from that moment he imagined "that this instrument might furnish means for enabling us to ascertain the character, not only of the action of the heart, but of every species of sound produced by the motion of all the thoracic viscera." He found upon trial that "the hollow cylinder is essential for exploration of the voice," while a solid one is best for examination of the heart. After various experiments he concluded that wood was the best material out of which to make these stethoscopes. I can remember seeing our honored ex-president, Dr. Beverly Robinson, use a small billet of wood for a stethoscope, which resembled the sawed-off top of a bed post. This was 35 or 36 years ago, when he was a visiting physician, and I was an interne in the old City Hospital in New York. I presume that Dr. Robinson, who had studied in Paris, had brought this instrument from there. I remember that he told me that he preferred this old-fashioned stethoscope to the modern binaural instrument.

However the limits of this paper will preclude a study of the various styles of stethoscopes, a field which has been well covered by Dr. D. S. Lamb in a paper read before the Medical Society of the District of Columbia April, 1910.

In the pursuit of his studies, in wise counsel and sound instruction, Laënnec had the advantage of studying under Corvisart, and was a contemporary of Louis, Pinel, Andral, Piorry, Rayer, Ricord, Bretonneau and Bouillard, a truly extraordinary galaxy of brilliant internists, who were quick to seize upon and exploit Laënnec's great invention. These, together with Depuytren, Larry and Cuvier, probably touched the high-water mark of the French influence in medicine, and gave an impulse to the development of correct diagnostic methods and the careful study of pathological anatomy which is even now felt in the advance of medicine. America was especially fortunate, because such men as Holmes, Gerhard, the Jacksons, the Shattucks and other American physicians were pupils of the great Louis and of Laënnec and Corvisart, and were students in Paris in the period just mentioned. Garrison says (p. 343, Hist. of Med.), "The strong stand which Louis took in favor of facts and figures, as against the sterile theorizing of the past, appealed especially to the keen, practical common sense of these northern physicians" who were afterward prominent among the founders of American medicine.

Had Auenbrugger been as fortunately placed in Vienna as Laënnec was in Paris, he probably would not have died feeling that his long years of labor in the Spanish Hospital, carried on as he himself said "*inter labores et tædia*," had gone for naught. It was the noble-minded Corvisart that introduced Auenbrugger to his own countrymen, and it was a pupil in Corvisart's clinic named Bayle who is said to have been the first person who studied the heart's action by applying his ear to the bare chest wall. It is stated that Corvisart himself never did this, although he admitted that he had heard the pulsations of the heart several times by listening very close to the chest. Just how close, we are not informed.

It all seems wonderful to us. The slow development of natural, scientific medicine is hardly comprehensible to our modern intelligence and practical way of looking at things. But we must remember that there was really nothing scientific about mediæval medicine. It was a curious mixture of metaphysics, superstition and dogma learned by rote and supported by "authority." There were practically no dissections for over a thousand years after Galen. In fact, this great medical light was obliged to do his dissecting on animals, and, in justice to his memory, some of the anatomical mistakes in his writings must be acknowledged to be the unavoidable consequences of this fact.

Galen is said to have considered himself extremely fortunate in having been able to see and study a human skeleton. Baas says that the University of Vienna did not acquire a skeleton until 1658. Strassburg, in 1671, obtained a skeleton of a man and several years later one of a woman. About 1725 the great Haller was obliged to flee for his life from Leyden, because he had been engaged in grave robbing to secure material for dissection.

It might be said that Paracelsus was the Luther of medicine. When he declared in the early part of the 16th century that all diseases are parasitical, he started the emancipation of the human mind from the idea that all disease was either a divine or a diabolic visitation. It was, however, over two centuries after this before instruments of precision began to be used in the study of the human body, in health and disease, and about the same time the belief in the sacredness or accursedness of the human corpse had become sufficiently modified so that dissections might be more commonly made, and finally so that practical anatomy could be insisted upon as a part of the regular course of study for the degree of doctor of medicine.

Boerhaave was using a clinical thermometer in the first quarter of the 18th century, and was the first to use a magnifying lens in studying the eye. John Floyer (1649-1734) was the first man to count the pulse by the use of the minute watch. This was a watch which ran for exactly one minute, with which Floyer made many observations on the human pulse in health and disease. He was followed in this study by Haller. Floyer tabulated his results, but his work was neglected or vitiated by a revival of the old Galenic doctrine of "specific pulses," *i.e.* "a special pulse for every disease." However, Louis also adopted a minute watch to count pulses and by his great influence succeeded in rendering it popular.

All these mechanical aids to diagnosis were at first scoffed at and derided and finally furiously adopted. Skoda in Vienna studied every case that came along with the most minute refinement of physical diagnosis, without apparently caring a fig for the patient's welfare. It is said that he either would not prescribe any treatment or would only do this in the most perfunctory manner.

After Floyer, according to Weir Mitchell, "observation went minutely mad (furnishing) a whole Lilliput of symptoms, an exasperating waste of human intelligence." And so it goes as Hecker has so wisely remarked "physicians seem to be condemned to the fate of rarely discovering the golden *via media* of truth between the by-paths of error."

This cursory review of the state of clinical medicine when auscultation and percussion were introduced is to my mind most refreshing, inasmuch as it gives us at least a glimpse of a widespread and substantial advance in the development of the heal-

ing art, whose great importance we can scarcely overestimate. One very obvious benefit is that the adoption of this method of study has done a great deal to shake the nonsense and superstition out of medicine, by making us observe and watch the human body in its minutest detail as well as en masse. It has advanced the practical side of physiology and therapeutics and paved the way for its own great successor in the march of medical knowledge, which now holds the stage, and promises great things for the future in addition to great things already accomplished. I refer, of course, to bacteriology and the study of natural and acquired immunity and prophylaxis, in short of preventive medicine. Our study has afforded us a pleasant aspect of a rational and substantial movement in medicine, and offers a delightful contrast to the involved, complex and often ridiculous systems of the pedants and philosophers, who have tried to measure out art with the tiny yardsticks of their own restricted intellects and have succeeded about as well as the theologians and scoliasts have succeeded in measuring the infinite.

42 Church Street.

PUBLIC HEALTH EDUCATION

By HORACE GREELEY, M.D.,

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It is very fortunate for the race that the individual may not indefinitely prolong his existence else those habits and prejudices which fasten so securely upon the majority would be a serious hindrance to human progress. The Struldbrugs encountered by Dean Swift's Gulliver were not such a nuisance as we would undoubtedly prove ten generations hence to our advanced descendants. Of course, this is the result of that molding which produces the adult from the child and which is absolutely essential for the purposes of each generation—for some general idea or belief, true or false, of everything and every question met is a prerequisite for even that elemental self confidence which prompts a man to venture beyond his own door step. This locating, or, as Kipling says, "finding," of one's self is the first thing that any conscious being does, and is followed by similar explanation of all that strikes his senses. Of course the accuracy of each interpretation depends upon intelligence as determined by hereditary nervous system construction and the individual experience, education, previously had. However, accurate or inaccurate, such whys and wherefores soon become entrenched by habit, till finally "meetin' houses aint sotter," and dislodgment of even the most absurd conceptions becomes extremely difficult.

To teach an old dog a new trick has, until quite recently, been thought easy as compared to instilling into the adult public modern ideas of hygiene and sanitation. But anyone who has lived around New York for the past five or ten years cannot have helped noticing the marked change that has taken place in the public's attitude toward unnecessary exposure and handling of food stuffs, common drinking vessels, kissing the baby, ventilation, and promiscuous expectoration. Intelligent understanding of these and allied questions has spread so extensively that it is not mere enthusiasm that would lead one to think that before many more years are passed sanitary knowledge will be so universal, and applied so thoroughly, as to make the care of the passing population part of the customary routine, and to permit time and attention to be given to the great work in eugenics which lies ahead, but in connection with which ground has not yet been broken, despite the many meetings and discussions we hear of, for the welkin echoes to other sounds and the welfare of those next to come is hardly yet at heart, certainly not at hand.

But to the purpose in hand, what remains to be done? First and foremost to take measures for the further spread of such information as will provide guiding lines along which the public may safely reason in regard to all matters affecting them in health and in disease. "There's a reason" may be good food in an "ad," but the "real stuff" is demanded by a discriminating digestion and alone can have definite and permanent effect. Therefore, first and foremost, in all primary schools, at least one year before the law permits a child to leave, such physiology and hygiene, including the principles of communicable disease, should be taught as will afford unshakable foundation for all after thought on health and disease. Not the routine trivialities that are now run over in the schools, but the actual addition, multiplication, division, and subtraction of human biology. At least as much time as is now devoted to mathematics will be required, but why not? Self-preservation is the first essential and such proper knowledge is equally necessary for the good of others. To teach what may be called abstract education, such as history, language, and even mathematics, while neglecting the self-preservation essentials, is as reprehensible and foolish as the attempt of the famous philosophers of Laputa to build a house from the roof downward. Mental gymnastics are good but why not let them deal with matters which will nourish and preserve that which we are striving to develop, and no one has ever claimed that it was undesirable to kill two birds with one stone!

Of course, as sanitary science has barely compiled its primer, we could not have expected the public previously to have had anything but the most chaotic and most nonsensical ideas on the subject. Now, however, introductory notions are at least well established, and these, for the good and for the protection of all, should be pressed home; through the schools first and then through the public press. The latter, although in need of almost as much instruction in matters of health and disease as the average citizen, is a sine qua non to the success of the undertaking. We may teach child or adult to complete knowledge and conviction, but unless constant reminders and examples are exhibited throughout life, practice will not follow principle, or at least will be soon neglected. Even should school instruction in such matters never be forgotten nor disregarded by individuals progress in knowledge will demand that constant additions be made to the public sanitary information storehouse, which in the case of the adult public can alone be reached through the newspapers. Here the first thing to do is to stop the mills of false and misleading information whose products are so flagrantly spread over our dailies. In such matters the newspaper man has heretofore thought, not are the statements real and true, but are they interesting and striking, sensational, no doubt never pausing to think—not knowing himself even —the harm which indirectly results from such publications in obscuring, and even in denying, real facts whose realization constitutes the forewarning necessary to all forearming.

Several years ago, in preparing an article

(Newspaper Medicine, *L. I. Med. Journal*, April, 1909), I looked over the issues of the four principal New York dailies during a period of three months tabulating the articles, news and other, on medical and sanitary subjects, and found that some 94 per cent. of all were in error as to some essential fact. Of what may be called magazine-section articles all, 100 per cent., were grossly false or misleading. I communicated these findings to the respective proprietors of the journals with the suggestion that a medical, or at least a scientific, editor would obviate recurrences of such errors, but the most encouraging reply received was that "We are not yet prepared to make such an innovation, especially since the real good to be accomplished thereby does not seem to us to be great." It therefore behooves our public sanitary authorities to show these men how from unwitting befoggers of the public sanitary sense they can become chief agents in its enlightenment and future progress.

Newspaper co-operation is absolutely essential for the necessary iteration and reiteration of basic principles, and for the proper presentation of those daily events which so profusely supply those object lessons so necessary to carry conviction into action, where extra exertion and inconvenience confront an otherwise willing convert.

Lectures are of no value and are really obsolete, since anything that is worth learning cannot be acquired by our average citizen from an average speaker in even 100 times the time which would be required to impart such information through print. No one attends a lecture that does not read a newspaper—very few indeed can be dragged thereto under any circumstances—and the cost of the former method of instruction would be infinitely greater. That which is printed can be read over again, but of that which has escaped even a golden tongue hardly more is caught by the listener than the penult of the peroration, to which even Echo awakes.

Sight, besides being our most necessary and important sense, is that least easily fatigued and is the avenue by which the most information in the least time can reach our nerve centers. This is one of the reasons why the moving-picture theater shows have become so popular, as the strain of attention is immensely less than when the drift of the events must be largely gathered by the ear. Consequently, as a medium of public health education, such shows can be of great public service, especially to particular classes, and to the youth who so largely patronize them.

With the public health authorities as a controlling, stimulating and guiding agency what rapid progress could be made in this self-protection teaching! With an active campaign where would quack medicine and genito-urinary advertising "specialists" be at the end of a year! The drug trade might suffer a diminution of sales, and even old-time "shot-gun" prescribers might experience a change of heart. One of the greatest benefits which will accrue from this public health education work is that the populace will learn to know when medical attention is required, and last but not least will be enabled to judge intelligently of a physician's merits and services rendered. At present it seems that some people call physicians as a matter of routine while others no matter how serious the event delay medical consultation as long as possible.

In the food line the saffron could soon be "educated out" of butter, and part, at least, of the husk be restored to our staple cereals. A slight conception of the physiology of digestion and of the relation thereto of the common food stuffs will more markedly than anything else affect public practice, even as regards the consumption of alcoholics.

The old time principles were to make laws and to enforce them, but since Peter the Great forcibly seized his nobles and cut their obnoxious beards, such methods of reform have diminished both in favor and in practicability till to-day, at least in most matters of health and sanitation, the slogan is, Give us the reason and we will use it!

With the rise in importance of the "carrier," and of cases of acute infections with masked symptoms, as the causes of the spread of communicable disease, and experience in vain attempts to rid individuals of such dangerous seed, the value of education in bacteriological knowledge has greatly increased as it seems to be the sole protection against these foci of infection which are undoubtedly very numerous among us. In this connection prophylactic education will meet with great difficulties; for instance, how hard it will be to prevent the carrying of unwashed hands to mouths and noses! Let anyone doubting this try by an attempt at self-practice for even three hours and he will learn. People are becoming crudely educated in regard to the subtleties of dust, but ask my lady or her escort before luncheon, "Do you wish to wash your hands?" and you will be rewarded with "Oh, no, I washed them just before I went out," and even the removal of the loose dirt that, upon his return from school, Johnnie wipes upon the towel diminishes germ possibilities about as much as the drowning of the first pigeon reduced the census of Noah's Ark. Of course careful hand washing may be said to be only essential when the hand has had direct contact with an actual source of disease, but it is so thoroughly neglected generally that, even at medical meetings, one may observe that very few think of it before proceeding to the table. "What the eye doesn't see the heart doesn't grieve for," will certainly continue to be the rule until the basic principles of microbic disease are thoroughly imbued in the public mind. How can one expect laymen to intelligently observe quarantine regulations if they be ignorant of the whys and wherefores? No wonder a physician was told the other day by the wife of his consumptive patient, when he protested against expectoration upon the floor, "Never mind, doctor, I always rub it under my foot this way to kill the germs."

Another way of teaching the public is through the physician, for no one else is in such a position to carry conviction on such matters to a patient or to a patient's family as he. However, he has so little time, apart from direct professional duties, that much of this work would be impossible unless he were provided with printed leaflets on such subjects. Such pamphlets distributed with the physician's approval and endorsement would be invaluable in every department of public health education work.

The greatest bugbear of the statesmen of the last century was the uneducated proletariat, with which, in this, public sanitarians will have to deal, for it is it which bears the "bugs." Indeed many triumphs of preventive medicine await this health education work, for to stay the sower's hand is far easier than to pick up the seed!

140 Clinton Street.

THE USEFUL SURGEON.

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In the great commercial organizations merit and fitness are the accepted qualifications for leaders. Men who have demonstrated ability in certain lines are chosen to lead, and important work is trusted to their care. One regrets to say that such conditions do not universally exist in the medical profession. It appears that the public in general, is absolutely in ignorance in so far as the selection of a useful surgeon is concerned. The great majority of people are of the opinion that all physicians are likewise surgeons, and competent to perform all forms of surgical operations. It is this belief and confidence of the layman that encourages many physicians untrained in surgery, to make attempts to perform major operations, usually with deplorable results. We do hope that the time is close at hand when the public will be safeguarded against this blundersome surgery. We must congratulate the American College of Surgeons for the step they have taken, which will, in the course of a few years, put surgical work in the hands of those capable of doing beneficial work. The members of the A. C. of S. are selected on account of a hign standard of excellence in surgical work—men who, by virtue of their positions, will shape the destinies of the future professional standards.

The surgeon who has acquired knowledge by years of study and watchful experience, who has the energy to keep up with all modern advances, and who possesses the ability to impart knowledge to others, is the man fitted for the occupancy of the highest position in the surgical field.

The teacher of surgery must be more than a mere operator. The progressive surgeon must be a man of good health, tireless energy, temperate habits and rigid honesty, with a courage based upon an accumulated knowledge which can be drawn upon in emergencies and difficulties. He must possess a power of decision based upon care and observation, in placing at their true value the results of the research of others, promptly seizing and applying discoveries of merit, but never going to the extent of dangerous radicalism. He must be able to make correct deductions from histories of patients to conclusively advise the indicated treatment and prognose the probable results. He must constantly aim to achieve distinction and fame, acknowledge the qualities of thoroughness and patience, be rapid and correct in thought and have in him the true fire of genius. He must be an accurate diagnostician and use careful judgment in deciding as to the advisability of operating and as to what particular method should be pursued; he must, moreover, be prepared to meet the many emergencies which inevitably arise during an operation and which demand prompt and decisive action, oftentimes modifying the opinion formed beforehand.

The fundamentals of the practice of good surgery are anatomy, physiology, and pathology, and without these one is handicapped in progress.

All of our great surgeons and teachers of surgery are also competent anatomists and pathologists. Descriptive and practical anatomy is the ground work; living anatomy is what we deal with in the patient, and a clear knowledge of pathological anatomy enables one to correctly interpret deviations from the normal, and to intelligently forecast the probable course and prognosis of the surgical affection. With the proper qualifications a surgeon sees clearly the important aspects of the case, and knows how to present them to the student distinctly and impressively.

Proficiency in surgery cannot be obtained by operative experience, not by assisting one versed only in the elementary mechanics of operative surgery. The great surgeons use their heads more than their hands.

To become a useful surgeon the candidate, after graduation, should spend at least eighteen months as an interne in a hospital having a well-trained and organized attending staff. The hospital training should cover general medicine and surgery, including their subdivisions, and a course in anesthetics must not be neglected. The hospital training forms the nucleus for the further development in either medicine or surgery, or the specialties. After completing the interneship one should serve as assistant to a surgeon of known ability, devoting a reasonable amount of time assisting at operations. Assisting more than three hours daily in actual operative work deprives the assistant of too much energy, for he must devote study to the patient, case histories, reviewing the surgical literature, and devoting not less than two hours each day to laboratory anatomy and pathology. Six hours weekly should be given to experimental surgery upon animals, chiefly for the purpose of gaining dexterity in making incisions, applying hemostats, acquiring speed in ligating blood vessels, tying knots, doing neat and rapid suturing, and practicing the various operations of the gastrointestinal tract, especially with reference to accurate and rapid suturing. Finally, whenever the opportunity presents, he should perform all the various operations on the human cadaver.

After having operated on not less than fifty dogs, with a record of good postoperative results, the assistant can then be trusted with some minor human surgery, preferably under the guidance of his master. At least two and one-half years should be served with a surgeon of recognized ability, before attempting unguided major operations on the human subject.

He should spend at least one month every year seeing other surgeons work, and not less than two hours each day with journals and books. Not having time for such devotions is a remark often heard from operators, and it is simply expressing their lack of progressiveness. Our greatest and busiest surgeons will never tell you that they have no time for observation, reading and teaching. It is to this work and interest through many years that their success is due. Many of our operators are busy the greater part of the day, but upon investigating how their time is occupied, one finds that it is spent for the most part in doing only minor surgical work which should be turned over to an assistant, thus helping to educate him and to encourage him to advancement. This courtesy and interest a surgeon owes to his assistant, who perhaps for many years has served him most faithfully. It is the duty of every leader in medicine to develop at least one successor among his pupils who can eventually take the place of the master.

A modern surgeon each day must call to his aid a knowledge of anatomy and pathology, the only foundation upon which a surgical education can be built. What manner of man is he who is so lost to

conscience that he would dare attempt to remove a goiter or mass of lymphatic glands from the neck, a gallstone from the common duct, or a carcinomatous uterus from the pelvis without having acquired an accurate knowledge of the anatomical relations of these parts?

The surgeon of today must acknowledge due conservatism, and contraindications and limitations of operations. Conservative surgery justifies the hope that anatomical and functional regeneration may take place. He must pride himself on being conservative with the knife, yet acknowledge the valuable discoveries made by a daring knife. A conservative surgeon when in doubt as to the technique or outcome of a special operation will first acquaint himself with the anatomic relations by a study and application of the method in the cadaver, or on lower animals and thus reduce the risk to human life and conserve the interest of his patient. Days of discouragement must come to every surgeon, but it is through his unsuccessful efforts that he may learn to temper his ambition by the judgment that comes from experience. He must be ready to recognize his own deficiencies and possess the courage and determination to overcome and correct these deficiencies. We often hear of the so-called brilliant operator who, to the astonishment of an audience, removes a carcinoma of the mammary gland in ten and one-half minutes. Every surgeon of experience knows that malignant growths require a most painstaking dissection of the neighboring tissues, that the removal be as near complete as careful and extensive dissection can accomplish. The element of time in an operation for the removal of malignant tissue is scarcely to be considered. The conscientious surgeon considers the thoroughness of the operation, not his brilliant speed; speedy, incomplete operations are pitiful for the cause of surgery and the interests of the patient are not conserved. The possession of mere operative ability, no matter how brilliant, unless this is combined with other qualifications of a surgeon will be apt to make a dangerous rather than a useful surgeon.

Clinical experience alone will not make a competent surgeon unless he takes the time to thoroughly investigate each case as to the cause and pathological conditions involved, applies recognized methods of treatment and follows the results of his treatment. Too often we find that the so-called surgeon has an extensive practice and he does not take the time required for the proper care and study of cases. However, he gets along mechanically through much operative work, but of what use is such a man to progress, and to the ultimate results of his case? Of what use is he as a teacher of medical students, to the development of proficiency in himself or his assistants? He should let his assistants do the minor and routine work, while he devotes himself to the real progress of surgery.

The best teachers always and invariably practice on a basis of thorough knowledge of contemporaneous achievements in surgery and do not shun discussions of dubious points in professional gatherings. Mutual discussions and discoveries are very important elements in the advancement of surgery. The modern surgeon immediately reports both successful and unsuccessful operations along new lines calling for the comments and criticisms of other surgeons.

815 Park Avenue.

HERPES ZOSTER AND MALARIA.

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The recognition of malaria as an etiologic factor in herpes zoster is not recent. Besides its mention in the standard text books on dermatology writers on tropical diseases have noticed the relation.

Crespin[1] states that the thoracic form is most frequent in malaria. Dantec[2] mentions the associations of zoster and malaria. In 1780 cases of malaria Anders[3] found one hundred and eighty-nine instances in which complications occurred, herpes zoster appearing once. Masson[4] observed a case of zoster following the course of the sciatic nerve. In another the right half of the face was attacked. Moursou[4] cites several similar cases. Girard[5] encountered a case following intercostal neuralgia of malarial origin. Thayer and Hewetson[6] observed zoster once in six hundred and sixteen cases of malaria in Baltimore. Colombini, Donnell, Riesman, and Powell[7] adduce personal observations in support of the malarial origin of zoster.

The most careful study of this subject is that of Winfield[8] who reports thirty-three cases of herpes zoster in which the parasites of malaria were found in eighteen cases. In only two of these cases is the form of the parasite specified: the estivo-autumnal.

I give below brief notes of eight cases which have occurred in my experience.

Case I.—C. B., white, male, age 13, seen July 8, 1906. His previous history is negative. On the morning of June 27, 1906, he had a typical malarial paroxysm followed by fever which lasted twenty-four hours. During the night of the 27th and the morning of the 28th he took four or five three-grain doses of quinine. He has had no further chills, but has had fever several times: During a paroxysm a pain began in the left side and the next morning herpetic vesicles appeared, extending from the level of the eleventh dorsal vertebra to the median line in front above the umbilicus. The spleen extends an inch and a half beyond the costal margin. The temperature is 99°, the pulse 98, and the feces negative for ova of intestinal parasites. The hemoglobin is 75 per cent. and a few estivo-autumnal rings are found.

Case II.—J. A. L., white, male, age 35, occupation laborer, seen July 17, 1907. He began to have chills in July, 1906, and had them until April, 1907. During this time the longest interval free from chills was a week. Five days ago a pain began in the right side and two days later the eruption appeared, and extends from the vertebrae to the sternum at the level of the fourth rib. The spleen is not palpable, the temperature is 99.8°, the feces are negative for ova. The hemoglobin is 70 per cent. and occasional estivo-autumnal rings are present.

Case III.—B. P., colored, male, age 64, occupation farmer, seen July 18, 1907. He has had no manifestations of malaria since the past fall. July 10, while plowing he was struck with the plow handle just over the crest of the right ilium in the posterior axiliary line and the next day was similarly injured just above the anterior superior spinous process on the same side. July 13 the eruption began at the site of the first injury and now extends from the vertebra column to the median line in front, being more intense at the point of the first injury. The temperature is normal and the blood is negative for parasites. He has taken no quinine recently.

Case IV.—G. G., colored, male, aged 72, occupation farmer, first seen August 21, 1907. He gives no history of malaria for twelve years. Ten days ago he was taken with a pain down the anterolateral aspect of the right thigh, four days later the herpetic eruption appeared in this area. The spleen is not enlarged, the temperature is 100°, he has had no quinine recently and the blood is negative for malaria.

Case V.—S. P., white, female, age 21, seen December

24, 1907. She had typhoid fever three years ago and has been having chills irregularly since September, 1907, the last one two weeks ago. She has taken no quinine since then. Four days ago a pain began in the right side and the next day the eruption appeared. It extends from the vertebral column to the midsternal line crossing the seventh interspace in the mammary line. The temperature is 99.8°, the hemoglobin 90 per cent., and the blood examination shows a very few estivo-autumnal rings.

Case VI.—G. W., colored, female, age 40, a cook, seen March 2, 1908. She has had a fibroid tumor of the uterus for nine years. She gives no history of malaria. During the past several months she has complained of pain in both shoulders, three weeks ago a pain settled in the right arm and two nights ago the vesicles appeared on the outer aspect of the right arm from the shoulder to a little below the elbow. The temperature is normal, the hemoglobin 95 per cent., and the blood examination shows no parasites. She has taken no quinine recently.

Case VII.—L. L., colored, male, age 40, a farmer seen July 10, 1908. He had a number of chills during the past summer and fall. About a week ago a pain began in the left side and three days later the herpetic eruption appeared. It extends from the vertebral column to the sternum at the sixth interspace. The temperature is 100.2°, the hemoglobin is 90 per cent., and the examination of the blood shows estivo-autumnal ring bodies.

Case VIII.—B. J., colored, male, age 15, a farmer's son, seen July 27, 1908. He had pneumonia when a young child and has had malaria nearly every summer. On July 19, he noticed a burning upon the right side of the forehead and next day of the upper eyelid. July 20, the eruption began upon the right upper eyelid and rapidly extended over the entire right side of the forehead from the median line back to two inches beyond the hair line. The right eye is closed and the lashes are glued with pus. The conjunctiva is red. The temperature is 100.6° and the blood shows numerous estivo-autumnal rings.

Of the above eight cases five were colored and three white.

Five of the cases were associated with malarial infection, of whom two were colored and three white.

The form of the parasite in all cases was the estivoautumnal.

The greater per cent. of the infection found in whites in this small series is in keeping with the relative immunity of the negro to simple herpes and many other complications of malaria.

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Thickening of the Palate and Upper Part of the Larynx, Probably Due to Congenital Syphilis.—H. Lambert Lack reports three cases that showed diffuse thickening of the uvula, pillars of the fauces, and adjacent parts of the soft palate, and of the epiglottis, arytenoids, and upper part of the larynx. The condition was chronic and did not yield to treatment by idodides, or mercury, or salvarsan. It was apparently stationary or varied very little, and showed no tendency to ulcerate. There was occasionally slight difficulty in breathing.The cases were similar to two others the author had previously shown, about which differences of opinion had arisen. In all but one the Wassermann reaction had been positive, and the diagnosis of congenital syphilis rested entirely upon this. In none of the cases had any treatment been beneficial, nor had microscopical sections of portions of tissue removed thrown any definite light upon the pathology.—*Proceedings of the Royal Society of Medicine.*

CEREBRAL SYPHILIS IN THE SECONDARY STAGE.

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The importance of recognizing that syphilis may attack the cerebrospinal axis early in the course of the disease cannot be overestimated. The general practitioner, the dermatologist and the genitourinary specialist probably see more curable cases of syphilis of the nervous system than a neurologist. Until we have substantiating evidence, we cannot assume that there are different strains of the *Spirochæta pallida*, one or more having a predilection for the nervous system, however true this may be. We should rather err on the safe side and hold that when the spirochete has once invaded the body it is liable to attack the nervous system. The clinical stage of cerebrospinal syphilis is usually late and were the initial, secondary and tolerant periods energetically and vigorously treated the nervous system would never suffer.

Fortunately, however, the clinical stage of cerebrospinal syphilis is not always late. Even before the induration of the chancre has disappeared and while the rash is in a florid state, the central nervous system may be the site of attack. This is more fortunate than otherwise as symptoms arising from involvement of the nervous system are usually regarded more seriously by the patient, and treatment is less apt to cease by default. The character of the lesion in the nervous system at this stage of the disease is usually meningitis, and the commonest resultant symptom is headache, although root symptoms, cranial, or spinal may occur. The following case is illustrative of the group in which the former symptom—headache—alone is indicative of an active inflammatory state in the meninges.

Case I.—A construction contractor 35 years old complained of a "splitting headache," so severe that sleep for the past week had been practically impossible. The pain was confined chiefly to the frontal and temple regions. He had had a sore throat three months ago which lasted three weeks. A generalized rash and shooting pains in the legs developed about the same time. Ten years previously he had had a phagadenic ulcer on the penis which disappeared after a few weeks' treatment locally with a "yellow powder." During the past two months he received 1/32 gr. of bichloride of mercury and 10 grs. of potassium iodide, four times a day without appreciable diminution in symptoms.

On examination a dark reddish papulosquamous rash with whitish or yellowish crusts was seen to be symmetrically distributed over the face, back, and extremities including the palms. The pupil and tendon reflexes were normally active. Examination of the eyes including fundi revealed nothing unusual. Station was secure and the physical condition was otherwise negative. Cerebrospinal fluid contained 150 lymphocytes and an excess of globulin, and there was a positive Wassermann reaction. This reaction was also plus in the serum.

He was given neosalvarsan 0.9 gm. intravenously. During the succeeding 48 hours the headache gradually subsided and disappeared. A week later he received a similar dose; two weeks later another. At this time there was only the faintest suggestion of light pinkish macules over the body and there had been no return of head pains. After disappearing from observation for eight months he returned, not because of any symptoms, but to be "on the safe side." At this time the Wassermann reaction in both fluids was negative; there were 20 lymphocytes in the cerebrospinal fluid and no globulin excess.

The rapidity with which the head pains disappeared in this case bears ample testimony to the potency of neosalvarsan in cerebral meningitis in the so-called secondary stage of syphilis. This case

and the succeeding similar one make pertinent the advisability of examining the cerebrospinal fluid in all cases of syphilis with eruptions of the skin and mucous membranes.

The following case serves to represent the second group of such cases in which root symptoms as well as headache are also present.

Case II.—A foundry-man aged 28 years had been suffering for six weeks with pain in the right side of the head, extending down the same side of the neck almost to the shoulder, and also along the outer border of the ear. During his seven years of married life, he had twice indulged in illicit intercourse; two and a half years ago and six months ago; on the latter occasion with a prostitute. One month afterward or five months ago he noticed a small indurated chancre on the penis for which nothing was done. He was never ill in his life and is the father of five healthy children.

Examination revealed a reddish macular rash distributed symmetrically over the trunk and extremities and the tonsils showed herpetic patches. In the coronal sulcus of the penis was a whitish scar the size of a grain of corn, the skin surface of which was apparently healed, but induration was still present. Aside from a well marked dorsal kyphosis the physical examination was negative. There was no ocular disturbance, the pupils were equal, regular in outline and promptly responsive to light. The tendon jerks were normally active, no tremor was manifest and there was no difficulty in station or gait. The Wassermann reaction was plus in the serum and negative in the cerebrospinal fluid. The latter fluid contained an excess of globulin and 130 lymphocytes per c.mm.

Four successive treatments of salvarsan 0.6 gr. intravenously rendered the Wassermann reaction negative, caused the globulin excess to disappear and reduced lymphocytes to 15. His pains disappeared after the first treatment and have not returned

While the treatment of general paresis and advanced tabes is rather disheartening, the promptness and completeness with which such cases of cerebrospinal syphilis as these responded to arsenical therapy is very gratifying. The powerful action of salvarsan and neosalvarsan upon the inflammatory process in the brain and meninges as exhibited in the improvement of the symptoms and the condition of the cerebrospinal fluid is significant. That the syphilitic progress has been arrested is certain. That the spirochetes in direct contact with the blood stream as it permeates the tissues have been destroyed is probable. That all spirochetes have been killed is an open question and only time and future observations can decide. Such cases as those described above should certainly be kept under observation with repeated serological examinations for years to come.

37 West Fifty-fourth Street.

DETECTION OF GELATIN IN ICE-CREAM.

By DAVID I. MACHT, A.B., M.D.,

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Enormous quantities of ice-cream are consumed in the United States every day. Even an untrained mind after a moment's deliberation will suspect that the greater part of this cream sold at such low prices as the ice-cream sodas, sundaes, or plain ice-cream, in the stores "around the corner," cannot consist of pure cream—in other words, it is adulterated.

What substances are used in making up the chief commercial ice-cream on the market? Besides milk and eggs, the following substances chiefly have been used to adulterate ice-creams: corn-starch, gelatin, gums, and agar-agar.

In the present work I have investigated a large number of samples of ice-cream for the presence of gelatin. This may be of interest, for several reasons; in the first place, because it is well to know what we are putting into our stomachs; secondly, gelatin, though possessing some nutrient value, cannot take the place of pure cream; and thirdly, some people, as for instance orthodox Hebrews, regard such ice-creams as not kosher and prohibited by the Jewish dietary laws.

To detect gelatin in cream or other foods is not an easy problem, as it is difficult to distinguish that substance from other proteids. It is necessary first to precipitate entirely all proteid bodies, for if any are left and are tested for gelatin, the two will be confused with each other.

I have experimented a good deal on the subject and have found the method given by the English chemist, A. W. Stokes (*Analyst*, London, 1897, Vol. XXII, page 320) the most satisfactory and convenient for the purpose.

Two reagents are prepared:

No. I. Dissolve pure metallic mercury in twice its weight of strong fuming nitric acid (Sp. g. 1.42). Dilute the solution with 25 volumes of water.

No. II. A saturated aqueous solution of picric acid.

To test for gelatin, take 10 c.c. of the cream or substance to be tested and add 10 c.c. of reagent No. 1. Add 20 c.c. of distilled water. Shake vigorously for three minutes and let stand for five minutes; then filter. If much gelatin is present it will be impossible to get a clear filtrate, but it will be more or less translucent. But the positive test for gelatin is as follows: To a portion of the filtrate (3 to 5 c.c.) add an equal volume of reagent No. II. If gelatin is present, a yellow precipitate will *at once* be formed, within 30 seconds. If no gelatin is present the solution will remain perfectly clear yellow.

I have practised the above described method on mixtures of gelatin and water, mixtures of gelatin and milk, and mixtures of gelatin and cream. The test is very delicate indeed for all practical purposes, as it will be positively given by one part of gelatin in 10,000. When the reagents are ready on hand the whole test can be performed in 10 minutes and in the cold.

I have examined specimens of all ice-creams available in the market, and was surprised to find that almost all the commercial or cheap ice-creams give a positive reaction, and that in abundance, thus pointing to the presence of gelatin. That substance was found absent only in the highest grades of ice-cream made by confectioners and sold at 50 or 60 cents per quart. Another curious fact noted was that contrary to my expectations starch is but very little used in thickening of ice-creams. The presence of starch is, of course, very easily determined by the iodine test.

3218 Auchentoroly Terrace.

Congenital Defect, Sixth and Seventh Cranial Nerves.—E. B. Smith reports the case of a male aged 3 years who was brought for weakness of one side of the face. This defect had been noticed since the second week of life. Delivery was moderately easy and no instruments were used. There was complete seventh nerve paralysis on the right side and also paralysis of the external rectus on the same side. The condition suggested a congenital defect of the sixth and seventh cranial nerves.—*Proceedings of the Royal Society of Medicine.*

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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A NEW DEVICE IN TRACHEOTOMY.

IN spite of the fact that American experience has demonstrated the superiority of intubation over tracheotomy in the relief of acute stenosis of the larynx, the latter operation is still the one chosen by preference almost invariably throughout Europe. In a recent brochure on this subject Guillermo Zorraquin* of Buenos Ayres, cites statistics which to his mind prove that the mortality following intubation is greater than that following tracheotomy. He refers to the greater technical difficulties of intubation, the fact that in some instances it not only fails to relieve the laryngeal obstruction but actually changes a dyspnea into an asphyxia, and that it may change an acute obstruction into a chronic one causing through traumatism the formation of cicatricial tissue. For these reasons he inclines to the operation not as a last resort but as a routine procedure in the treatment of acute diphtheritic stenosis of the larynx. For this purpose he has contrived a special type of tracheal cannula which he believes favors the physiological conditions present in respiration and the pathological state of the larynx.

Zorraquin studied experimentally the effect of laryngeal stenosis upon the character of the respiration. For this purpose he induced stricture of the larynx in dogs by means of applications of sulphuric acid or ammonia, and then recorded by means of the graphic method the resulting changes in the respiratory curve. He notes from the study of these changes that the dyspnea is always and solely inspiratory. The graphic traces show that the inspiratory phase is more prolonged and difficult than normally, while the expiratory phase is shorter and more rapid than normally. Following each respiration there is a pause whose duration is proportional to the degree of obstruction. In seeking to explain these changes the author notes that the lungs are accustomed to perform their function under an atmospheric pressure that is normal or greater than normal. The increased pressure is produced by the play of the vocal cords, as during the production of the voice or of a cough. In the normal larynx there are other factors that tend to accentuate the differences between inspiration and expiration. During the latter the position of the vocal cords like the "beak of a flute" and the pressure of the expired air facilitate the opening of the glottis. These conditions are exactly the reverse in inspiration, and the inspiratory phenomena are still more accentuated during the course of stenosis of the larynx.

The author next studied the character of the respiratory curve in individuals wearing an intubation tube or a tracheal cannula. He found that in the former the respiratory movements are more frequent and ample than normally, giving evidence of a greater muscular effort. These conditions are even more marked in cases that have been tracheotomized. Zorraquin attributed these changes to the reduced tension of air in the pulmonary alveoli and to the lessened diffusion of the residual air, both of which favor atelectasis and bronchopneumonia. The problem which he next sought to solve was how to establish in cases of stenosis of the larynx the normal condition of respiration; in other words, how to restore free inspiration and at the same time to maintain the positive pressure of the alveolar air during expiration. These problems Zorraquin believes he has solved in the invention of a tracheotomy tube provided with an adjustable orifice guarded by a lamella of mica which gives free ingress to the air during inspiration, but tends to obstruct it during expiration. This compels the patient to inspire through the tracheotomy tube and to expire through the larynx. Traces taken with this form of tracheotomy tube in place show that the respirations become less frequent and demand a smaller degree of muscular effort than in the case of the ordinary tracheotomy tube. The positive expiratory tension is maintained and a more perfect oxygenation of the blood is ensured. Another advantage claimed for this device is that by compelling the patient to expire through the larynx, it brings about systematic gymnastics of the laryngeal structures and tends to prevent the development of laryngeal stenosis.

*"Le Traitement des Sténoses Aigues du Larynx." Par le Docteur Guillermo Zorraquin, Chef de Clinique de Chirurgie a l'Hopital de Niños de Buenos Aires. Paris: Vigot Frères, 1914.

FULL-TIME HEALTH OFFICERS.

A RETROSPECT of sanitary work in this country will show a very great advance during the past fifty years, yet a survey of present conditions will convince any one that we are still far from an attainment of the ideal. The community has not yet awakened to the importance of preventive medicine or realized that the surest way to avoid devastating epidemics is to be always in a state of sanitary efficiency. The American people seem to feel in regard to disease, as they do in respect of war, that sufficient to the day is the evil thereof, that they can cope with any emergency when the time comes, and that it is foolish to waste energy and money in getting ready to meet conditions that may never arise. Fortunately we have in the Public Health Service a body of trained sanitarians who are quick and competent to respond to any call, as they are doing now in New Orleans in fighting the plague; as they did in the same city in 1905 in repressing

a yellow fever invasion, and in San Francisco a few years ago in eradicating the plague. This is good, but it is not the ideal nor even approaching it. New Orleans in 1905 and 1914 and San Francisco in 1907 should have been in condition to protect themselves from any ordinary attack of epidemic disease without calling upon the national health authorities for anything but advice and general guidance.

In an address delivered some time ago, at a meeting of the Association of Life Insurance Presidents in this city, Surgeon General Blue of the Public Health Service called attention to the fact that the public health machinery of this nation consists of four distinct groups, upon the integrity and correlation of the forces of each of which depends the perfect working of the whole. The sanitary arm of our government having for its function the protection of all the States against all of the outside world and the protection of these same States one against the other constitute the first of these groups. It is its duty to study the great problems in disease warfare and to devise the grand tactics upon which the conduct of the lesser schemes and engagements may be based. It is its function to assist the State and local health authorities so that sustained effort may be gained and solid results obtained. Its strength lies in the fact that the members of its combatant forces have adopted hygiene and sanitation as their life work without the diversion of other interests.

The second, third, and fourth divisions of our public health machinery are the State, county, and municipal health organizations, respectively. Perhaps the most crying need of these three last-mentioned groups, Blue said, is for full-time health officers. The policy of part-time health officers is in the end far more expensive than the employment of officers whose single purpose is the sanitary service of their fellow men, for the worker in the field of public health does more for the moral as well as the sanitary uplift of the nation than any other official agency. Adequate remuneration should be paid in order to secure men who will devote themselves whole-heartedly to sanitary work. The great universities have provided courses for the training of public health officers, and at the present time the United States Public Health Service is training its officers by advanced studies and opportunities for independent research so that they can rise to the sanitary occasion. It is equally important that the State, county, and municipality should have trained men who can devote their entire energies to their work.

GUN DEAFNESS AND ITS PREVENTION.

A SUBJECT of timely interest and importance and one that is closely allied to the subject of the industrial diseases in general, is that of the injuries to the ear resulting from loud concussions. What may be regarded as one of the minor accidents of war is nevertheless, because of the large number of individuals concerned at the present time, one that cannot be ignored. Moreover, the aural injuries to which the soldier is exposed are no different from those of the boilermaker, of the structural iron worker, of the sportsman, and of those who are exposed to the shriek of the railway whistle when a train is passing through a tunnel or covered station. Jobson Horne in the *Lancet*, August 15, 1914, points out that the report of a piece of artillery, the concussion of an explosion, or the firing of a cannon close to the ear may exert its injurious effects upon the nerve terminals of the ear, may cause rupture of the drum membrane, and may even result in irremediable deafness. During the Russo-Japanese war, among the 1,791 men who were wounded in the naval engagements there were 116 cases of concussion of the labyrinth and rupture and congestion of the tympanic membrane, which cases represented 7 per cent. of the wounded who survived. The injuries to the drum and to the nerve endings are due to the sudden condensation or rarefaction of the air in the external auditory meatus. As a rule one ear is more affected than the other. Politzer states that with the improvements in modern artillery ruptures of the drum membrane are now scarcely ever met with. This is attributed to the introduction of breech loaders and also to the fact that the serving party withdraws to a distance of about twelve paces with the exception of one man who attends to the firing, but who also stands at a considerable distance.

In naval warfare, however, the gunners cannot be protected in this manner. Experience has taught the gunner that by keeping the mouth open so as to equalize the air pressure on each side of the drum membrane the unpleasant consequences of concussion may be diminished. The toothpick that is chewed by naval officers while serving the guns partly fulfills this requirement, although a piece of rubber rolled between the teeth would be still better as a means of keeping the mouth partly open. The Japanese naval surgeons distributed pledgets of absorbent cotton to the entire crew with the instruction that the ears be plugged up during the firing of guns. In spite of this measure, possibly on account of its careless application in individual cases, many instances of deafness resulted. In 1911 the British Admiralty advised the use of an aural plug consisting of a mixture of plasticine and cotton-wool. Jobson Horne believes that an efficient aural plug should be close-fitting and impervious, and while reducing the intensity of sound should not prevent hearing; it should be easy to insert and easy to remove intact; it should be nonirritating; it should be inexpensive so that the same plug may not be used repeatedly; and, above all, it must be as nearly antiseptic as possible. Cotton-wool when inserted sufficiently tightly is not easily removed intact and does not long remain sterile when handled by men engaged in gun-firing. The ear plugs made of vulcanite, rubber, or celluloid cannot be supplied to fit exactly the channel of the ear. They must be made of a substance that retains its shape without hardening or softening and remains ever plastic. A substance having the consistency of jeweler's wax may be produced and may be made to fulfill all the requirements of effectively plugging the ears and at the same time of preventing infection.

Suprarenal Virilism.

Nothing need surprise us to-day in the realm of affections due to aberrations of organs of internal secretion. Hardly two years ago we read of the extraordinary power of thyroid extract on a youth with arrested development in no wise cretinoid, the practical outcome having been that he attained the stature demanded for army service. A condition termed suprarenal virilism has been described by Ballez and Tuffier, who recently reported an extraordinary case (abstracted in the *Berliner klinische Wochenschrift*, July 27) in which an old woman was transformed by visceral disease into the simulacrum of a male. The woman was 62 and a sufferer from metrorrhagia (due to supposed fibroid) and diabetes. The latter affection was believed to contraindicate surgical intervention. It showed, however, marked improvement under diet. At this period the woman developed a strong beard and mustache, her face became florid, and the male type of baldness (frontoparietal) began to appear. The voice changed to the masculine type, the muscles began to develop strongly, the clitoris increased in size, measuring four cm. in length, and a prepuce of corresponding size developed. Years had elapsed since the menopause. The woman now preferred rough manual labor to feminine tasks. Eventually the enlarged uterus was extirpated and found to be the seat of simple hypertrophy only. The adrenals were found to be the seat of fibrolipomatous growths, which were not disturbed.

News of the Week.

Health of the Canal Zone.—The report of the Chief Health Officer of the Department of Health, Panama Canal, gives the total number of deaths from all causes among employees during the month of June as 20, of which 13 were due to disease, giving a death rate from disease of 3.28 per 1,000 per annum, as compared with 5.74 for the preceding month and 3.27 for the corresponding month of last year. The total number of admissions to hospitals and quarters was 1,511, or a rate of 381.09 per 1,000 per annum, as compared with 407.92 for the preceding month, and 472.50 for June, 1913. No cases of yellow fever, smallpox, or plague originated on or were brought to the Isthmus during the month. The diminishing death rate in the Canal Zone and the increasing death rate in the city of Panama, which has been noted for some time, is believed to be due largely to a shifting of the population from the Canal Zone to the city. The census which is now being taken will settle this point. The total population of the Canal Zone is now estimated at 54,655, among which there were 42 deaths due to disease, giving a rate of 9.22 per 1,000 per annum, as compared with 12.93 for the preceding month and 12.39 for the corresponding month of last year. In Panama City with an estimated population of 47,172, there were 150 deaths from disease, a rate of 38.16 per 1,000 per annum as compared with 32.56 for the preceding month and 30.02 for the same month of last year. In Colon, with an estimated population of 20,232, the deaths from disease numbered 44, the rate being 26.10, as compared with 30.25 for the preceding month, and 21.34 for June, 1913. The work of sanitation and the quarantine service have been carried on as usual through the month.

Public Health Service.—Boards of commissioned medical officers will be convened to meet at Washington, Boston, Stapleton, N. Y., Chicago, St. Louis, New Orleans, and San Francisco, on Monday, October 19, 1914, for the purpose of examining candidates for admission to the grade of assistant surgeon in the United States Public Health Service. Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, and of good moral standing. The examinations are: 1, physical; 2, oral; 3, written; 4, clinical. Successful candidates will be numbered according to their attainments on examination, and commissioned in the same order. Assistant surgeons receive $2,000; passed assistant surgeons, $2,400; surgeons, $3,000; senior surgeons, $3,500, and assistant surgeon generals, $4,000 a year. For invitation to appear before the board of examiners, application should be made to the "Surgeon General, Public Health Service, Washington, D. C."

Peddlers' Licenses.—The New York City Department of Health and the Department of Licenses have determined to extend the scope of the medical examination now made of applicants for peddlers' licenses, and to include a Wassermann test in each instance. Hereafter, it is stated, a license will be denied to any tuberculous person whose sputum shows the presence of tubercle bacilli, and to any one whose blood gives a + + Wassermann reaction.

Infant and Child Mortality.—The New York City Department of Health has recently compiled some interesting figures in an investigation in the deaths and death rates of infants and children in the different age periods, the suggestion having been made that the efforts of all organizations to prevent infant mortality consisted simply in keeping babies alive during the first year only to have them die during the second or third years. The investigation extended over the last ten years, and a comparison was made between the first five-year period and the second. For infants under one year of age, the average annual death rate from 1904 to 1908 was 149.2 per 1,000; from 1909 to 1913 it was 114.6, a decrease of 23 per cent. For children between one and two years, the rate for the first period was 48.4 per 1,000, and for the second period 36.3, a decrease of 25 per cent. For children between two and five years, the rates were 15. and 10.9 for the respective periods, a decrease of 27 per cent.; while for all under five years the rate was 56.8 for the first period, and 42. for the second, a decrease in the entire infant and child mortality of 26 per cent. The total number of deaths of children and babies under five was 25,542 in 1904, rose to 25,794 in 1907, and then fell steadily to 20,711 in 1913. The deaths of infants under one year numbered 16,215 in 1904; 17,437 in 1907, the highest mark, and 13,780 in 1913. The figures show that the work which the Bureau of Child Hygiene and the allied agencies in New York City have been carrying on during the past five years has been highly successful, and that its influence has extended not only through the first year of life, but throughout early childhood.

Children's Haven Opened.—In the presence of a large number of guests on August 29, Health Commissioner Goldwater formally opened the new Children's Haven at Far Rockaway, New York. The home is intended for the care of children whose widowed mothers are in hospitals, and has accommodations for thirty-five.

An Unusual Suit.—Alleging that his health has

been permanently injured by the application of a carelessly prepared local anesthetic a resident of Plainfield, N. J., has brought suit against a New York firm of druggists to recover $50,000 damages. The complaint charges that instead of following the prescription of the plaintiff's physician the druggist substituted alcohol for a normal saline solution in the anesthetic.

Compulsory Vaccination.—The Commissioner of Education of New York State has recently notified the officers of the public, parochial, and private schools throughout the State that no pupil is to be admitted for attendance unless he or she has been vaccinated, as required by law, and this has led school officers to apply to the Attorney General for a construction of the vaccination law. In his opinion Attorney General Carmody says: "Children in parochial schools should be vaccinated, as are children in the schools supported at public expense. It is apparent that the danger of contagion is existent in parochial schools as well as in schools supported by public money. The purpose of the statute being so plain, good citizens will not question its application, but in recognition of a policy will accede thereto. The difficulty of penalizing a parochial school which existed when Attorney General Cunneen examined the question some years ago has not been removed from the present statute. However, the ordinance powers conferred upon municipalities and the general powers of local boards and of the State Commissioner of Health are such that I believe vaccination could be enforced where schools not supported by the public money endanger the health by persistently refusing to comply with this highly commendable requirement."

City Death Rate Low.—During the week ending August 22, in spite of the very severe heat which prevailed, the death rate in New York was 0.4 point lower than that of the preceding week, and only 0.04 point higher than the rate during the corresponding week of last year. For the first thirty-four weeks of 1914 the death rate was 14.16 per 1,000 of population, against 14.46 for the same part of 1913.

Fire Near Hospital.—A small fire in the engine room of the Roosevelt Hospital, New York, on August 26, caused some alarm because of the smoke which drifted through the corridors, but was extinguished before any damage had been done.

Condemn Boylan Law.—At a meeting of the executive committee of the Medico-Pharmaceutical League, held in Brooklyn on August 24, a discussion of the Boylan law resulted in the feeling that the law as it stands at present is too complicated to be practical, and that it is difficult of construction. It was suggested that a new bill should be drawn by a competent committee of physicians, pharmacists, and dentists, who would be better fitted to handle the problems involved than would non-medical men.

A Journal Devoted to Anesthesia.—Recognizing the need for a journalistic medium devoted especially to the practice of surgical anesthesia, the *American Journal of Surgery* announces that beginning with the October issue, and quarterly thereafter, it will publish a thirty-two page supplement dealing exclusively with anesthesia and analgesia. This supplement will be a complete journal within a journal, containing editorials, contributed articles, and communications, abstracts, transactions of societies, and book reviews. It has been adopted as the official organ of the American Association of Anesthetists and the Scottish Society of Anesthetists. The editor of the supplement will be Dr. F. Hoeffer McMechan of Cincinnati, who will be assisted by Dr. James T. Gwathmey, New York; Dr. Willis D. Gatch, Indianapolis; Dr. William Harper DeFord, Des Moines; Dr. Charles K. Teter, Cleveland; Dr. E. I. McKesson, Toledo; Dr. Isabella C. Herb, Chicago, and Prof. Yandel Henderson, Yale University.

Gifts to Charities.—By the will of the late Benno Neuberger of New York, bequests of $500 each are made to Mount Sinai Hospital, the Montefiore Home, the Lebanon Hospital Association, and the Beth Israel Hospital.

The Montefiore Home also receives a bequest of $2,500 under the will of Albert Rich, for the endowment of a bed in memory of the testator's parents.

By the will of the late Miss Hessy R. Miller of Philadelphia, the sum of $5,000 is bequeathed to the Methodist Hospital of that city, for maintenance.

The Philadelphia Home for Incurables has received a bequest of $15,000 from the estate of the late Mrs. Mary J. Van Syckel for the maintenance of two free beds.

The Jewish Hospital of Philadelphia by the will of the late Miss Sophia Glueck receives a gift of a house at 3010 Nevada street, Philadelphia.

Personals.—Dr. M. Zigler announces the removal of his office to the Physicians' Building, 40 East Forty-first Street, New York.

Dr. M. I. Blank of this city has removed to 35 West Eighty-first Street.

Obituary Notes.—Dr. CLARENCE K. ALGER of Swarthmore, Pa., a graduate of Temple University, Medical Department, Philadelphia, in 1909, and a member of the American Medical Association, the Medical Society of the State of Pennsylvania, and the Delaware County Medical Society, died at his home on August 16, aged 45 years.

Dr. ALEXANDER S. LEVERTY of New York, a graduate of the College of Physicians and Surgeons, New York, in 1890; clinical instructor in medicine, Department of Neurology, Cornell University Medical College; physician to the neurological clinic, Cornell Dispensary; clinical assistant in neuropathology at the Post-Graduate Hospital, and a member of the New York Neurological Society, died suddenly, from heart disease, at his home on August 28, aged 48 years.

Dr. WESTLEY ROGERS WALES of Cape May, N. J., a graduate of the Jefferson Medical College, Philadelphia, in 1891, at one time county physician for Atlantic County, a member of the Board of Freeholders of Cape May County, and a member of the Board of Health of Cape May, died at Atlantic City on August 11, aged 45 years.

Dr. WILLIAM G. RALSTON of Evansville, Ind., a graduate of the Medical College of Evansville in 1873, and a veteran of the Civil War, died at his home, on August 11, aged 95 years.

Dr. SAMUEL ALEXANDER NICHOLSON of Haverhill, Mass., a graduate of the College of Physicians and Surgeons, Boston, in 1904, died suddenly on August 17, aged 40 years.

Dr. WILLIAM HENRY CARR of Lancaster, Penn., a graduate of the University of Pennsylvania, Department of Medicine, Philadelphia, in 1883, and a member of the American Medical Association, the Medical Society of the State of Pennsylvania, and the Lancaster County Medical Society, died at his home on August 2, aged 53 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

"WHOLESALE EXTRACTION" OF TEETH FOR ORAL SEPSIS —THE WAR NEWS—PRIZES, SCHOLARSHIPS, MEDALS AT THE COLLEGES—OBITUARY.

LONDON, August 21, 1914.

ORAL SEPSIS, its dangers and radical treatment by extraction of teeth has for a long time been a subject of discussion among practitioners of all branches of the profession, particularly in the dental specialty. It has long been recognized that the sacrifice of a tooth or two will suffice in many cases to cure a restricted pyorrhea which, if neglected, would be likely to spread and which had indeed resisted other treatment. This being so, the tendency is to refer these cases to the dentist who naturally resorts to the measure which has proved so effectual. It is here that the question arises as to the limit of the operation and one would imagine that should be determined by the extent of the disease in each case. With increased knowledge of the progressive nature of the lesion and improved appliances, fear of ill consequences following operations has diminished until what has been termed "wholesale" extraction has been practised by a number of dentists and has been sanctioned by others as legitimate surgery. This extreme is the extraction of the whole of the teeth for a case of extensive chronic pyorrhea as a cure of the condition and a safeguard against the oral sepsis involved becoming general septic poisoning, apart from which we are assured that many invalids recover their health soon after exchanging their natural for an artificial denture. Here we generally consider that American dentists are ahead of ours so I will not discuss the matter fully but report our recent proceedings.

At the end of July a protest against "wholesale" extraction appeared in the *Lancet* from the pen of Sir James Goodhart. This elicited replies from some of those dental surgeons who have advocated the method and will not admit his assertion that "a harmful practice has come into vogue that needs to be held up." On the other hand one meets those who acknowledge that extremes are dangerous and perhaps some have gone too far. It is pretty certain that many people have retained a number of serviceable teeth after having been recommended to part with them all. On the other hand it is frequently urged that formerly it was too common for decaying teeth to be left when they were obviously injurious as sources of oral sepsis.

Free discussion of such questions between practitioners can only do good. It is otherwise when the differences of opinion spread to the public—or rather to that section which deems itself competent to judge them by its own intuition. That this question has found its way to such critics was forcibly impressed on me a few days ago when a healthy woman of 27 with an almost complete set of sound teeth—the envy of her friends—asked me if I approved of the new dentistry, that is she explained getting rid of all the teeth as soon as one or two decay. Surprised, I exclaimed surely you do not think of parting with yours, to which the response was "No, but it has been suggested." By questioning closely I elicited that it was not a dentist but "only friends who knew all about the plan," which they assured her was a preventive of worse things. "If one became diseased others might follow." To which I responded that if one finger or toe became diseased the same might be said of its fellows, but was met by the retort that a toe was more important than a tooth, so I limited the comparison to a nail and told the lady that surgeons are sometimes obliged to evulse the great toe nail but they do not extend their operations to the other toes of the foot. I added something about the monstrous absurdity of non-professionals assuming to decide such questions.

The outbreak of war has of course deranged many medical as well as other plans. It will not be necessary to trouble you with many items of war news, the most important you will receive as soon as we do and will be able to form your own estimate of what may be the results. Reports and rumors abound and the separation of the true and false is difficult on their arrival as you very well know. I may assure you that the profession is doing its duty as earnestly as any part of the community. The Red Cross Society, Hospital, and Infirmary authorities, and numerous institutions are meeting the emergency with determination.

The two Royal Colleges of London have managed to hold special examinations for candidates who desire to go to the front. In some instances students who have not quite finished some part of the curriculum or have had to take up some special subject will be admitted to the special examination on a report from their examiners that they had nearly reached the standard.

The Colleges have awarded the Gilbert Blane naval medal to Surgeon G. F. Syms, R.N.

The R. C. P. London and University of Edinburgh have awarded the Murchison Scholarship in Clinical Medicine to C. J. Marshall, M. B. London, of Charing Cross Hospital.

Surgeon-General Sir Anthony Home, V. C., K. C. B., died on August 9, aged 87. He qualified M. R. C. S. England and M. D. St. Andrews in 1847 and the next year joined the army medical service in which for 38 years he worked, always with credit and in many responsible positions with distinction, retiring in 1886. In the Crimea he was in the battle of Balaklava and the siege of Sebastopol, earning the medal and two clasps; in India at Lucknow with more medals and the V. C. In China and New Zealand C. B. and medals. In Ashantee, medal and the C. B., became K. C. B. In 1894 he was awarded a pension for distinguished and meritorious service. Many interesting notes of his work are contained in his "Service Memories," published in 1912 (Arnold) edited by Lt.-Col. Melville, R. A. M. C.

The death is also announced of another army surgeon, Lt.-Col. W. Bullen Day, R. A. M. C., lately Deputy Asst. Director of Medical Service, London Division. He graduated M. B., Ch. B., Dublin, in 1884, and joined the army medical service the next year. He took part in the South African war, gaining the Queen's Medal with three clasps and the King's with two.

Dr. Walter Acton died rather suddenly on the 8th of August, aged 88. He qualified in 1850. He served for some time in the Crimea, having volunteered for the war after which he practised in the country for several years, retiring in 1887. He took great interest in public work, was a guardian of the poor and occupied other positions in Christian and philanthropic movements.

Dr. Carthew Davey of Liverpool died on the 11th inst. of typhoid. Previous to the attack he was in

the enjoyment of good health. He was a member of most of the medical societies of Liverpool, enjoyed a good practice and was highly esteemed.

OUR BERLIN LETTER.

(From Our Regular Correspondent.)

INTERNATIONAL CONGRESS OF UROLOGY—ANESTHESIA IN UROLOGY—PRESACRAL CONDUCTION ANESTHESIA—SURGICAL INTERVENTION IN DISEASE OF BOTH KIDNEYS—BENEFICIAL EFFECT OF REMOVAL OF ONE DISEASED KIDNEY UPON A DISEASE PROCESS IN THE OTHER—DECEPTIVE RESULTS OF NEGATIVE FUNCTIONAL TESTS OF RENAL ACTIVITY—CANCER OF THE PROSTATE—ITS RELATION TO PROSTATIC HYPERTROPHY—IMPORTANCE OF RADIATION THERAPY—PROUST'S MODIFICATION OF THE PERINEAL OPERATION—BACTERIURIA, ITS TYPES AND THE MODES OF COMBATING IT.

BERLIN, July 25, 1914.

AT the International Congress of Urology which met in this city early in June a number of interesting papers were presented. The first theme was that of anesthesia in urology. Bier of Berlin maintained that with few exceptions urological operations can be carried out under local anesthesia. In the case of particularly painful areas a few whiffs of ether may be employed. The best method of local anesthesia available for the lower portion of the urinary apparatus is Braun's method of presacral conduction anesthesia in which the sacral nerves are rendered anesthetic immediately beyond their exit from the sacral foramina. For the mucous membrane alypin is recommended. Spinal anesthesia in these cases, although not advocated as much as formerly, nevertheless promises much in the future, provided that a less toxic remedy than is now available can be found. For general anesthesia the open-ether method is the one of choice. Cabot of Boston places great stress on the prevention of shock in the anesthetization of the urinary organs. As a general anesthetic he prefers nitrous oxide-oxygen. Federow of St. Petersburg commonly uses intravenous hedonal anesthesia in operations on the kidneys.

On the second day the subject that came up for discussion was that of the removal of a kidney when both organs are diseased. Legueu of Paris dealt with this subject under three headings: (1) If both kidneys are affected with the same disease, as with tuberculosis, the more seriously affected organ may be removed, with the result that a beneficial influence on the remaining organ will thereby be exerted. (2) If the second kidney is affected with an inflammation of another type, the operation is not contraindicated. Usually the second kidney is the seat of an inflammatory process that subsides upon the removal of the first kidney. Great caution is here necessary, and particular weight should be given to the results of functional tests. (3) With reference to the determination of the functional capacity of the remaining kidney all known methods of testing should be employed. Casper of Berlin maintained that in the presence of doubtful results following the functional tests every operation is an extremely risky one. A reserve capacity of the kidney that comes into play when great demands are made on this organ has never, in his experience, been observed. Rovsing of Copenhagen attributes value only to positive results in the case of the functional tests, for if one is guided in all instances in which negative results are obtained, one may be constrained in some instances to withhold operation when such operation may be the means of saving life. Kümmel of Hamburg in 159 cases that he has operated on has used the method of cryoscopy with greatest advantage. Other speakers referred to the superiority of the determination of the Ambard coefficient.

Cancer of the prostate was the subject of a paper by Wilms of Heidelberg. He asserted that 20 per cent. of all hypertrophied prostates become malignant. The diagnosis of cancer is made presumptive by the presence of pain and dysuria, and the induration and nodular character of the gland. In this instance the gland should be removed by the perineal route, after which radium and the *x*-rays should be employed. Verhoogen of Brussels emphasizes the diversity of the course of cancer of the prostate and the consequent difficulty in its diagnosis. In some instances there occur an extraordinarily rapid growth of the tumor and an early death of the patient. In other cases there is a slow growth which may extend over a period of many years. For this reason one should make a diagnosis as early as possible. If the growth has broken through the capsule of the prostate the result of an operation is doubtful. Only individuals that are not too weak and in whom the renal function is good should be operated upon. Radium treatment is to be resorted to in every case, even though instead of cure it produces only improvement. In some instances radium changes an inoperable into an operable case. Proust of Paris reported a marked modification of the perineal operation. It is necessary to remove both the prostate and the seminal vesicles. For this purpose it is necessary to expose the posterior surface of the prostate and seminal vesicles and to turn these down in one flap. In this manner it is possible to free the ureter and by getting it out of the way to complete the operation more thoroughly. Freudenberg and Israel of Berlin doubt that one-fifth of all cases of hypertrophy of the prostate become malignant.

Bacteriuria was the last subject that came up for discussion. Sarter of Basle divided these cases into the autocthonous and the excretory bacteriurias. The former may be primary, but may also be associated with an inflammatory process. The same bacteria may evoke in one portion of the urinary tract a bacteriuria and in another portion an inflammation. The disease may affect the bladder and kidneys or may arise from a focus in the male genital apparatus. Although the prognosis is good the cure is often problematical. Biedle of Prague perceives the greatest difficulty in the question as to why the bacteria in the bladder do not affect its mucous membrane. He attributes this to an acquired immunity of the bladder from the prolonged abode of bacteria in its interior. The passage of bacteria from the intestine to the bladder may occur by way of the lymphatics as the result of the slightest injury of either organ. Tuffier of Paris employs vaccines with success in cases in which bacteriuria is the result of a blood infection, but not in cases of bacteriuria of exogenous origin. Freudenberg of Berlin demands a sharper demarcation between the different types of bacteriuria and calls attention to the fact that even clear urine may contain bacteria; the aim should be to produce not merely a clear but also a bacteria-free urine, all the more since in certain bacteriurias with an alkaline reaction of the urine there is the danger of producing phosphatic calculi.

Progress of Medical Science.

Boston Medical and Surgical Journal.

August 20, 1914.

1. The Function of the Spleen with Particular Reference to Hemolysis and the Hemolytic Anemia. H. C. Moffitt.
2. Ergotherapy in the Treatment of Mental Disorders. Eva Charlotte Reid.
3. The Use of a Section of Scapula in Correcting a Nasal Deformity. O. A. Lothrop.
4. Another Case of Syphilis of the Nose. J. Prenn.

1. The Spleen with Reference to Hemolysis and the Hemolytic Anemias.—H. C. Moffitt states that since recognition of the fact that only red-blooded animals have spleens, the interest in the relation of the organ to blood formation has naturally been great. In the human embryo there can be no question of the production of orythrocytes in the spleen, but there can be no question also that this production ceases at birth and that in later life the spleen is normally not concerned in the regeneration of red cells. There is reason to believe, however, that even normally the spleen exercises a certain degree of inhibition upon the bone-marrow, influencing the formation and addition to the circulation of both red and white cells. In disease this inhibition may be increased and may lead to anemia and leucopenia. It seems probable that the spleen is a depot for iron derived from destruction of blood and tissue cells and that the liver stores the iron coming to the body in the food. After splenectomy there is a marked reduction of erythrocytes and hemoglobin when the animals receive but little iron in the food, and there is a rapid improvement when iron is added (Bayer). Through its power of contractility, afforded by the content in smooth muscle and elastic fibers the spleen may vary its store of blood considerably and may, perhaps have some influence upon gastric and hepatic hyperemia. The thymus occasionally enlarges after splenectomy and perhaps may compensate for the loss of lymphocytic production in the spleen; enlargement of the thyroid has also been observed. The lymph and hemolymph glands are often involved in infections or general diseases like lymphogranulomatosis, pernicious anemia, and leucemia, which affect the spleen as well. Owing to the hyperemia and enlargement in the course of most infectious diseases the spleen has enjoyed a certain reputation as a power for good in the struggle with infection. There is no evidence, however, to show that immune bodies are more favorably developed in the spleen than in other organs. Remarkably interesting work has recently been done by Murphy in regard to the defensive mechanism of the spleen in the chick against the implantation of heteroplastic tissue. Rat sarcoma can be grown freely in chick embryos, but only until the spleen begins to develop. If a piece of adult spleen be planted in the embryo the same resistance to invasion by foreign tissue is established. Normally there is a remarkable balance between hemolysis and hematopoiesis. The bone-marrow reacts delicately to the increased carbon dioxide tension of the blood, to the products of erythrocytic disintegration, and to many chemical and infective agents, and is held in check possibly by an inhibitory influence of the spleen which may prevent the entrance into the blood stream of immature forms or an excessive number of erythrocytes. Chronic family jaundice (congenital hemolytic icterus) may be taken as a type of the hemolytic splenomegalies. The disease is most often hereditary or familial, but there are acquired forms as well. The icterus which characterizes congenital hemolytic icterus is slight or moderate and may be present from birth or may not appear until the tenth or fifteenth year or even later. There are rare cases in which it may even be absent—the complex being recognized in these cases by the large spleen, the increased corpuscular fragility, and the familial association. The acquired form of hemolytic icterus presents, as a rule, a decidedly graver clinical picture than the congenital. Anemia is often much more marked and predominates over icterus. Eppinger has dwelt upon the similarity of the pathological changes in the spleen and other organs in hemolytic icterus and pernicious anemia, and has emphasized the identity of many of the clinical symptoms. As regards Banti's disease, it is noted that tuberculosis and syphilis of the spleen may last for years and give rise to splenomegaly, to anemia, and to hemorrhages. Cases of splenomegaly with hemorrhages from the stomach and bowel should always suggest splenic vein thrombosis. There can be no question from the many reports now recorded that splenectomy may lead to a permanent cure in Banti's disease. Eppinger has reported a number of instances of splenomegaly with peculiar clinical symptoms and has proposed to characterize them by the uncompromising name of "megalosplenic cirrhosis." Hanot's cirrhosis has lately been added to the group of hemolytic splenomegalies. Eppinger believes the hepatic changes are due to the thrombosis and rupture of the bile capillaries following hyperemolysis and excessive bile formation; clinically the cases resemble both hemolytic icterus and hepatic cirrhosis. The pathogenesis of hemachromatosis is still under discussion. The recent work of Sprunt suggests the possibility of a local origin of the pigment through autolytic changes in the cells of the liver and other organs, the cell degeneration taking place first and pigment deposits and cirrhosis coming later. The preponderance of evidence, however, favors the hemolytic origin of the disease. In the aleucemic myeloid splenomegaly lately described by Hirschfeld the enlarged spleen with varying types of anemia may lead to confusion with Banti's disease on the one hand, and more rarely with pernicious anemia on the other. The diagnosis in some instances may be possible only by finding evidence of myeloid metaplasia from splenic puncture. The Leishman-Donovan infection is also known as the Egyptian splenomegaly. In dealing with the group of so-called hemolytic splenomegalies one is well aware of the incomplete character of the present clinical and experimental evidence. There are still many unknown quantities in hemolysis, and although one is fairly persuaded that the spleen plays an important rôle, one is still ignorant of just how it acts. The mutual relations between spleen, marrow, liver, and lymph glands are still imperfectly understood. Hypersplenism may be compared to hyperthyroidism, and in splenic, as in thyroid disease, the triumphs of surgery have come through dealing with effects rather than causes.

2. Ergotherapy in the Treatment of Mental Disorders.—Eva Charlotte Reid notes that ergotherapy, although the most rational and productive of any of the general agents employed in the treatment of mental disorders, is still neglected to a deplorable extent in present-day institutions. The average hospital for the insane gives its patients no chance to forget the past, and makes no attempt to substitute new interests for those left behind in the home, society, or place of business. Work may be a great detriment or a valuable therapeutic agent in the treatment of mental disorders, according to whether or not it is scientifically applied. In institutions where much of the hard labor is done by the patients, and a certain amount must be accomplished, the tendency is to make drudges out of the willing and efficient workers, and to allow to remain in complete idleness those who require to be instructed, supervised, and handled with tact. The benefit to be

derived from the scientific application of ergotherapy will result in a threefold advantage—to the patient, the institution, and the State. The busy patient is happier and more contented, and deteriorates less rapidly than the idle one. If all the patients were employed an institution would require fewer attendants, there would be less destruction of clothing and furniture, and the hospital, and consequently the State, would reap the benefit. In every hospital for the insane, public and private, there is a vast amount of energy going to waste that might be utilized to make the institution largely, if not completely, self-supporting. Every hospital for the treatment of mental cases should have one or more vocational instructors, whose duty it should be to consult with the physician in regard to the employment of individual cases, to distribute the work to the various wards, to instruct the nurses in the oversight of the patients, to conduct classes in the various occupations, and to attend to the purchase of materials and the sale of articles manufactured. It is necessary to have nurses in charge of each ward trained in the care of mental cases and able to do some vocational work. In order to accomplish the best results with ergotherapy, it is necessary to commence early. As soon as the patient becomes accustomed to the new environment, and the initial excitement has subsided, work should be insisted upon. A new occupation is the most beneficial in convalescent cases and depressions, where there is a tendency to introspection and retrospection. The mental effort of learning to do something new distracts the mind and stimulates the faculties. It is likewise important that patients be put to work on something obviously useful. There are a few general rules which might be laid down in the application of the different kinds of work to different classes of cases. The only cases to which ergotherapy may be applied indiscriminately are the chronic alcoholic and drug habitués. The work of the epileptics must necessarily be circumscribed and spasmodic. Nevertheless, they should be urged to employ themselves constantly at something. They should be encouraged, as a rule, to stick to one kind of work. The treatment of the manic-depressive psychosis by ergotherapy is a problem which demands long experience and careful study and observation of individual cases. By the time such cases are received at the hospital the excitement is usually well developed, and the apparent superabundant energy of the patient is being wasted prodigally in purposeless, if not harmful, activity. To attempt to limit this activity by physical restraint is worse than useless, but to direct it into useful channels is a task which calls for the greatest skill, patience, and tact. The more like play the work can be made the better, and it should be such as to call for no continued mental effort or exercise of patience on the part of the patient. It is often necessary to try first one kind of employment and then another. If the patient can be made to work only a few minutes on the first trial, the length of time can be gradually increased. During an oncoming depression of manic-depressive insanity, work is, as a rule, harmful, and these patients should be relieved from the discharge of all duties, and, if possible, be made to remain in bed. In view of the fact that more than one-half of the permanent population of hospitals for the insane is composed of cases of dementia precox, it would seem that this class of cases offers the best field for operation in ergotherapy. To re-educate the vast army of demented patients in the hospitals for the insane would be a task which would involve an expenditure of time, energy, and money, which, in all probability, would not be warranted by the results obtained. The new cases of dementia precox can, however, with comparatively little trouble, be directed into better paths, to the end that the chronic wards in hospitals for the insane will be filled with patients who, although demented, will be quiet, tidy, industrious, and contented.

3. **The Use of a Section of the Scapula in Correcting a Nasal Deformity.**—O. A. Lothrop states that the various types of nasal deformity require entirely different operative procedures for their correction. The simplest type is that of the fracture-dislocation of the nasal bones, and the operation required in such cases consists in a re-fracture and then a reduction of the dislocation. A second type is exemplified in the lateral deviation of the cartilagineus portion of the nose. Another type may be noted in the aquiline deformity which requires a special technique for reduction. The irregular humps often found at the distal extremity of the nasal bones are amenable to special surgical procedures. Depressions of the nose bridge and destruction of the septal, supporting cartilage, so that the tip of the nose is depressed and unsupported, require the addition of material to fill in the depressions or support the tip. Trauma, syphilis, and abscess of the septum are the common causes for these destructive deformities. The author decided to experiment with a strip of bone from the free vertebral border of the scapula. Here one may obtain a thin, rounded strip of vascular bone, straight for two surfaces and its free border. This needs no shaping other than to determine the length and width required. Other advantages which may be mentioned are the safety of operating in this region, the superficial and easy access to the scapular border, and the facility with which a strip of bone may be removed—all tending to consume very little time. The author's patient was a man twenty-one years of age, who had been struck on the nose by a baseball bat. The nasal bones were dislocated to his left and there was a prominence at their distal extremity. There was no support from the cartilaginous septum, so that the tip of his nose had fallen and deviated to his right. What was left of his cartilaginous septum was fractured, deviated, telescoped, and cicatrized into a mass obstructing his breathing. The operation was performed under ether anesthesia with the patient in the recumbent position on the operating table. First, the septum was resected submucously in the usual way in order to remove all obstruction to breathing, and also to free the soft tissues of the tip which could then be raised and moved easily in all directions. A 3½-inch skin incision was made over the vertebral border of the left scapula. A strip of bone two inches long and about one-quarter of an inch wide was removed from the free border with bone cutting and wrapped in wet, sterile gauze. The patient was returned to the dorsal position, the nose re-sterilized, and a quarter-inch incision made in the under surface of the tip of the nose, half-way between the tip and the beginning of the columella. A subdermal passageway was made in the nose bridge extending to the distal extremity of the nasal bones. At this point the periosteum of the nasal bones was cut and elevated along the crest of the nose bridge up to the frontal bone. The nasal bones were now ground down with a rasp in order to remove the prominence and deviation to the left above referred to. The coarser bone filings were scooped out of the passageway with a curette and a graft which had been taken from the scapula was inserted through this passageway and under the periosteum until the end reached to the frontal bone. The incision in the tip of the nose was closed with two interrupted horsehair sutures and covered with a cocoon. Slight pressure was applied over the graft at its frontal end in order to hold it pressed against the nasal bones and to stretch the contracted soft tissues

of the tip. The patient made a good recovery. For four weeks a narrow strip of crèpe lisse was stretched from the tip of the nose to the forehead, being made adherent to the skin at these points with collodion and exerting just enough tension to raise the tip. Counter pressure was made over the frontal end of the graft by placing a ball of cotton between this point and the strip of crèpe lisse. In two weeks granulations had attached themselves to the periosteum of the graft, thus binding it to the nasal bones so that the graft was becoming firmly fixed. In three weeks the graft was quite solid, and in four weeks it was very rigidly held in place on the nasal bones and the dressing was omitted. By this time the skin of the nose had resumed its normal color.

New York Medical Journal.

August 22, 1914.

1. Practical Application of the Luetin Test. H. Noguchi.
2. Present Status of the Complement Fixation Test in the Diagnosis of Gonorrheal Infections. A. McNeil.
3. The Infantile Roots of Masochism. Dr. Paul Federn.
4. Clinical Types of Adiposis and Lipomatosis. G. E. Price.
5. Medical and Bacteriological Experiences during the Late Balkan War. B. Jablons.
6. Removal of Two Nails from Bronchi of Child Two Years Old. R. H. Good.
7. Clinical Investigation of Gastric Neuroses with Vago-excitative Characteristics. S. Neuhof.
8. The Functional Tests of the Static Labyrinth in Neurological Diagnosis. I. Friesner and A. Braun.
9. A Modified Gastroduodenal Tube. M. A. Rehfuss.

1. Practical Application of the Luetin Test.—H. Noguchi states that during the past two years a large number of observations have been made in connection with the luetin test by different investigators. The following statistics are based upon the observations made by about fifty investigators: In primary syphilis the reaction is present in less than 30 per cent. of cases and the intensity of the reaction is usually very mild. In secondary syphilis the reaction was reported positive in 47 per cent. of 630 cases. The reaction is usually mild. In tertiary syphilis the reaction was found in about 80 per cent. of cases. The reaction is very severe in this stage of the disease (usually pustular form). Herzberg and Donitz reported 100 per cent. positive in 170 cases which were under observation at the University Clinic of Professor Bier, in Berlin. In congenital syphilis the reaction was reported to occur in about 70 per cent. of cases. Brown, who made the largest series of tests, found it present in 93 per cent. of seventy-five cases studied. The reaction becomes more distinct after energetic treatment. In syphilis of the nervous system the reaction is less frequently present in acute syphilitic meningitis than in the parenchymatous affections, such as general paralysis and tabes, where it has been reported positive in about 60 per cent. of cases. In visceral syphilis the reports of Wolfsohn, Stoll, and others show that the reaction is present in nearly 90 per cent. of cases; it is especially marked in the cases of aortic insufficiency. From the statistics of the luetin reaction one can easily see that the Wassermann reaction is much more constant among the primary and secondary cases, as well as in general paralysis, but the reverse is the case in chronic cases, especially in those under treatment. The significance of the luetin reaction in regard to the prognosis of syphilis appears to be a matter of great importance to the physician. The author himself often speculated as to why some paretic cases give a positive and others a negative reaction. It should not be at all improbable that paretics with a positive luetin reaction are still capable of deriving some benefit from an antisyphilitic treatment since the reaction is in a measure indicative of a mesenchymatous tertiary process. The future will determine this point.

2. The Complement Fixation Test in Gonorrheal Infections.—A. McNeil quotes the following conclusions which were published by Schwartz and the author in 1912 and which have subsequently been confirmed by other authors: A positive reaction denotes the presence or recent activity in the body of a focus of living gonococci. A negative reaction does not exclude gonococcus infection, but should be accorded considerable importance. A strong positive reaction is not to be expected earlier than about the fourth week, and then only in very acute cases with some complication. A positive reaction is not obtained if the disease is limited to an anterior urethra. A positive reaction does not entirely disappear until seven or eight weeks after cure. In other words if a strong positive reaction is obtained seven or eight weeks after apparent clinical cure the patient should be looked upon as still harboring gonococci. The technique of a complement fixation test is simpler than that of isolation of the gonococcus in culture, and the possibilities of error are less.

4. Clinical Types of Adiposis and Lipomatosis.—G. E. Price states that simple obesity or adiposity may exist without any associated symptoms. It is well known, however, that it is not unusual to find some slight tenderness in the fat of persons who are only moderately fleshy. In addition to this there may be present as occasional symptoms a moderate degree of asthenia, minor mental disturbances, and a tendency toward arthritic involvement. Simple obesity is frequently hereditary, although not all members of the family may be similarly affected. Nodular circumscribed lipomatosis is characterized by clearly defined single or multiple fatty tumors, which may be symmetrical in site or irregularly distributed. They are most frequently located about the neck, in the axillæ, over the trunk, or on the extremities. That this type may be accompanied by a variable list of constitutional symptoms, especially arthritic disorders, was probably first recorded by Koettnitz, who separated his lipomata into two groups, depending upon the presence or absence of general symptoms. In diffuse symmetrical lipomatosis the fatty masses have no capsule, but fade into the surrounding adipose tissue, and are also symmetrical in distribution, although not always simultaneous in appearance. This form is somewhat elective as to location, the tumors usually appearing in pairs in corresponding positions upon either side of the neck, although other parts of the body are by no means exempt. It appears as a rule during adult life and almost invariably in the male sex. The individual affected may be, and in fact usually is, of average weight. A history of alcoholism is common. Froelich's syndrone or dystrophia adiposogenitalis is, as the name indicates, of cerebral origin and the result of disease of the hypophysis. Adiposis dolorosa, or Dercum's disease, was described by Dercum in 1888, and has as its chief characteristic an accumulation of fatty masses variously situated, which are either spontaneously painful, painful upon manipulation, or both. Two other symptoms, but little less important and included among the four cardinal symptoms, are asthenia and psychic disturbances. Pathological changes have been found in the thyroid and pituitary glands, the peripheral nerve fibers and, less frequently, the nerve trunks. Sclerotic ovaries and undeveloped testicles have been reported. The author reports a case of this condition in a woman, aged thirty-two years, who complained of shortness of breath, marked general weakness, and depression without adequate cause. Her appetite was fair, her sleep irregular, and there was no complaint of headache. Her flesh bruised readily. Menstruation had been very irregular; at times it would be absent for several months, then she would have both menorrhagia and metrorrhagia. There was also attacks of abdominal pain and vomiting accompanied by an irregular temperature.

The patient was found to present general obesity with additional masses variously distributed over the abdomen, hips, and about the knees (generalized, diffuse). These masses had the "bunch of worms" feel and were exquisitely painful on pressure. During the time this case had been under observation the following interesting phenomena occurred: First would be periods of excessive weight, slow pulse, and normal or subnormal temperature, which condition would be greatly benefited by thyroid medication. Following this would be a period of comparative comfort of several months, during which all medication would be discontinued. Next would come a period of irregular temperature ranging from normal to 101 deg. F., with rapid pulse, vomiting, diarrhea, marked flushing, and extreme perspiration. She would also present a fine intention tremor of the hands and an excited, anxious mental state, and her weight would diminish rapidly, on one occasion reaching 182 pounds and on another 187 pounds. There was never any evidence of exophthalmos during these attacks. This condition would clear up slowly under rest in bed, sedatives, and digitalis; next would come a comfortable intermission of a few months, then with an increase in weight the cycle would commence all over again. The patient has passed through several of these circular phases while the author has been attending her. The second interesting feature presented by this case is the development of muscular cramps, which would appear during or just after the symptoms of hyperthyroidism. These cramps appeared in the extremities, chiefly in the feet and hands, which would at times flex so they could not be straightened voluntarily. The cramps during one attack recurred intermittently for about a month, then gradually disappeared. The patient had one or two similar attacks of variable duration. The history of this case points to a functional disturbance of the parathyroid glands.

5. **Experiences During the Late Balkan War.**—B. Jablons states that the surgical cases in Belgrade included for the most part minor surgical wounds, fractures, etc., which had not required immediate operation, or minor injuries which as a result of later infection demanded complicated surgical procedures. Of these the greatest number consisted of abdominal abscesses secondary to gunshot wounds of the abdomen, and brain abscesses secondary to perforating wounds of the skull. In addition there were quite a number of soldiers who, as a result of the long winter siege of Adrianople, had suffered very severe frostbite of the extremities. Many of these cases required amputations, and such cases were almost invariably sent back to the larger and more populous centers. The medical cases up to the fall of Adrianople, consisted for the most part of inanition and exhaustion fever, not a little typhoid fever, and intestinal affections such as dysentery of the Shiga and Flexner type. Weil's disease was also occasionally met with. The amebic form of dysentery may have prevailed over toward the Tschataldja line; in Servia, however, it was comparatively rare. The author was detailed as bacteriologist to work in conjunction with a unit of the German Red Cross Society, which had been sent to take charge of the medical department of a military hospital. Here first aid was given and emergency operations were performed. These consisted chiefly of amputations, the tying of arteries, and the preliminary setting of fractured bones. These cases were then immediately transported to the nearest or farthest military hospital, depending on the severity of the injury. As soon as these hospitals were filled the wounded were sent to the nearest civil hospital. Cholera worked greater havoc with the Bulgarians than with the Servians, not because of any greater precautionary measures on the part of the former, but because of the lesser number of men fighting on the side of the latter. The surgery at this time was limited chiefly to occasional trephinings, laparotomy for abdominal abscesses, and amputations for frostbites, of which there were a goodly number. Considering that the men had to do sentry duty in trenches filled with snow and ice, which in some instances reached up to their shoulders, and had to keep their weapons serviceable, it seems remarkable that a greater number were not affected. The frostbite was not limited to the feet and toes only, but in many instances the entire leg and even lower portions of the thighs were affected and had to be amputated. The horrors of war were never more clearly shown than in the case of these poor fellows who lost their legs or arms through the inclemency of nature and not through the shot and shell of the enemy. A few weeks later the character of the diseases seemed to change. Instead of the ordinary fevers due to inanition and extreme fatigue, diseases common to great bodies of men living under unhygienic surroundings made their appearance, viz., typhoid fever and dysentery. Most fearful of all was the occurrence of typhus fever.

Journal of the American Medical Association.

August 22, 1914.

1. The Pathological Physiology of Uterine Bleeding. E. Novak.
2. Radium in the Treatment of Uterine Hemorrhage and Fibroid Tumors. H. A. Kelly and C. F. Burnam.
3. Roentgenotherapy in Uterine Hemorrhage. G. E. Pfahler.
4. An Unusual Case of Bromoderma of the Leg. L. Weiss.
5. Favus and Ringworm of the Nails. M. H. Foster.
6. A Course in Surgical Technique. W. C. Clarke and F. W. Bancroft.
7. The Medical School and the State. H. S. Pritchett.
8. Instruction in Roentgenology. A. Henriques and L. Ambrose.
9. Public Health Work as a Career. J. A. Ferrell.
10. The Value of the Medical College Library to the Student. C. Frankenberger.
11. Foreign Bodies in the Bladder. L. Gross.

1. **The Pathological Physiology of Uterine Bleeding.** by E. Novak. (See MEDICAL RECORD, July 4, 1914, page 38.)

2. **Radium in the Treatment of Uterine Hemorrhage and Fibroid Tumors.**—By H. A. Kelly and C. F. Burnam. (See MEDICAL RECORD, July 4, 1914, page 38.)

3. **Roentgenotherapy in Uterine Hemorrhage.**—By G. E. Pfahler. (See MEDICAL RECORD, July 4, 1914, page 38.)

4. **Bromoderma.**—L. Weiss, after describing a case of this condition, concludes that drug eruptions may simulate almost any known skin affection. A skin eruption starting suddenly without any prodromal symptoms is almost sure to be a medicinal eruption. The violence of development and the preponderance of the local over the systemic disturbances are characteristic of drug eruptions. The brevity of the acute stage and the quickness of defervescence constitute a notable asset in diagnosis. The usual four stages of the acute contagious exanthems, namely, the prodromal, the eruptive, the fully developed, and the retrogressive and desquamative stages, are wanting. The temperature never rises to the point shown by the acute exanthems and the affection of the mucous membrane is never so severe.

5. **Favus and Ringworm of the Nails.**—M. H. Foster states that while favus and ringworm of the nails are supposed to be rather rare, the finding of 101 cases among immigrants at Ellis Island during the first eight months of the present fiscal year indicates that these disorders are probably more common, at least among our foreign population, than has been supposed. Clinically the two disorders are alike. The nails are thick and brittle and sometimes even caseous. They do not seem to be painful or tend to cause an inflammation of surrounding parts. The process is chronic, and if untreated lasts indefinitely. The youngest patient observed was three years old and the oldest seventy-two.

Good histories were hard to get, but one patient said he had had the trouble fifty-two years. While the condition of the nails is highly characteristic, it may be simulated by syphilis, psoriasis, eczema, hypertrophy and atrophy, grave constitutional disorders, etc., but in these cases all of the nails are likely to be affected, while in ringworm and favus one or more are apt to escape. The organism generally appears as plain hyaline branching threads, showing here and there spores, usually not very distinctly. The palms of the hands and the fingers may be affected. The diagnosis between favus and ringworm is not usually easy, but if either disease prevails elsewhere on the patient it is probably the cause. In the series of 101 cases, eighty-four were ringworm and seventeen favus. About one in 5,000 of the immigrants was affected. The author does not have a very good opinion of medical treatment of these cases. The avlusion of the nail and the application of some germicide to the matrix may be justifiable. On account of the contagiousness and loathsomeness of these two diseases and the special danger when they affect the hands and nails they should be put among the class of notifiable diseases, and cases occurring in this country should be so placed as to prevent their spread.

9. **Public Health Work as a Career.**—J. A. Ferrell states that there are already more positions open for trained health officers than can be satisfactory filled. The demand is increasing all the time. It comes from federal, State, and city health departments; from the International Health Commission, and similar quasi-public health agencies; from the schools, and more recently from rural counties. The medical inspection of schools has made rapid strides in the last year or two in both city and country. Twenty-one States now have medical inspection laws, ten of which are mandatory, while in many of those States without special laws on the subject individual cities have inaugurated medical inspection systems. The medical inspection work is more and more being centered about the whole-time health officer. Maryland is looking for men to fill positions created by the sanitary district bill passed at the last legislature. New York State is in the market for a large number of trained health officers. North Carolina employs eleven whole-time county health officers at salaries that attract capable men irrespective of residence. Sooner or later all the States will exert that control over hygienic and sanitary conditions which a few now exert, and this will mean an ever increasing demand for public health officers to give their entire time to the community. Already some educational institutions are coming forward with special courses to train men for the new work. The "School for Health Officers" of Harvard is sufficiently well known, and at least five American universities—Harvard, Pennsylvania, Michigan, Wisconsin, and Tulane—now grant the degree of doctor of public health for special public health work over and above the requirements for the regular medical degree.

Deutsche medizinische Wochenschrift.

July 30, 1914.

Fatal Hematoporphyrinuria from Sulphonal.—Pförtner states that over 47 cases of this urinary find are upon record, the majority of which occurred soon after its introduction into therapy in 1889, before the safe dosage limits had been determined. There are also on record seven cases of the same condition due to trional and two from veronal. Fatalities from the use of sulphonal have occurred in which no hematoporphyrinuria developed. Colossal doses of the drug have also been taken which were followed neither by this accident nor a lethal result. A predisposition must, therefore,. be present. Women are more susceptible than men. The author's case occurred in a woman of thirty who appeared to be suffering from the maniacal phase of manic-depressive insanity. She had refused all medication *per os* and only became quiet for a short time after 1 mg. duboisine given hypodermically. Sulphonal was then mixed with the food, although the latter was administered with great difficulty. She ingested some four grams daily for two days and as she quieted down half that daily dose was given for several days more. These were the amounts mixed with the food, but the author concludes that at most not over ten grams of the drug found their way into the body. The woman now became very constipated. For the first three days following the last dose of sulphonal no urine was voided. On the fourth day urine of the characteristic postanic color came away. After this she became so restless that duboisine (0.5 mg.) was given. On the fifth day she collapsed, complained much of abdominal pressure, and died a few hours later. Urine passed involuntarily shortly before death stained the sheets—urine color. At autopsy the kidneys were found normal. The real causes of death were doubtless the constant agitation of nearly two weeks' duration and the defective alimentation and fatty state of the myocardium. Hematoporphyrinuria does not follow acute sulphonal poisoning, from a large single dose, but appears when the drug has been taken for a considerable period.

Mumps and Pancreatitis (?)—Dracinski and Mehlmann report three suspected cases of this association. Owing to the very mild character of mumps, autopsy finds are rare. In an extensive epidemic of this affection the author noted a peculiar syndrome in several cases. This comprised herpes, violent frontal headache, absence of stools, vomiting (suggesting ileus), collapse, fever with delirium, pain and tenderness above the navel, absent patellar reflexes, marked acetonuria, Cheyne-Stokes breathing and slowing of pulse. With the exclusion of meningitis which was not difficult, the diagnosis was pancreatitis. Vomiting and collapse pointed to an inflammation involving the solar plexus, while the absence of patellar reflex is accounted for by participation of the first lumbar nerve roots. Aceton intoxication may or may not have been responsible for the slow pulse and Cheyne-Stokes breathing. The author was then led to test a large number of uncomplicated mumps cases for the patellar reflex and found this absent in 10 per cent. He is entirely silent as to certain data, such as the stool finds, Cammidgo's reaction, etc., etc. Nor does he even allude to the vast significance of such cases for the subsequent development of child diabetes.

Acute Retention of Urine, a Rare Consequence of Morphine.—Czapek and Wassermann in nowise refer to acute suppression of urine, but to an acute retention due to spasm of the sphincter vesicæ. In all he records five cases, in four of which the drug was given by suppositories. The dosage was within safe limits and there were no symptoms of morphinism, save such inevitable phenomena as constipation. The action of the drug on the intestine seems to have extended to the bladder. We know at present that morphine causes spastic contraction of the pylorus and from analogy the sphincter vesicæ could be similarly affected. This discovery may throw some doubt on the nature of the oliguria and anuria which are so commonly seen in morphine habitués and which may be complicated with retention. At least under the latter circumstances the catheter should always be used. Again urinary retention so commonly seen after certain operations may be due in part or at times to the injection of morphine given before operation.

Insurance Medicine.

SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

THE CHOICE OF PLAN FOR SUBSTANDARD RISKS.

THE plan selected in allowing for the extra mortality which is expected among underaverage lives should vary with the character of the risk assumed, the character of the risk being determined by the period during which danger may be expected. Hazardous risks may be divided into the three following classes:

1. The early or decreasing extra hazard. This hazard exists most commonly among applicants with family histories strongly tainted with tuberculosis. It is found also in certain conditions, such as the albuminuria of adolescence, in which it may be reasonably assumed that the applicant has a good chance of ultimately enjoying freedom from the disturbance. The extra mortality expected in the early years is most completely and efficiently covered by the lien system. As an illustration, we may take the case of an applicant with a history of tubercular trouble in the family combined with a physique that leaves some doubt of his ability to overcome the taint. The mortality is expected to be unfavorable in the early years of policies in this class, and to gradually approach the normal with those who survive the uncertain part of their lives. To offset this increased hazard, a lien or contingent debt of perhaps 50 per cent. is placed upon the policy, remaining level for perhaps five years and then running off in equal instalments during perhaps the next ten years. If the policyholder dies during the first fifteen years from any other cause than accident, the amount of lien standing against the policy at the date of death of the insured is deducted from the face value of the policy in paying this claim. In this way, the poor lives actually pay the extra premium themselves, and this is substandard insurance in the true sense of the word.

The lien system was formerly employed in the United States as well as in Great Britain and Canada, but was prohibited to companies doing business in the State of New York by the statute in the Armstrong Law which compels the companies to issue certain prescribed standard forms of policies. A company could, possibly, obtain permission from the insurance department of the state to take up the lien system again, but there has been little disposition so far to depart from the letter of the law. No company wishes to give an opportunity to a competitor to insinuate that it, the former, does not issue standard contracts, the public not being sufficiently conversant with the subject to understand the situation. Furthermore, the lien system did not always prove popular in the United States, some policy holders not relishing the idea that their contracts were good for only a certain part of their face value, even though the amount to be paid in case of death gradually approached the full value later on. For these two reasons, especially, no company has thought it feasible to invoke permission from the state authorities for renewing the lien system. A decidedly bad family history could be taken care of only by the lien system, but the companies prefer to decline a risk that cannot be covered by the rating-up system. One large company attempts to arrive at the same end as that accomplished by the lien system, by charging a higher premium which remains level for a certain number of years and then gradually becomes lower until the ordinary rate is reached. This plan is effective only when the impairment is quite mild, as a premium high enough to cover more serious hazards would be prohibitive. Nearly all companies transacting substandard business, then, adhere to the rating-up system for covering the extra risk in early hazards, but the plan is not rational, since the extra premium must be paid during the life of the policy and after the critical period has passed. Yet an injustice is done towards other policy holders if the premium charged is not high enough to cover the early hazard.

2. The constant extra hazard is one which remains stationary. This hazard most commonly exists among those following certain occupations and, according to the view held by some companies, among women. The rated-up policy covers this extra risk admirably. In order to ascertain the proper ratings, the mortality rate in each class must be estimated and the results then compiled into tables showing the number of years to be added to the age of the applicant, the premium charged being that due for the advanced age. A little reflection will show that the method of rating up lives a certain number of years is only satisfactory when there is a constant or increasing extra mortality.

3. Late or increasing extra hazard. This class includes such risks as overweights, rheumatism and gouty subjects, supposedly cured syphilitics, Keeley graduates, etc. The extra hazard in cases of this kind may be covered by the rating-up system and by the endowment form of policy.

The rated-up premium is a successful method for covering the extra mortality in a deferred risk if it is computed to the fine point of adjustment where it will protect the company without taxing the policy holder more than the impairment calls for.

The endowment policy fits the case with certain hazards which are not liable to arise until after a certain number of years. At the end of the stated time, the amount represented by the higher premium is refunded through the options and privileges stated in the contract. In other words, the transaction terminates, the company having protected itself, and the insured going his way with the critical period of his life still to face. It would be a useless procedure to attempt to provide for contingencies during the early years by an endowment policy. Unfortunately, the standard form of endowment policy exacted in accordance with the Armstrong Law allows the privilege of automatic extended insurance in case of lapse, so that a holder of an endowment policy has it in his power to exercise self-selection by stopping the payment of further premiums in the event of his contracting some chronic illness with the full knowledge that the face value of the policy will be paid in the event of his death during the extended period. Nevertheless, the form of policy is useful to companies which do not issue substandard policies, when it is advisable to issue a contract which will terminate at a certain age, after which the evil effects of some condition or circumstance are liable to appear.

All methods for dealing with substandard insurance are made up from the individual experience of each company, so that there are no universal rules, and guesswork is necessarily a large element in the process. Many risks are so far below the standard that they are not insurable on any plan unless prohibitive rates are charged, although a larger proportion of these applicants could be accepted with a lien.

Book Reviews.

THE SURGERY OF THE STOMACH. A Handbook of Diagnosis and Treatment. By HERBERT J. PATERSON, M.A., M.C., M.B. (Cantab.), F.R.C.S. London. New and Revised Edition, with Plates. Price, $4.00 net. New York: William Wood & Co., 1914.

THIS is a book that it is a distinct pleasure to read and to review; a work based upon the author's personal experience, which, as is well known, has been very extensive, and not a hodge-podge of compilation containing a mere sprinkling of original matter. Clear and concise descriptions of the pathology and symptoms of gastric and duodenal lesions, methods of examination, differential diagnosis, and the technique of operation, bring the essential points to the reader's attention with great force. One does not have to separate the wheat from the chaff—this has all been done by the author. Another point that deserves comment is that there is not a useless illustration in the book. The author has not succumbed to the popular craze for quantity, so there are no illustrations of bandage scissors or other instruments in every-day use and for this he deserves thanks as well as congratulations; but those which he has incorporated in the work are of high quality, the thirty stereoscopic plates illustrating the various steps of anterior and posterior gastroenterostomy being especially noteworthy.

The *x*-ray in the diagnosis of gastric and duodenal conditions has not been given sufficient prominence, at least from the American point of view; but this is not to be wondered at since American röntgenologists have completely outstripped the rest of the world in the development of radiologic diagnosis of gastrointestinal conditions. This is one of the very few points compelling adverse criticism. We cannot agree with Paterson's statement that "it is very doubtful whether any operation for gastroptosis is of real value." In our opinion the complete Coffee operation is a very valuable procedure; but the *complete* operation must be done, and not the simple suturing of the great omentum to the abdominal wall referred to as the Coffee operation by Paterson. His ideas upon early feeding by mouth after stomach operations are rather revolutionary, but this chapter and the succeeding ones on complications after gastric operations and the effects of gastrojejunostomy are exceedingly interesting. One of the most valuable parts of the book, however, is that dealing with ulcer of the stomach and upper part of the intestinal tract; for ulcer with its complications, early and remote sequelæ, forms the starting-point for most of the surgery of these structures, especially if one believes with Mayo that more than 70 per cent. of the cases of gastric cancer start from ulcer. This subject is rather exhaustively treated, while for the benefit of those interested in further study, lists of references are appended here as well as in many other parts of the book. We feel that we cannot recommend this work too highly.

TECHNIK DER SPECIELLEN KLINISCHEN UNTERSUCHUNGSMETHODEN. Unter Mitwirkung von Dr. K. BRAHM, Dr. W. FREY, Dr. JANUS, Dr. MEYER-BETZ, Dr. Fr. MÜLLER, Dr. G. NICOLAI, Dr. J. PLESCH, Dr. H. SCHADE, Dr. J. SCHMID, Dr. Th. STUMPF, Dr. W. WEICHARDT, Dr. G. WIEDEMANN. Herausgegeben von Prof. Dr. THEODOR BRUGSCH und Prof. Dr. ALFRED SCHITTENHELM. I Teil. Mit 359 Textabbildungen. II Teil. Mit 115 Textabbildungen, 1 farbigen Tafel und 1 Tabelle. Price, Parts One and Two, 36 Marks. Berlin und Wien: Urban und Schwarzenberg; New York: Rebman Company, 1914.

AT the present day it would appear difficult to devise a medical work of general applicability which should be new in type. The authors of this volume have, however, accomplished this seeming impossibility and have issued a book which is distinctly different in scope from any already existing. There is no lack of text-books which are devoted to the ordinary methods of clinical investigation, and in some of the treatises dealing with special subjects one may find described the more complicated procedures which are necessary in studying the problems of disease from the purely scientific or theoretical standpoint, but till now there has been no single work combining both aspects of the subject. The methods of attack of the two types of workers are steadily converging, however, for clinicians are becoming more scientific while at the same time the research workers are learning to vitalise their studies by taking greater account of the needs and problems of the practitioner. It has been the purpose of the authors to bridge this gap, and the book is intended to point the way for the actual application of the more refined and difficult laboratory methods to actual clinical medicine. Examination of the table of contents shows that practically every method of investigating the phenomena of disease apart from the ordinary physical signs is described in full detail. The latter have already been discussed in the "Lehrbuch Klinischer Untersuchungsmethoden" by the same authors of which the present work forms practically a second volume. It is impossible even to mention all of the subjects dealt with, but attention may well be called to the extensive sections on *x*-ray work, the use of the kymograph and the electrocardiograph, bacteriological technique, the methods of histological examination, and optical methods including the use of the colorimeter and the ultramicroscope. The entire first half of the second part is given over to the chemical study of metabolism, and there are extensive sections on the various physicochemical methods, together with a great deal of material on the ferments, including Abderhalden's studies. The work is a perfect storehouse of information and is remarkably complete, though occasional curious gaps are noticeable, for example the very unsatisfactory treatment of the methods for testing kidney function. A serious defect, especially in a book of this kind is the hopelessly inadequate index, but that is a fault from which few German books are exempt. The work is one which will perforce have a place in all laboratories, and it is to be hoped will also find its way to the shelves of progressive clinicians.

DEFENSIVE FERMENTS OF THE ANIMAL ORGANISM against Substances Out of Harmony with the Body, the Blood-plasma and the Cells; their Demonstration, and their Diagnostic Significance for Testing the Functions of Different Organs. By EMIL ABDERHALDEN, Director of the Physiological Institute of the University at Halle a/S. Third Edition. English Translation by J. O. GAVRONSKY, L.R.C.P., M.R.C.S., M.D., Halle a/S. and W. F. LANCHESTER, M.A. Price, $2.75 net. New York: William Wood & Company, 1914.

THIS is a translation of Abderhalden's well-known "Abwehrfermente" made from the third edition of that work. It is unnecessary to discuss the importance of the German author's theories or the position which they hold at the present time. They have attracted a large amount of attention and the widespread interest in the subject is sufficient justification for the publication of the translation. As a translation it is not wholly satisfactory; but that is almost inevitable in such a work. The book could be improved by the addition of an index.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, etc. Edited by HENRY W. CATTELL, A.M., M.D. Volume II. Twenty-fourth Series, 1914. Price $2.00. Philadelphia and London: J. B. Lippincott Company.

THIS number includes twenty-three articles on Diagnosis and Treatment, Medicine, Surgery, Obstetrics and Child Welfare. The article on insomnia by James J. Walsh is especially to be recommended as a sane and wholesome consideration of the subject. Articles on tuberculous joints by E. G. Beck and C. M. Jacobs are very interesting while Martha Vinton's paper on the Teaching of Sex Hygiene is the most attractive we have seen on that subject in a very long while. It is perhaps adapted to ideal conditions but is on a much higher plane than most of the material put out under that heading. This issue is quite up to the high standard set by the publication.

SPIRITUAL HEALING. Report of a Clerical and Medical Committee of Inquiry into Spiritual, Faith, and Mental Healing. Price, $0.30. London: Macmillan & Company, 1914.

THIS investigation was undertaken with the object of formulating a more clearly defined relationship and cooperation between ministers of religion and members of the medical profession in the treatment of disease. Their conclusions offer nothing new and give confirmatory evidence that what is called "Faith" or "Spiritual" healing is not different from mental healing or healing by suggestion. The report states that cures by these means are by no means unusual in functional disease, but it remains to be proven that any of these methods of healing have ever been effectual in the presence of actual organic disease.

Society Reports.

AMERICAN THERAPEUTIC SOCIETY.

Fifteenth Annual Meeting, Held in Albany, N. Y., May 29 and 30, 1914.

THE PRESIDENT, DR. HOWARD VAN RENSSELAER, ALBANY, IN THE CHAIR.

Friday, May 29—First Day.

Address of the President: A Study of the Therapeutic effects of Thermopenetration in the Treatment of Phthisis Pulmonalis.—DR. HOWARD VAN RENSSELAER'S address was on this subject. Many years ago, he said, a patient collaborator of statistics had recorded that in lesions of the mitral valve consumption was one of the rarest of complications, though he drew no deduction from this fact, observed, as the result of study, in a vast number of cases of heart disease. If we tried to trace out the relationship between cause and effect here, and if we considered for a moment the morbid anatomy which mitral disease produced in the lungs, we were struck by the fact that in mitral disease there is regularly a marked congestion of the lungs. By theoretical reasoning, then, it would seem that where there was an enormous amount of blood in the lungs tubercle were more readily destroyed, or were at least prevented from multiplying as they did in the anemic condition of rundown individuals. The obvious therapeutic indication from this reasoning would be to produce a congestion in the lungs as a means for combating the inroads of consumption, and theoretically what was wanted was not a passive, but an active congestion, caused by something which would directly heat up the lung as a whole, or any particular part of it desired, without producing a general congestion over a large area of the body. This it had been impossible to accomplish until the discovery of the many-sided effects of the high frequency current. At the tuberculosis camp of the Albany Hospital the employment of this current had given the best results of any special treatment which had been tried there. The patients had been impartially divided into three classes for treatment; those given the high frequency current, those given tuberculin, and those given no special treatment, which were called control cases. The benefits so far obtained from the high frequency current, in comparison with the other methods, were: (1) The ability to keep the patients longer in the hospital. (2) The greater increase in weight (five times greater), and the larger percentage of those whose weight was increased. (3) Of the discharged patients, 69 per cent. apparently cured or arrested, against 15.5 per cent. as the best of the other methods. A careful study of the large number of blood counts showed, in general, that in the cases which improved and got well both the red cells and the hemoglobin (which had usually been diminished) returned to normal, that the white cells decreased, and that the percentage of polymorphonuclears decreased, while that of the lymphocytes increased to normal.

The Acquisition of Tuberculosis.—DR. WILLIAM H. PORTER, New York, in this paper, said that it was established, so far as bacteriological research had advanced our knowledge, that tuberculosis is not, and cannot be, transmitted from the mother to the offspring *in utero*, and, consequently, that the disease is never inherited. In fact, a faulty nutritive activity was much less often inherited than was commonly supposed, but the perfect product, as it came from the uterus of the mother, rapidly degenerated when it had left the guiding hand of Nature and was entrusted to the too often ignorant and misguided parent or nurse. As time went on the nutritive vitality of the organism progressively deteriorated, local inflammations were excited, the proper soil was developed, and finally the non-tuberculous soil was successfully inoculated with tubercle bacilli and the lesions characteristic of true tuberculosis were developed. These anatomical changes had never been found until after the fourth week of extrauterine life, and the frequency with which they were afterward found increased yearly from five-tenths of 1 per cent. up to the fifteenth year, when the maximum of 30 per cent. was reached. Thus, it was proved conclusively that there was a well-founded theory regarding tuberculosis, which did not defy natural laws and was found to fit all conditions. While it was impossible to exterminate tuberculosis as completely as theory would indicate might be possible, it was still within the range of high probability to prevent the development of hundreds of thousands of cases every year. The accomplishment of this, however, was to be effected along the line of the prevention of a soil suitable to the growth of tubercle bacilli, rather than by over-strenuous efforts to prevent inoculation.

The Non-Operative Treatment of Tuberculous Glands of the Neck.—DR. ROBERT T. MORRIS, New York, said that in the past ten years there had been treated in the out-patient department of his service at the Post-Graduate Hospital considerably more than one hundred cases of this character without operation in a single instance, with the exception of such glands as were actually suppurating; and for these glands alone, leaving the remaining mass to be treated by some one of the conservative measures. The first of these he had tried was the injection of a 7 per cent. solution of iodoform in oil, according to the plan of Mosetig-Moorhof. In a number of later cases the use of the new high penetrating *x*-ray had proved the most effective treatment. More recently he had taken up the idea of adding the employment of tuberculin to the other resources, and he was now convinced that when this method was applied in the right way and for a sufficient length of time it was one of our most important resources against tuberculosis of any kind. Dr. Morris stated that for many years the plan of treatment he had pursued consisted of a very thorough removal of the glands *en masse*, with technical details quite perfect from the surgical point of view; but when in a number of cases he found there was recurrence of tuberculosis, and when he had lost a beautiful young girl from acute general miliary tuberculosis immediately succeeding upon operation, he had taken up the study of methods for non-operative treatment.

Volatile Substances Isolated from Tubercle Bacilli Cultures and Their Effects on Experimental Tuberculosis.—DR. ERNEST ZUEBLIN, Baltimore, said that some time since, at the Tuberculosis League Hospital in Pittsburgh, he had observed that every time that old tubercle bacilli cultures were destroyed a patient who helped as orderly in the laboratory complained of headache and general malaise. About the same time two friends of his, after sterilizing old tuberculin bottles in a closed room, had suffered for several days from chills, fever, headache and general malaise (constitutional tuberculin reaction). These observations had suggested experiments designed to detect any volatile substance escaping from tubercle bacilli cultures. His series of experiments with guinea pigs were described, and he stated that from the results of these it might be concluded that in tubercle bacilli there is contained a volatile substance of a lipoid nature chemically which possesses a much stronger penetrating odor than the original bacilli culture. Further investigations would be required to determine the presence of a volatile protein split product and other features. Having referred to certain recorded instances of acute intoxication resulting from the emulsifying or evaporation of tubercle bacilli cultures, he stated that, according to his interpretation, underlying the manifestations described there was not a simple intoxication, but that probably combined with this there was a hypersensitiveness, for the reason that the symptoms had seemed to be more pronounced in individuals giving a marked tuberculin reaction. So far, no definite explanation for the cause of these morbid manifestations had been offered. In concluding, the speaker said that there was reason for admitting the possible formation of volatile split products in growing tubercle bacilli, but to determine the exact chemical and biological properties of these bodies would require additional experimental work. The question also remained undecided whether the substances were akin to tuberculous toxin, and whether they were identical with those bodies which produced the hypersensitiveness. Although this investigation had not yet passed the experimental stage, it might in the future perhaps afford the basis of a treatment for tuberculous patients, in cases where a mild reaction was desired and where tuberculin could not be administered hypodermically.

The Topical Employment of Tuberculin in Certain Surgical Conditions: Hydrocele and Other Serous Effusions; Tuberculous Adenopathies; Chronic Sinuses.—DR. W. WAYNE BABCOCK, Philadelphia, said that in certain conditions the action of the tuberculin had proved very efficient. His first effort had been to combat local serous effusions, and his original intention was to first sensitize the patient to the bacterin and then, by

applying the bacterial derivative, to the affected serosa, to produce a rather violent but selective inflammatory reaction sufficient to cause endothelial exfoliation and plastic exudation. On injecting hydrocele with moderate doses of tubercle bacilli, however, he had found that the preliminary sensitization was usually unnecessary, as in many instances a violent local reaction promptly occurred. In cases in which no reaction followed the first injection, a second injection within the sac, made about for days later, was almost invariably followed by a sharp reaction. In every case thus far treated he had found that with the subsidence of the inflammation the hydrocele disappeared; so that patients who had resisted operative or chemical injection were relieved by this simple procedure. Serous effusions in bursæ, such as housemaid's knee, miner's elbow, etc., he had found to likewise react to the injection. In ganglion the secondary reaction might be so painful that simple rupture, as by the back of a book, or incision was to be preferred. In effusions of the larger joints he had not as yet tried the method, fearing that the secondary reaction might produce ankylosis. In recurrent forms of hydrothorax it was of value, but the dosage should be accurately determined and used with caution, as the reactive capacity of such a large serous surface was great. In two cases of advanced hydrocephalus he had injected the lateral ventricles without any evident reaction or improvement. In indolent tuberculous sinuses he had applied the bacillin emulsion topically, or injected it into the granulation tissue lining the sinus, with advantage. Patients with tuberculous cervical lymph nodes were usually very sensitive to tuberculin, but, in his experience, violent reactions had never been harmful, and had often been followed by marked local improvement. For indolent caseous glands a local reaction (most intense within the gland capsule) was safe, and tended to precipitate a rapid softening and expulsion of the infected pulp, or absorption. With glands not so far advanced in caseation, injections of tuberculin at a distant point might be followed by rapid absorption. In a fairly extended experience with tuberculin injections in tuberculous glands of the neck he had seen no evidence of a resulting dissemination of the disease. The technique of the injections in hydrocele and other conditions was described, and a number of illustrative cases were cited.

The Tuberculosis Home Hospital Experiment.—Dr. P. BRYNBERG PORTER, New York, said that his paper referred to a specially constructed block of tenement houses, the "East River Homes," built by certain philanthropic persons and placed at the disposal of the New York Association for Improving the Condition of the Poor. The recent report of the association, presenting a statement of the methods, results, and comparative cost during the first year in the combined home and hospital treatment of families made dependent by tuberculosis seemed to be worthy of special attention, as the record of a new and interesting departure. In the East River Homes, under the general direction of Dr. Linsly R. Williams, now deputy State health commissioner, twenty-seven families, seventy-nine members of which were tuberculous, lived in sanitary homes, had ample sunshine and fresh air, good and abundant nourishment, freedom from undue work and worry, reasonable segregation, skilful medical care, and constant nursing supervision. After giving some of the statistics of the home hospital during the year, Dr. Porter said it was the belief of the association that the remedying of social ills is just as urgent as the cure of the tuberculosis, because, without rehabilitation, the family would continue to live under abnormal conditions resulting in recurrences and fresh developments of the disease. In every instance the families received at the homes had been forced into poverty, and some were wholly destitute. At the time of admission the average income of the six families which were discharged as rehabilitated was $6.42 a week, while when they were discharged their average income amounted to $15 a week. The results observed in the tuberculous patients compared very favorably with those met with in the best sanatoriums, and it was worthy of note that no new cases of the disease developed in any of the families. The cost of the treatment, as thus conducted, had been found to be less than that of institutional treatment, and if the same beneficial results should be obtained in the next two years, the association believed that it would have pointed out the way to an advance in the control of the disease of the greatest practical value.

Dr. LINSLY R. WILLIAMS, Albany, N. Y., said that it had been a gratification to him to learn that some notice of the work of the Home Hospital had been included in the proceedings of such a representative body as the American Therapeutic Society. It had seemed to the projectors of the East River Homes that if some combination for the benefit of the entire family could be worked out it would be a great gain. The question of the complete control of the tuberculous patient was the marked characteristic of the experiment, and one important point was to see that he was not overworked. Having referred to some of the special features in the construction of the buildings, he stated that the classification of the cases had been interesting. The adults were divided into three classes: (1) those with definite clinical signs, with tubercle bacilli; (2) those with definite signs, without bacilli; (3) those without any active signs. Altogether, he believed that this was an excellent scheme—one which was very hopeful, and which might be utilized with advantage in other cities.

Dr. POTTENGER said he could speak only with high commendation of the home hospital treatment of tuberculosis which had been inaugurated in New York. There was no class in which so large a percentage of cures could be secured as the poor. Every city, he thought, must solve its own problems.

Digitalis in Chronic Diseases of the Heart, with Special Reference to the Advisability of Its Continuous Administration.—Dr. LOUIS F. BISHOP, New York, said that however much the scientific knowledge of digitalis might be advanced, the adaptation of the remedy must always remain a matter of art. Fibrillation of the auricle and very serious valvular disease were the most frequent examples of cases benefited by the use of digitalis over periods of months and years without interruptions. In both conditions, when broken compensation had recurred two or three times, and been restored by digitalis after days of waiting for the desired effect, a state of well-being, without these dangerous attacks, could often be maintained by suitable doses of the drug taken continuously. The amount required was more or less a matter of experiment. In chronic auricular fibrillation a good rule was to keep the pulse about ninety, while in valvular disease it was well to keep the tonicity of the heart muscle at such a point as to insure a minimum amount of shortness of breath. A third type of disease in which the continuous use of digitalis was often indicated was the later stage, or, as he was accustomed to call it, the "digitalis stage," of arteriosclerosis; when there was a tendency for the high blood-pressure to change to a low pressure falling below the line of compensation. The use of so powerful an agent required constant supervision, and every heart patient should be seen at least once a month. If a time came when the digitalis would not act, this was not because the heart had become habituated to it, but because it was no longer able to respond to the remedy. There was no such thing as a digitalis habit. There were many persons whose lives depended upon digitalis, and the drug might finally produce a true strengthening of the heart.

Parageusia and Its Treatment.—Dr. THOMAS F. REILLY, New York, said that the term parageusia had been coined by Varden, in 1889, to cover the complaint of bad taste experienced when there was no material in the mouth to account for it. He believed that most physicians had so long associated bad taste in the mouth with digestive disorders that they had been overlooking the fact that it is quite often an expression of diseased conditions other than those originating in the gastrointestinal tract. His attention had been first directed to the matter about a year ago while studying a group of patients who had various disorders of this tract associated with high arterial tension and the complaint of bad taste. Since then close questioning of all patients affected with high arterial tension with other evidences of nephritis had practically always revealed the presence of persistent bad taste. In the early stages of chronic interstitial nephritis the patient had this symptom only on rising in the morning, and in this it closely resembled the suboccipital headache so characteristic of early nephritis. In general, the prognosis seemed to be worse the more constantly the bad taste was present. In many instances this had been the only symptom complained of, and the speaker said he would suggest, as a working rule, that when a patient (particularly a person of forty-five or over) came complaining of persistent bad taste, a blood-pressure examination should be made at once. This sign often preceded the appearances of other symptoms by a month or more. In the cases associated with flatulence bromides acted better than anything else.

In those without flatulence, digitalis, either alone or with hydrochloric acid, had produced the best results. The vasomotors, such as nitrites, had not caused any improvement. In a few cases diuretics of the diuretin type had answered well. Next in frequency he had found this complaint associated with gallstones and cholecystitis, and in most instances the taste was described as bitter, like gall, though in a few cases it was like musty eggs. This gall taste had been practically always present in cases of drainage operation of the gall bladder, and it persisted as long as the bile drained. In several cases of catarrhal jaundice it had been noted from three days to a week before the appearance of the jaundice. In the bad taste observed in acute digestive disorders calomel, followed by rhubarb and soda, was generally all that was necessary; occasionally, hydrochloric acid answered better. In the bad taste noted in some cases of pulmonary tuberculosis during the latter part of the day, antipyretics of the coal tar series might be of service, though this was rarely the case. The bitter taste sometimes associated with coryza was occasionally relieved by adrenalin spray. Oftener there was a complaint of no taste, or that everything tasted the same. In acute rheumatic fever a disordered taste, bitter or acid, appeared to be present in about 60 per cent. of the cases. Kleiner had described this, and thought the salicylates relieved it. In two cases of pernicious anemia a persistent bitter taste had preceded the other clinical symptoms by six and eight months respectively. The bitter taste often complained of by decompensating cardiac patients was analagous to that observed in nephritis, and could usually be lessened by digitalis and diuretics. Patients with arteriosclerosis sometimes complained of an inversion taste—salty things tasting sweet. Having referred to the tastes observed to a greater or less extent in diabetes, hysteria, neurasthenia, pregnancy, gastric and duodenal ulcer, and cancer of the stomach and uterus, the speaker said that in disease of the central nervous system anomalies of taste occasionally occurred, and were often due to syphilis of the part. As the result of a year's close questioning of patients on the subject he was convinced that persistent bad taste in the mouth was a symptom of much importance, that it was always an expression of a serious toxemia, and that it was frequently of very great service in the early diagnosis of disease.

Some Problems in Genetics.—Dr. THOMAS E. SATTERTHWAITE said that as physicians we were especially interested in those phases of genetics which have to do with the propagation of normal human beings and of the abnormal through procreation. Though, for various reasons, the principles laid down by Lamarck, Darwin, Mendel, Galton, Davenport, and others, were not as applicable to human beings as to the lower forms of life, they might properly be utilized as bases for solving problems bearing on the legal regulation of marriage and the propagation of hereditary diseases. The history of the notorious "Jukes" family gave an instructive picture of the appalling consequences of improper matings. The history of the Kallikak family was even more instructive, as it contrasted the results of unfit with fit matings. Other somewhat similar family histories had been published, but even from the facts in these two the conclusion was plain that such calamities should in some way, if possible, be prevented, for the protection of society. Again, there were, as was well known, many infirmities which might be inherited, such as epilepsy, chorea, deaf-mutism, and various mental disorders. Karl Pearson, indeed, had claimed, from his study of statistics, that no less than 75 per cent. of all deaths were due to inherited diseases. Taking up some of the salient points concerned in heredity, the speaker cited the Mendelian laws, and said that these had been tested with reference to the feeble-minded by Goddard, as to the epileptic by Davenport, and as to insanity by Rosanoff. The last-named had further defined six possibilities with respect to the inheritance of either a neuropathic or normal constitution, in general accordance with his interpretation of Mendel's laws; and he had asserted that about two-thirds of all the patients admitted to insane asylums had inherited the neuropathic constitution. That the converse of this was true had been shown in a very striking manner by tracing the descendants of the distinguished theologian, Jonathan Edwards, as given by Walter. It was a matter of satisfaction that eugenics had taught us how a defective strain could be gradually minimized by selective matings, at least so far as physical and mental traits were concerned. The gonococcus might produce a systemic disease of great danger to life, while the spirochete of syphilis remained a powerful agent for infection even in the third stage; and it seemed as if the degree of infectivity in the venereal diseases, as with alcoholics and drug habitues, was proportionate to the morbidity of the one who transmitted the disease. Consequently, it was only reasonable that persons wittingly transmitting the venereal diseases should be amenable to the law. More than this, in extreme instances it was for the common good that such persons should be debarred from procreation. There could be no doubt that sterilization laws, if designed to prevent propagation by confirmed criminals, idiots, imbeciles, and rapists, indicated progress in the right direction. To what extent these laws had been carried out he had been unable to discover. They had certainly met with great opposition within the ranks of both the medical and legal professions. The question was a medico-legal one, and legislation in this matter must appeal to our intelligent judgment—must be reasonable in a legal sense. Many of our legislatures had also passed laws regulating marriage, and the public might be counted on to urge action in States where there were as yet no such laws. At present such legislation was to a large extent ineffectual, because the contracting parties could easily cross over into adjoining States or Canada; but eventually public opinion would be aroused by the evasion of the law, and would make its verdict felt in an unmistakable manner. Unfit marriages, as had been intimated, were not only a direct outrage to the offspring, but indirectly a crime against society, when as a result of them the unfit were born into the world. To make laws in conformity to present knowledge and requirements, and then to alter them in the face of new or special conditions, as might be desirable for the public good, was sound legislation. We should remember, however, that there ought to be no over-regulation of marriage. At all events, there should be no ill-considered, hasty, or unpractical legislation, such as the recent Wisconsin law, which had broken down from the weakness of its medical side. Indeed, all legislation in medical and sanitary matters should first be passed upon favorably by the medical organizations affected, in general or specifically, by the legislation proposed. Without being either a neurologist or a psychologist, he would venture to say, in conclusion: (1) While human eugenics is still imperfectly understood, there are certain principles bearing on the transmission of traits by propagation which are tolerably well established. (2) These principles should first of all be popularized, so that the adult portion of society will realize the importance of fit and the dangers of unfit matings. With an aroused public appreciation of these matters, appropriate legislation would sooner or later follow, and be made effective. (3) Uniform laws as to the regulation of marriage should be urged in every State, as well as laws to prevent the transmission of diseases by diseased persons. (4) While the motto *Salus populi, suprema lex*, is true, legislators should advocate only laws which will accomplish satisfactory results without an unreasonable curtailment of personal liberty. (5) There is urgent need of further researches in the field of eugenics, in order to clear up misapprehensions and so allay criticism as to its civic value; but, as this work would necessarily involve the services of special medical experts, expenditures of large sums of money, and unusual facilities, it should be relegated to the States or the general government, which could provide the men, money and opportunities and accomplish the most at the least expense. Reports from such sources would serve admirably for bases for the framing of appropriate laws, or for the amendment of those which have proved to be unsatisfactory.

Dr. EDWARD D. FISHER, New York, said that at present we were simply on the threshold of this matter. He would certainly question the correctness of the Mendelian theory, and we did not know enough to pass intelligently upon many of the legal measures [illegible] had been proposed; while if such statutes [illegible] enacted it would not be possible to carry them out as would be desired. As to sterilization, we could not get it applied in the State of New York. Practically, it would be very difficult to decide who should and who should not be sterilized. In this question of genetics there would always be two parties, the believers in heredity and the believers in environment.

Dr. SPENCER L. DAWES, Albany, said that undoubtedly all were in accord with Dr. Satterthwaite as to the desirability of improving present conditions, but personally he agreed to some extent with Dr. Fisher.

The facts recorded in the history of the "Jukes" family were very doubtful, and many of the statements of Rosenoff entirely unreliable. Of the patients in the New York State Hospitals for the Insane, no less than 45 per cent. were foreign born. Dr. Dawes then gave some further statistics of these hospitals.

Dr. CHARLES E. WOODRUFF, New York, said it was well known that in this country the Irish, who were of the blond type, were three times as prone to tuberculosis as the dark Hebrew. It was a fact that to-day there was not to be found a single representative of the Spartan or of the Athenian type, which had been established with so much forethought and care.

Dr. SATTERTHWAITE said that the figures given in the history of the "Jukes" family were not accepted by many. For this reason he had called attention to them, and endeavored to get at the motives which prompted their compilation. He thought they ought to be subjected to a rigid scrutiny by either the New York or national authorities.

Dr. WOODRUFF said he thought environment, not heredity, was the principal element to be considered. If the criminal had been subjected to good influences he would have been an orderly member of the community, though very likely deficient in intellect. He had an idea that it was the "good" families which were sending the most people to prison. As to the sterilization of those who were known to be liable to transmit imbecility, etc., he believed it to be a social necessity.

Dr. REYNOLD WEBB WILCOX, New York, said that what Col. Woodruff had stated about families was true. Those who had looked up the history of the "Jukes" family had selected the black sheep, and those recording that of the Edwards family had gone into it for the purpose of picking out the good members. Jonathan Edwards' first wife had been so bad that he finally had to divorce her; yet it was a fact that all the children of this bad wife were good and accomplished, while all the children of the second wife, who was of unblemished character, were mediocre. The criminals often came from the normal families in the community. The families of the four gunmen recently executed at Sing Sing were not criminals. There was one class of persons which had not been fairly treated, namely, the feeble-minded. It was rightly held that these unfortunates ought to receive the same care as the insane and the imbecile; yet it was a fact that in the State of New York only 4,000 out of the 19,000 in the State were now under custodial care. He believed that this society should recommend such legislation as would correct this condition.

In accordance with Dr. Wilcox's suggestion a motion was made and carried that a committee should be appointed to consider the advisability of the society's taking action in regard to the feeble-minded, and report at the next annual meeting.

Saturday, May 30—Second Day.

Diagnosis and Treatment of Diseased Conditions of the Cecum.—Dr. G. REESE SATTERLEE, New York, said that diseased conditions in the region of the cecum could often be distinctly classified and should be carefully studied before resorting to operation, as they were too frequently considered under the head of what might be considered a complication or sequela, appendicitis. Appendectomy, although it might be necessary, did not cure or even relieve the condition. When the cecum had a mesentery it was loose and freely movable, and had been termed "cecum mobile" or "loose typhlon." Many cases of dilated residual cecum and intestinal stasis gave symptoms resembling ulcer or adhesions of the duodenum, ulcer of the stomach, pyloric stenosis, and gallstones. The cecum had been aptly called the "second stomach," the close connection between the two being explained by their intimate relationship through the sympathetic system. Pain from lesions in the region of the cecum was often referred to the stomach, and vice versa. This close relationship was illustrated by the frequency of stasis in the stomach with dilated residual cecum, without any gastric, duodenal, or gall-bladder lesion. Close attention to these cases would often show the typical signs of cecal disease, a ballooned, tender cecum with thickened walls, and evidences of intestinal stasis. It was rare, he thought, to find this condition complicated by gastric or duodenal ulcer. A thorough *x*-ray examination of the whole gastrointestinal tract was necessary in every case. Radiographs with bismuth injection of the colon should be employed to prove apparent lesions in the cecum or colon. This was an excellent way to corroborate cecal stasis. Chronic appendicitis was often present, its symptoms overshadowed by the intensity of the other lesions. Constant tenderness over a large area to the left, with persistent constipation, indicated cecal disease rather than appendicitis, which usually gave a history of distinct attacks of pain, nausea, and vomiting. Symptoms of intestinal obstruction in this region pointed to adhesions or Lane's kink, intussusception or volvulus; which might sometimes be differentiated by the *x*-ray, though otherwise only at operation. The medical treatment of the dilated, ptosed, and sluggish cecum consisted in the relief of the ptosis by means of properly fitting abdominal supports, elevation of the foot of the bed to the point of tolerance, and massage and vibration with the object of increasing peristalsis and emptying the cecum and colon; with diet and hygiene and occasional doses of castor oil and colon irrigations with normal saline and ichthyol solutions. Russian mineral oil, taken regularly, had given excellent results. The free drinking of water was encouraged. Autogenous colon vaccines, made from cultures from the patient's stool, would relieve the autotoxemia and sometimes move the bowels. Among surgical operations which might be used was suspension of the transverse colon, which elevated the cecum. In conditions apparently leading to obstruction, short-circuiting, colostomy, or even ileostomy or colectomy were indicated. Plication of the cecum, with suspension of the cecum and, when indicated, of the sigmoid, had been successfully employed by others, and in a few instances by himself. The principal point was to do a thorough operation and leave no cause for hernia or obstruction. Diverticula and malignant and tuberculous growths should, of course, be removed. In cases with operation, as well as those without, autogenous colon vaccines had, in his hands, been of much service in relieving the autointoxication. Milk fermented by lactic acid bacilli was also a valuable aid. Included in the paper were reports of illustrative cases and many *x*-ray plates were shown.

The Medical Treatment of Intestinal Stasis.—Dr. REYNOLD WEBB WILCOX said that the fundamental cause of this conudition had become effective when *homo sapiens* became differentiated from the other primates and assumed the upright posture. From the standpoint of the physician the causes which could be remedied resolved themselves into four categories: 1. Insufficient peristaltic action of the intestinal wall. 2. Errors in diet. 3. Dryness of the intestinal contents resulting from deficiency in the secretion of the intestinal fluids, especially the bile. 4. Weakness of the muscles of the abdomen due to overstretching from various causes. Undoubtedly, partial stenosis of the bowel caused from within or without by the pressure of displaced organs, abdominal effusions, and peritoneal bands or adhesions interfering with the normal passage of fecal matter belonged to the surgeon. The diet should consist of substances which leave behind a considerable undigested residue, such as bran or agar-agar, to which should be added fruits and green vegetables. Agar-agar, to be effective, required, in addition, two grains of the extract of rhamnus purshiana every second night. In artificially fed infants care should be taken that the proteid content should be kept comparatively low and the fat be given in sufficient quantity, so that in later life the conditions favoring stasis and secondary toxemia might not be produced. Decomposing and fermentable foodstuffs and cold storage foods in general, and especially poultry and game, were to be avoided. Insufficient peristaltic action was to be combated by observing a regular time for evacuation, by the use of various "setting up" exercises, and, whenever possible, engaging in athletic sports. The use of 1/50 grain of physostigmine sulphate, with 1/30 grain of strychnine sulphate might sometimes be necessary. Dryness of the intestinal contents could be obviated by the use of several glasses of water at various times between meals, but the habitual taking of laxative mineral waters was to be avoided. From time immemorial oils had been employed, partly for direct laxative results, partly for action upon the bile, and partly for mechanical purposes. Of late the white Russian mineral oil had had considerable vogue as an agent for preventing intestinal putrefaction and absorption of toxic products and for softening the intestinal contents. In practice, the petrolatum liquidum of the pharmacopeia was very satisfactory. When administering it continuously it was well to give about once a week five or ten grain doses of calomel, followed by two drachms of Rochelle salt in artificial vichy water the next morning. It was a matter of experience that after a time a much smaller

dose of the oil was equally effective. High colonic irrigations, at a temperature of 112° F., administered once or twice a week by an expert nurse, might be substituted for calomel. Weakness of the abdominal muscles called for massage, manual percussion, and the faradic or induced static current. As to the various ptoses, it should not be forgotten that although they were merely isolated features in the etiology they required attention. After proper instruction and with careful attention to detail, suitable abdominal supporters, the Rose plaster belt, or the Gallant corset could be readily applied by the physician, with much benefit to the patient. Whether we might go so far as Lane would have us, and attribute to intestinal stasis and its resulting toxemia the many and diverse end results which we had hitherto regarded as distinct clinical entities, was not at present determined. If these radical opinions were finally accepted, a revision of our nomenclature would certainly be in order. Clinically, however, the results were undoubted. As to mechanical causes of stasis such as Jackson's membrane, Lane's kink, Morris's cobwebs, and Codman's drag, the physician believed these to lie well within the province of the surgeon, but, as even these structural defects might and did exist without giving rise to symptoms, he would agree with Morris in his statement, made at the last meeing of this society, that we should reserve operation for those cases in which really good and proper medical resources had been applied for a sufficient length of time without giving a high degree of relief.

Dr. Oliver T. Osborne, New Haven, Conn., said that among the students at Yale he saw a very large number of patients in the early stages of appendicitis or of inflammation in the region of the appendix, and that these cases were constantly on the increase. He had wondered whether they were due to athletics or to conditions incident to the students' being obliged to be in chapel every morning at 8:10. Their hasty breakfast usually consisted largely of oatmeal, taken with sugar and cream or milk, and they had no time to go to stool afterward. Chronic constipation developed, and this was no doubt the cause of the attacks he had observed.

Dr. Zueblin cited a case to show how extremely careful we should be in our interpretation of *x*-ray findings. In chronic constipation, simple medical treatment, he said, was often not sufficient, and he had found that vaccines might be of great service.

Dr. Babcock said it was a fact that many of these cases which could not be relieved by support, internal treatment, etc., might be favorably affected by means of vaccines. There was a class of old colon affections following typhoid fever which got well when they were treated with antityphoid vaccine. He had had two cases which were relieved by the use of colon vaccine.

Dr. Woodruff said that Dr. Satterlee's paper had shown still further the admirable results accomplished by vaccines. At the same time, we should not neglect to consider the cases in which they were liable to do harm. During the past two years his attention had been drawn to quite a number of cases of tuberculosis and other serious disease following antityphoid vaccination. He then cited instances of this, but stated that he had no wish to discourage the proper use of vaccines. They had done wonders, and he himself was advising them in suitable cases. In his own person, when he was suffering from general furunculosis, the results from them had been phenomenal. A vaccine would do exactly what the original disease would, and as to the length of the immunity conferred in any instance, this would depend upon the disease. If a disease itself produced a lasting immunity, we could rest assured that its vaccine would do the same. Thus, the Jenner vaccination, if properly done, undoubtedly protected the individual against smallpox for life. The immunity produced by antityphoid vaccine, he thought, would last at least long enough to enable a soldier to go through a campaign protected against typhoid.

Dr. Satterlee said he believed Lane was right in attributing ulcer and cancer largely to intestinal stasis, and that if we could eliminate intestinal conditions such as some of those he had described in his paper we would have a much smaller number of these affections to deal with. He thought the *x*-ray a very valuable aid to diagnosis. At all events, by means of it we could find out if a patient had enteroptosis, and these stasis cases could be divided into those with enteroptosis and those without.

Dr. A. Ernest Gallant, New York, said that if a person used bran regularly as an article of diet he would not have any trouble from Lane's kink. For the best results it was necessary to employ an absolutely pure bran, one sterilized by a temperature high enough to destroy any fungi.

Dr. Reilly said there was to be had a bread, composed largely of flaxseed and crushed cereals and producing the same effect as bran, which acts very satisfactorily.

Dr. Bishop said it seemed to him that in all the discussions on intestinal stasis he had heard the mechanical factors had been brought too much to the foreground, as though the intestinal tract were an inanimate tube. The intestine, by its peristaltic action, passed over the material in the tube and what we were dealing with in this condition was often not so much a physical obstruction as a matter of motility. In the treatment we should use a suitable dietary and also something for the relief of spasm caused by proteins.

Dr. Morris said that these patients were mostly neurotic. One of the worst possible cases of asthma he had cured by shortcircuiting.

The Use of Horse Serum for the Prevention of Hemorrhage in Nose and Throat Operations.—Dr. Clement F. Theisen, Albany, said that in a previous paper he had published a series of cases of hemorrhages after tonsillectomy and other operations in which, after the failure of other methods, the bleeding was controlled by injections of blood serum. In the series of cases on which the present paper was based the serum was used before operating, when it was expected that there would be an unusual loss of blood. The injections were given when from a history of cases of severe hemorrhage in the patient's family or of severe spontaneous hemorrhages in the patient himself such a result was to be anticipated, and they were given irrespective of the coagulation time before operating. It had been recognized that the coagulation of the blood was dependent on the action of thrombin, the so-called fibrin ferment, but Voetglin and Macht had recently isolated from the blood and the adrenal cortex a new vasoconstrictor substance, and it was quite possible that the action of the serum was due to this. In his own observations the coagulation time had been estimated by the coagulometer of Russel and Brodie, as modified by Boggs. In the eight cases of his series reported in the paper the average coagulation time before injection of the serum was 5.18 minutes and after injection 4.12 minutes, making an average decrease in coagulation time of 1.06 minutes. When the serum had been used before tonsillectomy in a subject of the hemorrhagic or hemophilic diathesis the operator left his patient with a feeling of much greater security. Judging by a search of the literature the much-talked-of danger of anaphylaxis was practically nil, when as in his cases only one injection of serum had to be used. Dr. Theisen said that no claim was made in his paper that blood serum was infallible. It had, indeed, been successful in his hands, but in some cases it might fail.

Dr. Osborne said that before using diphtheria antitoxin we should try to find out whether or not the patient was susceptible to horse emanations and the like.

Dr. Reilly said that various undesirable phenomena following the use of diphtheria antitoxin were sometimes improperly attributed to anaphylaxis. In the hemorrhages occurring in the course of chronic interstitial nephritis horse serum had not proved of any benefit.

Dr. Zueblin said that after the use of diphtheria antitoxin he had observed very severe and even fatal anaphylaxis. He would like to emphasize the desirability of employing the serums of different animals in the hemorrhages occurring in typhoid fever and other diseases. Personally he had used that not only of the horse but of rabbits, guinea pigs, and other animals. In the hemorrhages of typhoid he thought serum injections might prove of great service.

Dr. Stewart said he had had the opportunity of seeing some of the alleged cases of anaphylaxis after the use of diphtheria antitoxin and he thought it very unfortunate that there should be such a scare about the matter. Practically all the deaths from anaphylaxis had been due to lethal doses of the antitoxin. In France it was now customary to give a preliminary dose for the purpose of sensitization.

Dr. Rudolf said he had tried a great many agents for controlling hemorrhage, and he believed that the coagulation time of the blood was shortened more effectively by hemorrhage than by anything else. During the past winter he had had two cases which had illustrated this. One was a case of thoracic aneurysm and the other of abdominal aneurysm, and in the latter instance the patient had been bled three times, and on

each occasion the coagulation time of the blood had been greatly shortened. It was usually advisable to draw about fifteen ounces of blood.

Dr. THEISEN said that before using the serum he always tried to ascertain whether the patient was susceptible to horse emanations. Young subjects did not present this idiosyncrasy. His use of serum was for the *prevention* of hemorrhage, as a cautionary measure preliminary to operation, and he employed it only in cases where the history showed a predisposition to hemorrhage. His experience with the use of horse serum had convinced him that it was a most valuable addition to our resources for the control of hemorrhage. He agreed with Dr. Stewart that the published reports about anaphylaxis after diphtheria antitoxin had done much harm.

The Action of Pituitrin upon Acute Heart Failure and Uncompensated Heart Lesions.—Dr. ERNEST ZUEBLIN said that, impressed by the valuable results from pituitrin in obstetrical and gynecological work and by the marked physiological action of this agent upon unstriated and striated muscular fibers, he had undertaken a clinical study, especially in cases where, with a failing heart, immediate action became necessary. He gave reports of six cases and stated that from his observation, although two of them terminated fatally, it would seem that pituitrin was applicable in desperate cases.

Dr. RUDOLF said he was convinced that adrenalin and pituitrin exhausted the reserve power of the heart. In acute conditions there was plenty of reserve to draw upon, but such was not the fact in terminal cases, and such agents might kill very promptly. Therefore he believed that they should be used only in emergencies and when there was plenty of reserve power.

Dr. OSBORNE said he had used pituitrin frequently in the past two years and was convinced that it was a very valuable remedy. He would question the propriety of giving adrenalin and pituitrin in the same injection, as the former would quite overbalance the latter.

Inter- versus Intra-Menstrual Obstruction-Retention: A Résumé of 252 Cases, with Especial Reference to the Relatively Greater Importance of the Former in Causing Utero-Pelvic Disorders and Infections.—Dr. A. ERNEST GALLANT said that at the meeting of the society in 1909 he had presented a résumé of 185 cases of therapeutic drainage in uterine obstruction. Since that report, up to January 1, 1914, he had had occasion to drain sixty-seven additional cases, making a total of 252 cases treated by this plan. He gave the following summary of his views on this subject: 1. Normally the menstrual blood condenses in the passive uterus and escapes drop by drop or trickles from the os externum in a bright-red intermittent stream without the occurrence of malaise, pain, headache, or any kind of reflex manifestation. 2. Obstruction may be caused by fibrosis, cicatrization, flexure, or neoplasm of any kind affecting the cervical canal or involving the lower uterine zone. 3. Obstruction is primarily an intermenstrual condition which (a) causes retention of mucus, etc., within the uterus; (b) retards the outflow of menstrual blood; (c) shuts in the dangerous remnants after abortion and labor. 4. Obstruction excites the uterus to laborlike activity and brings about hypertrophy of the wall, enlargement of the cavity, increased weight, and an abnormal condition of the mucous membrane. 5. Obstruction during menstruation causes cramps, backache, headache, and other reflex pains; obstruction between periods forces infection into the tubes and results in peritonitis, tubal pregnancy, salpingitis, etc., and by thus obstructing the tubes is the most common cause of sterility. 6. Obstruction may be remedied by dilatation, drainage, replacement, pessary support, or suspension of the uterus. 7. Continuous efficient drainage can be secured only by the use of a drain which will permit the cervical mucus to pour into the drain, mingling with the secretions, and will prevent clotting and plugging. 8. To prevent recontracture of the internal os or return of anteflexion the drain must be of rubber, fenestrated or perforated, and must remain in position for six months or more. 9. Experience teaches that except for the removal of detached secundines or placenta curettage is unwise.

The Application of Some Muscular Tissues Adapted to Physiological Standardization.—Dr. F. E. STEWART and P. S. PITTINGER, Ph.G., Philadelphia, were the authors of this paper. At the meeting of the society last year they had presented the results of their investigations into the subject of standardizing ergot by means of its effect upon the isolated uterus. Their present report was largely devoted to researches looking to the standardization of pituitary extracts. They first employed the blood-pressure method which they had previously used in the case of epinephrin, but finding this unsuitable they had resorted to the isolated uterus method, as with ergot, and had found it even more satisfactory than in the case of ergot. Dr. Stewart said they had found pituitary extract a very powerful drug, and it was extremely desirable that there should be some standard of strength for it.

Auricular Fibrillation: Its Diagnosis and Treatment.—Dr. WILLIAM KIRK, Troy, N. Y., said that auricular fibrillation occurred in many forms of cardiac disease but was most common with mitral stenosis and in hearts which were the seat of cardiosclerosis. To the papers of Mackenzie we were especially indebted for the observation that in all cases of complete irregularity of the heart there is entire absence of sighs of the normal auricular contraction during diastole. The pauses between the beats bore no relationship to one another, and in this feature the irregularity stood in marked contrast to all other varieties. The second criterion consisted in the absence of a definite and continual relationship between the strength of the beat and the length of the pause, and a weak beat might succeed a long pause. The question had been raised as to whether the ventricular form of venous pulse could be recognized by means of the unaided senses. He believed that it could be a very large number, in fact the majority, of instances if note were taken of conjoined phenomena, and the first essential was the finding of an irregular pulse. In early and compensated cases, however, the pulsation was rarely recognized by ordinary means, for in such the visible pulsation was usually complex. Resort then had to be made to the graphic method, and by this a venous tracing might often be secured when no venous pulsation could be seen. The general practitioner unfamiliar with the instruments of precision used in the graphic method might recognize the presence of auricular fibrillation ordinarily from a persistent irregular pulse, the rate of which was at or about 120 (which would be almost positive evidence for the diagnosis), and the occurrence of a deficit between the rate of the apex and the radial pulse—a characteristic met with in practically every untreated case. In the treatment the first consideration was the removal of the exciting cause, such as overwork or digestive trouble. Digitalis acted as a specific in a very large proportion of cases, and the guides which rarely failed the physician as an index for the amount of the drug required were the irregularity of rhythm and rate in the heart's action and the deficit between the apex beat and the radial pulse. The choice of a preparation was, in his opinion, largely a matter of taste, provided the one used was known to be effective. Personally he believed there was none superior to the tincture, and he had found that supplied by good manufacturers remarkably constant in quality. It had been his custom to employ a standardized tincture or fluid extract, or the fresh infusion of the green leaves. When the pulse had been reduced to 60 or 70 and the apex beat coincided with the rate of the radial pulse it was wise to discontinue the digitalis for a time and then begin again with smaller doses, or else to continue with smaller doses in order to enable the heart to do its work with the greatest efficiency. The following indications were sufficient to warrant either the discontinuance of the drug or the diminution of the dose: the occurrence of severe headache, with or without nausea and vomiting; the dropping out of ventricular systoles (partial heart block); the occurrence of bigeminy which seemed to be continuous.

Dr. SATTERTHWAITE said that auricular fibrillation was not an uncommon condition. He agreed with the author of the paper that generally it could be recognized. The graphic method showed it absolutely. This method was the one thing which had restored the sphygmograph to use. The latter had been discarded because it did not show the different forms of valvular disease. It did, however, show the difference between the cardiac and the radial pulse. As regards treatment the only point on which he disagreed with Dr. Kirk was concerning the preparation of digitalis to be used. With its glucoside, digitalin, we did not have the gastric disturbances so often caused by the infusion. A good tincture was satisfactory, but unfortunately the tinctures supplied by the drug houses varied greatly. As to the prognosis the patient was kept in just the position in which the physician held him. The diagnosis having once been made the patient should be made to understand that he stood upon the brink of a precipice

and that he would die unless he obeyed instructions implicitly. He was of the opinion that in these cases the trouble had its seat in the myocardium, believing that there was a lithemic condition and undoubtedly a deposit in the heart. The great difficulty was that patients were apt to get tired of the treatment. They intermitted their medicine and they went off suddenly.

Dr. BISHOP said that as regards polygraphic tracings and their interpretation there were three points worth noting: 1. A polygraphic curve had nothing to do with a mathematical curve; it might be symmetrical or might look like a crooked line; one kind was just as good as the other for making a diagnosis. 2. The curve was simply a record of something which was taking place. 3. The important part of it was the beginning of the up-stroke; taking careful note of this we might disregard the respiratory curve, the shape of the curve, and everything else.

Dr. STEWART said that in digitalis there were at least four glucosides and some other principles about which at present we knew nothing. He thought digitalin ought to be standardized.

Dr. WILCOX said that the preparation of digitalis which best showed the action of the drug, as originally described by Withering, was the infusion. The chemistry of digitalis was extremely obscure. As to the sphygmograph he had made over 20,000 tracings with it. He had also made a special study of the six drugs of the digitalis group. There was in digitalis a substance which was centrally emetic, though the glucosides caused less gastric disturbance than the infusion. A practitioner, he thought, would get the best results from that preparation which he knew most about.

Dr. RUDOLF said that the manner in which digitalis acts in these cases certainly could not be interpreted in pharmacological terms. In the human subject its vagus action did not appear to any extent when the drug was given in physiological dose. In fibrillation it had a peculiar action on the ventricle, so that the latter responded to this storm which rushed down from the bundle of His.

Dr. REILLY said that sometimes digitalis seemed to fail, and we had another drug apocynum, which might then prove of service. The eclectics called it the "cardiac trocar." It was very irritative to the stomach, but did not act satisfactorily when given by the rectum.

Dr. KIRK said that ordinarily he had used the tincture and also the infusion of digitalis. The general value of the infusion had been impressed in the teaching of both the elder Janeway and his son. As to the glucosides not causing gastric disturbance it had been shown that some emetic effect was produced by any preparation of digitalis representing its pharmacological properties by reason of the central action of the drug. The great question in digitalis therapy was, he thought, in regard to the chemistry of the drug. He believed the fat-free preparations would produce more or less gastric irritation on account of their central effects. As to apocynum he had employed it with very good results when the patient did not have emesis.

Dr. WILCOX said it certainly had been conclusively shown that digitalis and its preparations had a central emetic action. The amount of the gastric irritation caused was a matter of degree, and less nausea resulted from the fat-free preparations than from the others.

Election of Officers.—The following officers were elected for the ensuing year: *President*, Dr. Francis M. Pottenger, Monrovia, Cal.; *First Vice-President*, Dr. Robert T. Morris, New York; *Second Vice-President*, Dr. Spencer L. Dawes, Albany, N. Y.; *Third Vice-President*, Dr. J. Madison Taylor, Philadelphia; *Secretary*, Dr. Lewis H. Taylor, Washington, D. C.; *Treasurer*, Dr. A. Ernest Gallant, New York; *Editor of the Transactions*, Dr. P. Brynberg Porter, New York; *Members of the Council*, Drs. Howard Van Reusselaer, Albany, N. Y.; Thomas E. Satterthwaite, New York, and J. Blake White, New York. Next place of meeting, San Francisco, Cal.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held May 19, 1914.

DR. JOSEPH C. ROPER IN THE CHAIR.

THE contributions of the evening were from the Second Medical (Cornell) Division of Bellevue Hospital.

History and Autopsy of a Case of Necrotic Bronchopneumonia Probably Due to a Streptococcus.—Dr. ROLFE FLOYD presented this report. The patient was a girl, 19 years of age, who at the time of admission to the hospital gave a history of having had an unexplained fever of two or three weeks duration. Examination showed a palpable spleen, no leucocytosis, and no localizing symptoms. On the fifth day in the hospital she was seized with a violent paroxysm of coughing and raised blood-streaked sputum. A patch of dulness, broncho-vesicular breathing, and subcrepitant râles were found at the angle of the right scapula. The patient continued to suffer from pulmonary symptoms until the time of her death, 58 days later. She had a persistent and violently paroxysmal cough with large and increasingly tenacious mucopurulent, and sometimes bloody, sputum without gangrenous odor. Eight examinations failed to show the presence of the tubercle bacillus, but toward the end of the illness a hemolyzing streptococcus was twice isolated in large numbers. The pulmonary signs were those of an extending bronchopneumonia with cavities later on. The temperature ran an irregular septic course. The pulse and respiration gradually rose. The leucocytosis varied, the maximum being 22,000. Blood cultures were negative. The autopsy, performed twenty-two hours after death, showed that the only important lesions were in the lungs. The upper right lobe was consolidated and its upper part honeycombed with small cavities with sloughing walls, and containing dark mucopurulent exudate. They all connected with bronchi. The general consolidation had a peculiar gelatinous appearance with small white spots in it. The right, middle and lower lobes showed many peribronchitic zones of consolidation. Elsewhere they were congested and edematous. The left upper lobe was in the same condition as the right with a single cavity under the nipple. The left lower lobe was like the right lower lobe. The bronchi were inflamed throughout their entire length and filled with mucopurulent exudate. Under the microscope there was found necrosis of most of the small bronchi, varying in degree, and sometimes invading the adjacent lung tissue, with resulting cavity formation. When there was no necrosis in the bronchiole the walls were densely congested and infiltrated with pus and their lumen was full of exudate. Some of the lung tissue showed ordinary consolidation, but extensive areas showed embryonal alveoli lined with cuboidal epithelium scattered through a loose areolar basement substance infiltrated with pus and round cells in foci. In all three typical miliary tubercles were found, but many sections stained for tubercle bacillus failed to reveal any.

DR. WARREN COLEMAN said that the chief interest in this case centered around the question of diagnosis. The patient had been in his service and had been followed very carefully; the diagnosis ultimately lay between tuberculosis and a bronchopneumonia of unknown origin. They could not discover tubercle bacilli in the sputum, yet cavity formation strongly suggested tuberculosis.

DR. ALFRED MEYER said that in about 1882 the medical profession was responsible for getting up a public meeting at Cooper Union because of the dirty streets of the City of New York, which were held responsible for the many cases of pneumonia which developed pulmonary gangrene or abscess in place of resolving. A similar case he saw but a few days ago at Mt. Sinai Hospital. The patient was moribund when seen by him. This was a case of lobar pneumonia involving the left upper lobe with beginning gangrene. The importance in this case was in recognizing the unusual physical signs presented. The area of dullness, almost flatness, extended beyond the ordinary pulmonary area, running across the episternal notch to the other side. In other words, there was a triangular substernal dullness, below the episternal notch, the sides of the triangle measuring about 1½-2 inches. The patient died shortly after. The autopsy showed that he had an enlarged lung which greatly encroached upon the mediastinum. The pathological examination was made a little less than two hours after death and the pathologist reported as follows: "The entire left pleural cavity was completely obliterated by friable adhesions. From apex to base the entire left lung, with the exception of a small area near the anterior edge, in both upper and lower lobes, was completely solidified and *very voluminous*. On section, the entire lower lobe and the anterior part of the upper lobe presented a very granular appearance and were brownish-gray in

color (gray hepatization). On section about two-thirds of the upper lobe consolidation was seen to be very much softened, and consisted of reddish-brown, semi-gelatinous material. It gave off a peculiar pungent odor. The right lung showed a small wedge-shaped area near the apex, the size of a walnut, which was in in the stage of red hepatization. There were also a few small calcified areas at the apex. The posterior part of the lower lobe showed moderate congestion and the entire right lung presented the appearance of an extreme degree of emphysema."

The Effect of the High Calory Diet on the Fecal Flora in Typhoid Fever.—Dr. JOHN C. TORREY presented this paper which was based on a study of the fecal flora of a series of typhoid cases, placed on the Coleman high calory diet. The following points were among those established: The intestinal flora, as revealed by an examination of the stools soon after the admission of the patients to the hospital, was not specific and obligate in type, but exhibited the same variations as would be encountered in a series of supposedly normal individuals. On a diet consisting of a daily average of 50 to 100 grams of protein, 75 to 100 grams of fat, and 250 to 300 grams of carbohydrate, including lactose, the intestinal flora tended to become converted into a fermentative, non-indol producing type. The degree of transformation depended largely upon the type of flora which was present at the onset of the disease. With a markedly putrefactive flora the change might not extend further than the elimination of the obligate putrefactive bacteria and a moderate development of the acidophilic types; while with a more favorable initial flora the change might be of so radical a type that the stools came to resemble those of the normal nursling in the dominance of the *B. acidophilus* and even to the presence of the *B. bifidus*. Such a flora was an obligate fermentative one and was not capable of forming indol and similar supposedly toxic products, under ordinary circumstances. Patients exhibiting an initial fermentative flora tolerated the high carbohydrate diet much better than those with a flora of putrefactive tendencies. In these patients, too, the disease ran a comparatively mild course. The typhoid bacillus was isolated from the stools of these patients on a high calory diet less frequently than has been reported in other series of cases in which the feeding has been less liberal.

Dr. WARREN COLEMAN said he wished to call attention to two points. This work furnished further evidence of the beneficial effect of feeding typhoid patients with large amounts of carbohydrates. Also the results explained why, occasionally, patients could not be successfully fed. From the very beginning of this work it had been found that the average patient could take up to 3,000, 4,000, or even 5,000 calories a day; exceptionally cases were met with who could not go beyond 1,200 or 1,500 calories without disturbances of the alimentary tract. Kendall's work upon the flora of the intestine in other diseases have suggested that the cause of this was to be found in a diminution of the acidophiles—Dr. Torrey's work had demonstrated that this was the case.

The Respiration Calorimeter in Nutritional Work.—Dr. GRAHAM LUSK presented this paper. He stated that the methods and results of the experiments of Lavoisier published in 1789 were the beginnings of modern work upon nutrition. Rubner first demonstrated that the heat produced in the organism was entirely due to the oxidation of carbohydrate, fat, and protein. Atwater who had worked in Voit's laboratory in association with Rubner organized the forces which produced the first respiration calorimeter for use with man. In this he received the invaluable assistance of Rosa. This work was now being continued by Benedict in Boston. About five years ago Williams began the construction of an Atwater-Rosa-Benedict respiration apparatus for the physiological department of the Cornell University Medical College, for use in determining the heat production of dogs or babies. Williams added devices which improved the sensitiveness of the apparatus. The results were so satisfactory, that the writer, after obtaining from Benedict the verbal statement that he did not desire to construct a calorimeter in a hospital, sought funds for the construction of such an appartus for use in Bellevue Hospital. The income of the Russell Sage Institute of Technology was obtained for this purpose. The apparatus cost $5,000 and each experiment cost about $100. The principle involved was that the *basal metabolism* as measured by the heat production in the morning, twelve to eighteen hours after food ingestion, was constant, and almost the same in adult individuals of the same weight and of normal shape. In the same individual, Loewy stated that the basal metabolism might not vary 10 per cent. during a period of 20 years. The basal metabolism was increased by work and by food ingestion. The factor of work was excluded by the patient lying quietly upon a comfortable bed. It was the province of the apparatus to determine how far the basal heat production and therefore fuel need of the organism departed from the normal under the influence of disease, how the ingestion of food affected the heat production in disease, and how therapeutic measures might modify the intensity of the pathological disturbances. Dr. DuBois would present some of the observations which he had made along these lines.

The Respiration Calorimeter in Use in the Clinic.—Dr. EUGENE F. DUBOIS presented this communication in which he stated that for therapeutic and diagnostic purposes it was frequently necessary to determine exactly the energy requirement of certain patients. Knowing the total metabolism or total heat production one could regulate the amount of food so that the patient would neither gain or lose weight or body tissue. In this way one could maintain the proper nutrition without overtaxing the stomach, the kidneys, or perhaps the oxidative powers of the tissues. The method at present in use was to weigh the man and to calculate the basal or fasting heat production of a normal man of the same weight, using a figure between 27 and 22 calories per kilogram per day. To this would be added 10 per cent. for the increase in metabolism caused by the ingestion of food, 10 to 20 per cent. for the activity of the patient in reading and sitting up in bed, and perhaps an added percentage if the patient were suffering from some disease which increased the metabolism. This method was of necessity inaccurate because it involved so many guesses. A very great amount of work on the normal heat production and the influence of various factors had been done by many observers. A closer study of the individual factor was made possible by the perfection to which the respiration calorimeter of the Atwater-Rosa type had been developed by Benedict and by H. B. Williams. The respiration calorimeter of the Russell Sage Institute of Pathology was situated next to the small metabolism ward of the Second Medical Division of Bellevue Hospital. It resembled Benedict's bed calorimeter but was somewhat larger to give the patient more space. In spite of its large size, it was accurate within 5 per cent. in hourly periods and within one to two per cent. when the observation was prolonged to three hours. This accuracy had been tested repeatedly by alcohol checks. When a known amount of alcohol was burned within the calorimeter, the oxygen consumed, the carbondioxide, the water, and the heat produced, as calculated from the chemical composition of the alcohol, agreed almost exactly with the actual measurements. Even more striking was the fact that in the total of the observations so far calculated the methods of direct and indirect calorimetry agreed within 1.4 per cent. The method of direct calorimetry depended upon the measurement of the actual heat of radiation, conduction, and vaporization. The method in indirect calorimetry depended upon the determination of the carbondioxide produced and the oxygen consumed. Knowing these two factors and the nitrogen of the urine, it was possible to determine the grams of carbohydrate, fat, and protein actually oxidized. These two methods of measuring the total metabolism agreed within five per cent. in three-fourths of the observations, and would agree even more closely were it not for the difficulty in measuring the average temperature of the body. In hourly periods the method of indirect calorimetry was more accurate. The experimental procedure was simple. After a few trials in order to become accustomed to the calorimeter, the patient, on the morning of the observation was placed in the calorimeter without having had breakfast. The box was sealed at about half-past ten; the observation began at eleven, and was finished by one o'clock. Longer observations were made when the effects of different foods were being studied. The box was maintained at a constant temperature and the ventilation was good. The patients refused to believe that the calorimeter was not of therapeutic as well as of diagnostic value. This was probably due to the fact that of the twenty-five patients who had been in the calorimeter there was not a single one who was not better now than before he was in the calorimeter. This was largely the result of good fortune aided perhaps by careful dieting in accordance with the information ob-

tained from the calorimeter. It was easy to determine the total metabolism in a group of cases, but it was difficult to know just how to compare them with normal individuals. The heat production of a number of normal men had been determined and had been added to the group results obtained by Benedict in his calorimeter. If the subjects were arranged according to weight and the results were expressed in terms of calories per kilogram per day a curve was obtained which fell steadily as the weight increased. On the other hand, if one expressed the results in calories per square meter of body surface, the average would be the same for persons of different weights, although the different individuals might vary 10 per cent. above or below the average. It was for this reason that they compared all the results with the normal average figure of 34.4 calories per square meter. The disease studied most thoroughly was typhoid fever. Working with Dr. Warren Coleman, he had been able to continue the observations begun with the small respiration apparatus and to study in greater detail the fasting metabolism and the effects of large amounts of food. The fasting metabolism in typhoid fever might be 40 to 50 per cent. above the normal and the metabolism after large amounts of carbohydrates and protein was scarcely raised at all, whereas in normal individuals there was an increase of from 10 to 17 per cent. caused by the same amount of food. Seven patients with hypo- and hyperthyroidism had been studied with particular interest since it had long been known that the activity of the thyroid gland was perhaps best measured by the total metabolism. In one cretin, 36 years of age, with the development of a child of eight years, the metabolism was only 75 per cent. of the normal, and rose to the normal after the administration of thyroid extract. In a patient with exophthalmic goiter, the metabolism was at first 180 per cent. of the normal, falling to 160 on treatment consisting of rest and overfeeding. In a young woman with what seemed to be a moderately severe case of exophthalmic goiter the metabolism was 192 per cent. of the normal, falling to 160 per cent. after the ligation of all the arteries. A few observations had been made as to the influence of blood pressure, anemia, and rest in bed on the total heat production. It had required eighteen months work and 140 observations to obtain the present results. It was therefore obvious that it would be the work of years to determine the influence of all the varied factors which presented themselves in the complex picture of disease.

The Treatment of Diabetes Mellitus with Cultures of Bacillus Bulgaricus.—Dr. PHILIP HOROWITZ presented this communication. He declared that whatever the etiology or the pathology of diabetes might be its treatment was a very important subject, both because the disease was on the increase, and because so much could be done for it. It not only was not a hopeless condition, but was positively curable in the majority of cases. The mode of treatment which he used was entirely different from the forms adopted up to the present time, and because it was so little understood and so many errors were made he had presented this paper. After reviewing the various forms of treatment advocated for diabetes up to the present time, and they were by no means few, Dr. Horowitz related that about three years ago he had accidentally discovered that by using the cultures of *B. bulgaricus* to overcome a severe autointoxication coexisting with diabetes in a member of his own family, that as the autointoxication became less the percentage of glucose in the urine was reduced. Within a period of ten weeks a condition which had appeared very serious and grave was apparently overcome. This condition was not merely a transient glycosuria of the alimentary type, but one associated with a high sugar index, acidosis, marked loss of weight, and drowsiness almost verging on stupor. With these there were also polydipsia, polyphagia, and polyuria. At the end of about fifteen months he had reported three other cases in the MEDICAL RECORD, March 9, 1912. Since that time he had treated a series of 102 cases; in 52 of these the sugar had been entirely eradicated, and most of the patients were now on a fairly normal diet; four cases had had the sugar reduced to traces, and 39 were improved. Some of the latter cases were still under treatment, and many of them would be cleared up before long. Out of the remaining seven one did not improve at all, no matter what was done; two died of nephritis; one of cancer of the bladder; two of pneumonia, and one of tuberculosis of the vertebral column, subsequent to an injury. One of the series was under ten years of age, five were under twenty, eight between twenty and thirty, eleven between thirty and forty. Fifty of the cases had a sugar index between three and nine per cent. Forty-seven were complicated by acidosis. In seventy of the cases there was an active autointoxication as shown by the presence of indican. The average length of treatment was about three months, but it varied between two weeks and fifteen months. The treatment as Dr. Horowitz employed it consisted of two parts: First, the use of the cultures of the *B. bulgaricus;* and, second, a proper and well regulated diet. He had experimented with each of these measures separately and was successful with neither when it was used alone. The action of the *B. bulgaricus* was twofold. First, it was a corrective for the autointoxication which was almost universally present; and, second, in correcting and aiding carbohydrate metabolism. The *B. bulgaricus* by its power of secreting lactic acid interfered with and slowed down the carbohydrate metabolism. The essayist said he was absolutely convinced that diabetes was caused by a protein toxin, or toxins, formed in the intestinal tract, or possibly in the entire alimentary system, which interfered with the proper function of the liver and pancreas, and possibly with all the organs having internal secretion, and also had some bearing on the proper combustion of sugar. The dosage of the culture depended on the degree of autointoxication and on the severity of the diabetic condition. In simple cases of diabetes which were uncomplicated by acidosis and with a daily output of 16 grams of glucose or less, the dose was five to seven c.c. of the culture diluted in a little water one-half hour before meals and on retiring. In cases secreting more than this amount he gave 16 c.c. three times a day one-half hour before meals and on retiring. Where the output of sugar was low, but complicated by acidosis, he used large doses of the cultures, as lactic acid to a certain extent prevented the formation of acetone. In cases having a pronounced autointoxication with marked indicanuria, better results were obtained by giving a culture containing both the *bulgaricus* and the *Glycobacter peptolyticus* of Metchnikoff. In some cases which did not respond to this treatment it was supplemented by colonic inoculation of the culture. Full doses of the cultures must be continued for some time after the sugar had disappeared from the urine. He had found that it was not safe to reduce the dose for at least from four to six weeks after repeated analysis showed that there was no sugar in the urine. Then, if no sugar recurred, one dose at a time was withdrawn, until finally it was discontinued. Every man who had any experience in the treatment of diabetes would now concede that the strict carbohydrate free diet was a thing of the past. More diabetics died from acidosis and coma brought on by too strict diet than from the ravages of the disease itself. There was no definite stereotyped diet that was applicable to every case. The diet set forth was only a general one and must not be considered proper for every case. All cases should receive some form of carbohydrate. Every case of his received either rice, oatmeal, or wheatena. The cereal must be well cooked. From 45 to 90 grams of the cereal was given every day, preferably for breakfast, unless there was severe acidosis, and then it was given with every meal. He also started the patients with 60 to 90 grams of toasted white bread, toasted dry to eliminate as much moisture as possible. This was preferable to most diabetic foods. The bread should be baked at home, using only wheat flour, yeast, and a little salt. As the percentage of sugar decreased, the amount of bread was increased. This must be done very gradually, and one must be guided by the tolerance of each individual case. Four to six eggs a day were permitted, the preparation of which depended on the urinary findings. In cases with marked indicanuria it was best to have them boiled at least twenty minutes, or poached hard, for the reason that in this form they produced less putrefaction in the bowels. Milk was permitted only in such quantities as were needed to whiten tea or coffee, and to loosen up the cereal, but not over four ounces in all. He did not permit butter or fats in any form in cases complicated by acidosis. All cases that excreted acetone and acetoacetic or diacetic acid, were made worse by the use of fats, especially butter and cream, as these were an added source of putrefaction and a source of danger, as they increased the formation of beta-oxybutyric acid and acetone. Meats were permitted in some form unless there was an especial contraindication, but fried or roasted meats and rich gravies were not permitted. In cases complicated by a chronic diffuse nephritis only the white meat

of chicken was allowed. Only plain simple broths were permitted, omitting such vegetables as contained sugar. Vegetables containing sugar and those not easily digested were proscribed, but spinach, string beans, celery, raw and stewed, lettuce without dressing, asparagus with a small amount of butter were permitted. Vinegar and other acids were not permitted. Of fruits, grape fruit alone was allowed at first, but as the case cleared up sour orange was added very cautiously. Apples were not allowed until the urine was sugar free for some time. Fish and shellfish were not allowed at first as they were apt to increase intestinal putrefaction. Alcohol was not permitted in any form in the beginning, but when the case had cleared up a little Scotch whiskey, or dry sherry, or claret, might be given. Good mineral waters were permitted. Very few drugs were used and only those indicated in the particular case under treatment. Attention to the bowels was important. It was also important that not only the kinds of food but the quantity should be carefully regulated, and that proper attention should be given to the subject of exercise.

Dr. T. STUART HART believed that Dr. Horowitz, in announcing the discovery of a cure for diabetes (something which had never yet been accomplished in spite of the earnest work of many master minds over a period of many years), had made a claim which could only be accepted when the most conclusive evidence had been presented. This evidence Dr. Horowitz had not afforded. The time allowed to Dr. Horowitz might have been insufficient in which to present his proofs; only one case had been cited and in this both the time of observation (3 months) and the facts as presented did not warrant the statement that a cure had been secured. Judgment on this method of treatment should be reserved until detailed facts and evidence which carried conviction should be presented.

Dr. GRAHAM LUSK said that lactic acid fermentation might lead perhaps to conditions in the intestines which were beneficial to digestion. But lactic acid was absorbed and converted into glucose in the diabetic organism. There was much evidence which showed that lactic acid when absorbed by the normal organism must be converted into glucose before it could be oxydized. The historical introduction of the paper was interesting but this very history showed that so many cures had been advocated for diabetes that any new method of treatment must be based on sharply defined evidence before being accepted.

Dr. GEORGE REESE SATTERLEE said that he had tried lactic acid cultures in diabetes and in one or two cases he noted peculiar results. In one case although the sugar cleared up from the urine, the diabetes was not cured. In another case there occurred an obstinate constipation. This ultimately resulted in appendicitis and death. In one or two other cases also the results were not at all good.

Dr. MAURICE PACKARD said that he was very much interested in the so-called treatment of diabetes by the lactic acid bacillus for various reasons, but one of the many was that it was so well advertised. Not only did dispensary patients tell of their treatment by the bacilli, but private patients as well, either spoke of it as having been tried, of course with no results, or asked a number of questions as to its efficiency. He had tried it in a number of instances, with apparently no results. At present there were four patients at the Gouverneur Hospital, in the service of Dr. Huddleston, Dr. Henderson, and himself, whose sugar toleration had been worked out by Dr. Henderson and to whom lactic acid bacilli culture had been given, to see whether it increased the tolerance; the case had been under their treatment but a very short time, about ten days, and no result had yet been noted. He had also had a number of cases treated by Dr. Horowitz, personally, and one of these patients, probably reported cured by him, had died of coma in the Polyclinic Hospital three weeks ago.

Dr. PHILIP HOROWITZ closed the discussion. He said that some of the cases dated back two years or more and, with the exception of two or three cases, they were sugar-free at the present time and were on a nearly normal diet except that they did not take sugar. With regard to constipation, a point brought up by Dr. Satterlee, he found that about 90 per cent. of the patients suffered from constipation when they presented themselves for treatment. In all these cases there was a stasis of the colon and the cecum was out of place. The constipation therefore resulted from a mechanical process.

Miscellany.

Medical Certificates.—Sir John Collie states that medical certificates in legal cases should always be given with great caution. What should one do when asked to examine an injured person by both employer and employee, or by two parties to a suit in an action at common law? There is a general impression that, having given a certificate to one side, it is disloyal— indeed, dishonorable—to fish, as it were, on both sides of the stream, and furnish a report to what the lawyers call the "other side." This attitude assumes a very low standard. If one has given a certificate for a plaintiff which exaggerates his injuries, or if acting for the defendant, one has given a certificate minimizing what exists, obviously it would be impossible to report on the case to the opposite party to a suit. Medical men are not partisans in law suits; unlike the attorney, they have no "other side" to consider. Solicitors and barristers are paid to make the best case they can for their client. The doctor certifies facts as found, or should do so. There is, therefore, no reason whatever why a certificate should not be furnished to both parties and a fee charged to each. Of two things, however, one must be scrupulously careful. First, the facts must be presented in exactly the same way in both instances. Indeed, the safest plan is to make the second report a copy of the first. Secondly, both parties should be acquainted with the fact that such a duplicate certificate has been issued. Loyalty demands this. It is always advisable to retain an exact copy of all letters and reports on medico-legal cases.—*British Medical Journal.*

Large-Sized Tires.—H. Massac Buist points out that one of the lessons learned at the recent Grand Prix race on the Lyons circuit is that what the larger sized tires take off in speed is more than saved by what is gained in their extra wearing qualities; there is in these tires more material to be worn away before the time comes to change. Translated into terms of the private motorist's position, this means also that, within reason, it is more gainful to use large than small tires. On the other hand, when employing large section tires on small rims, the motorist must be careful to keep an eye on his pneumatics. Thus if he allows them to get slack he has that amount more twisting action of the walls when taking corners, and that extra liability temporarily to displace the bead, which in flying back may perchance nip the tube. On the other hand, he must not go to the other extreme of keeping tires too hard in summer weather. Many motorists remember to their cost the hot summers when tires burst on account of being kept under too high pressure in hot weather. We are still at the period when the individual motorist has as much to gain from carefully studying tires as he has to gain from carefully studying carburetion, electric lighting, or engine starting. The technique of pneumatics has been so vastly improved of recent years that it is easy to fall into the habit of comparatively neglecting it. No general rule applies equally to all sorts of vehicles, from heavy, high powered ones to the lighter sort, unless it is such an obvious thing as that it is foolish to run on slack tires, to neglect ugly cuts, to leave nails or horseshoes stuck in treads, and so forth. Provided corners are not taken too fast large section tires have many advantages over those which are now generally used.—*British Medical Journal.*

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THE PHYSIOLOGY OF GASTRIC MOTILITY.

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Introduction.—Clinicians recognize in the motor functions of the stomach two degrees of impairment; motor insufficiency of the first degree (Boas),[5] in which the stomach still completely empties itself but requires a longer time to do so than is normal, and motor insufficiency of the second degree, in which the stomach is no longer capable of completely emptying itself, food remains being found even twelve hours or more after eating. The latter form, motor insufficiency of the second degree, is nearly always due to mechanical obstruction and will not be considered further in this paper.

Motor insufficiency of the first degree may be said to be a condition, rather than a disease, for it often occurs as a part of universal congenital asthenia and temporarily during physical or mental fatigue. It may also be found accompanying various chronic diseases, and is sometimes combined with other functional or organic diseases of the stomach. Whether it occurs alone or in association with other pathological conditions, it is the cause of a long list of symptoms, it greatly impairs the efficiency of the patient, and often runs a very chronic course despite all treatment. Since it is essentially a disturbance of functional capacity, it would seem that if there is to be any improvement in the present methods of treatment, the therapeutic measures must represent an intelligent understanding of the altered mechanism, with the purpose of restoring normal conditions. This will be possible only when we know the physiological means by which the motor functions are normally regulated. For a better understanding of the problem, and, possibly, for the purpose of formulating some methods of treatment based upon rational physiological means, it is necessary that the physiology of the organ be carefully considered.

General Motor Activity.—As long ago as 1679 Wepfer[45] laid the foundation for our knowledge of the normal movement of the stomach when he observed peristalsis in the exposed organs of living wolves, dogs, and cats. Schwartz[41] and Haller[21] made similar observations, but no further work of note was done in this field till 1833 when Beaumont[2] recorded his accurate observations of the movements and experiments on the digestive functions of the stomach of Alexis St. Martin, which was available for these observations and experiments on account of a gastric abdominal fistula.

Beaumont's description of the motor activity of the stomach, always enlightening, have taken on additional importance and interest because similar observations made in recent years with more elaborate instruments and a more perfect technique have added to, and explained many of the facts recorded by him. He mentioned that the alternate contraction and relaxation, when affecting the transverse diameter produced vermicular or peristaltic motions while contraction of the longitudinal muscle fibers approximated the splenic and pyloric portion, and when all acted together, the cavity was reduced in size. The food on entering the stomach was noticed to pass first over the fundus from right to left, then along the greater curvature. There was no distinct line between old and new food, central or peripheral, crude or chymified, but recently swallowed food, liquid or solid, was mixed with that already partially chymified in the stomach.

Accelerated expulsion of food seemed to be effected by a peculiar action of the "transverse band" situated at the commencement of the conical-shaped part of the pylorus. On attempting to pass a thermometer through the aperture into the pyloric region during the later stages of digestion, forcible contraction was first perceived at this transverse band, and the bulb of the thermometer was stopped. In a short time there was a gentle relaxation and the bulb was passed without difficulty. It was then drawn three or four inches toward the pylorus, then released and forced back again by the stomach movements. As the bulb was drawn toward the pylorus there was felt a piston-like suction. If the bulb, when drawn to the pyloric end was detained there, or if the experiment was repeated too often, severe distress, cramp and spasm were felt, but these symptoms ceased on the withdrawal of the instrument. The normal movements of the stomach continued, however, until all food was expelled, and then the organ became quiescent. Before Beaumont's observations, the functions of the stomach were deduced theoretically from its anatomical structure. Beaumont stated observed facts, and although recent physiologists have added to the knowledge he gave us, his work still stands as a foundation for all subsequent observations.

Kussmaul in 1869[26] introduced the stomach tube and used it successfully in the treatment of gastric dilatation, but the early recognition of hydrochloric acid deficiency in advanced carcinoma led to the almost exclusive study of secretory functions, while investigation of motor functions were neglected until a comparatively recent date. For years observers had studied *in situ* the exposed active organs of living animals and also excised organs which were kept nearly normal in warm isotonic physiological solutions. Cannon,[11] however, was the first to study gastric peristalsis in animals

under practically physiological conditions. At the suggestion of Bowditch he fed cats a bismuth mixture and studied the peristaltic movements of the intestine and stomach by means of the *x*-ray. His observations were reported in 1897, and Roux and Belthazar published similar observations of a confirmatory nature in the same. Rieder appears to have been the first to study gastric peristalsis in man by this method. Later many other radiographers began to study the physiology and pathology of gastric and intestinal peristalsis, and in the spring of 1910 Roentgenocinemetographic films made by Rosenthal were shown. The radiographic examination of the stomach soon became an established clinical procedure, and the study of radiographic pictures in normal and diseased conditions of this organ has contributed very greatly to our knowledge of its motor functions. Although this is very complex and some minor details still remain unsettled, the essential features of its motility may be summarized as follows:

The empty stomach exhibits two types of rythmic movements. One is relatively feeble, but continuous, with a constant rate of contraction of twenty seconds' duration. This is always present in the empty stomach, provided the subject is healthy in every respect, but it may be obscured by the second type, which consists of powerful rythmic contractions of thirty seconds' duration.[8] If the gastric wall is tonically contracted it relaxes after an act of deglutition. Intragastric pressure, usually about 7 to 19 c.m. of water in the cardiac portion, then falls to nearly zero, and the capacity of the stomach is increased. The lowest pressure is observed apparently at the time when the bolus is delivered into the stomach by the esophagus. After about ten seconds tonus is re-established.[15]

Peristalsis of the filled stomach consists of a series of rhythmic muscular contractions originating at some point intermediate between the fundus and pylorus and progressing toward the pylorus at the rate of about one inch per second along the greater curvature. The contraction forms a slight ringlike constriction of the stomach wall, which, at first near its origin, is wide and shallow, but as it progresses toward the pylorus it becomes deeper and narrower after the manner of a wave rolling on a shallow shore, until just before reaching the pylorus, some of them form complete constrictions, entirely dividing the gastric contents. From one to four of these waves may be observed at one time, depending upon the type of stomach. In addition to these rythmic movements there is a *systole* and *diastole*, or a general contraction and relaxation, of the stomach occurring with each "gastric cycle," as the complete passage of a wave from the fundus to the pylorus is called.[13]

The pylorus does not open with the arrival of each constricting wave, but is governed by the degree of gastric acidity, stage of digestion and nature of duodenal contents. This mechanism is controlled by impulses from the cerebrospinal system reaching the stomach through the vagi and the splanchnic nerves, by local conditions if irritation in the stomach, and by reflexes from the duodenum and the small intestine. The wavelike contractions originate as a result of tension produced by internal pressure, acting on a tonically shortened gastric musculature. Both conditions must be present, because distention of an *inactive* stomach causes peristalsis when the musculature is tonically shortened, but *not* when it is relaxed, and it is noted that considerable intragastric pressure is present during peristalsis,[14] viz., from 6 to 19 c.m. of water in cardiac portion, and from 60 to 162 c.m. in the pyloric portion have been observed.[10 23]

Within certain limits peristalsis is augmented or weakened as the intragastric pressure is experimentally increased or decreased. Tension may be produced in two ways, either by stretching the tonically contracted muscle walls with increased contents, or by inducing tonus in the muscle. The shape of the stomach, conical when nearly filled, is thus seen to be a factor in originating gastric peristalsis. A definite relation must exist between the tonus of muscle and internal pressure, for the internal pressure may be too slight, *i.e.*, inadequate to induce a response in the tonically contracted muscle or it may be too great to permit contraction. This has been demonstrated experimentally by distending and partially emptying the stomach of animals under control, thus producing and arresting peristalsis at will.

Nervous Control of Movements of the Stomach.—In studying gastric motility and the means by which it may be influenced experimentally, the vagus nerves have been repeatedly investigated. Mangold[30] experimented on crows and jackdaws and found that stimulation of the peripheral end of the severed nerves, after temporary inhibition, caused acceleration of gastric movements, and increased tonus. Stimulation of the central end caused inhibition of gastric movements. Zweig,[40] after exposing the three roots of the vagus in guinea pigs, stimulated with a weak electric current each bundle separately while observing the effect on the stomach. He found that stimulation of the middle bundle always produced slow peristalsis of the pre-pyloric portion, while stimulation of the upper and lower bundles produced no effect on the stomach.

Stimulation of the upper bundle from the medulla oblongata caused contraction of the lower end of the esophagus. Cannon[12] experimented with three series of animals. One with only the splanchnics severed, a second with only the vagi severed, and a third with both splanchnics and vagi severed. He noted that splanchnic section resulted in no change of the normal movements of any part of the alimentary canal. Protein food and carbohydrate food passed through the pylorus at the normal rate, but proteid food passed through the small intestine more rapidly than usual. There was no acceleration of carbohydrate food. Vagus section resulted primarily in a tardy beginning of gastric peristalsis, marked weakness of the gastric peristaltic constrictions, retarded and slow discharge through pylorus, especially of proteids. The condition was largely recovered from in a few days. With the combined section of both vagi and splanchnics there was almost from the first normally deep constrictions. At autopsy the stomach was found firmly contracted. The characteristic rapid discharge of carbohydrate food and slow discharge of proteid food after the section of vagi or splanchnics, as well as after sections of both indicates a local control of this function. Carlson,[9] after studying carefully and thoroughly the movements of the fasting human stomach, experimented on dogs under well controlled conditions, and noted that section of the splanchnic nerves increased gastric tonus and augmented gastric hunger contractions.

Psychic or reflex influences on these movements were greatly diminished. Anger, fear, joy and pleasure no longer led to complete cessation as in

normal conditions. He thinks, therefore, it is "evident that the inhibitory fibers in the splanchnic nerves constitute the main efferent path in this type of inhibition." Section of the vagi leaves the empty stomach on the whole permanently hypotonic, for as long as three months after the operation.

With the vagi severed and the splanchnics intact, psychic or reflex inhibition was still in evidence, but not so marked. There is in this case a gradual diminution in the influence of the splanchnic nerves on the empty stomach of the dog observed for three months after section of the vagi. With section of both splanchnics and both vagi observed from thirty to sixty days later there was practically a permanent hypotonus, except in prolonged starvation. He concludes that all the essential characteristics of the empty stomach are determined by the local gastric motor mechanism, rather than by the central innervation or central inhibition. There is less change in the movements of the full stomach (in cats) than there is in the empty organ.

Since the empty stomach completely isolated from the central nervous system does exhibit the typical hunger contractions, the primary stimulus to these contractions is not to be sought in the extrinsic nerves. It seems likely, however, that under normal conditions the essential role of the vagi and the splanchnic nerves in connection with the gastric hunger contractions is that of modifying or regulating a primary autonomous mechanism in the stomach wall.

The essential findings of other experiments are in harmony with the above. Klee[25] studied vagus stimulation in decapitated spinal cats. They were kept alive for twenty-eight hours without signs of shock and with good heart action and normal reflexes. Bismuth-potato-purée was introduced into the stomach through a tube and the movements studied by the radiographic method. At first the emptying of the stomach was much retarded, incomplete, and the sphincter phylori opened irregularly. These conditions were less marked after section of both splanchnics. By faradic stimulation of the distal ends of the vagi the above impairment could be compensated or removed. Both vagi were stimulated in the neck, at regular intervals till the pulse was reduced to half its previous rate, although some marked influence was observed on stomach without any slowing of the heart. The effect was most marked on the stomach and upper part of the small intestine, less noticeable on the lower small intestine and not observable on the colon. At first there was an inhibition of all movements, then in the previously flat antrum waves appeared, strong constriction involving the whole stomach and dividing it into several segments. All these constrictions ran in peristaltic waves to the pylorus and carried the gastric contents before them. With a weak current, which did not affect the heart, the peristalsis was not so strong, but still exceeded the normal. Even after repeated stimulation a very weak current was sufficient to cause marked contractions. The bismuth purée which at first remained motionless in the fundus for three-quarters of an hour, after vagus stimulation passed promptly into the pyloric portion and with energetic movement was forced into the small intestine. There was no return of gastric contents through the esophagus. If the esophagus was empty the cardia remained closed, if it contained a bolus of food, stimulation coerced this with strong peristalsis through the cardia into the stomach.

Although the above experiments of Cannon, Carlson and others show that the stomach can still perform its function when the splanchnics are severed, we must not suppose that they are without influence when in their normal condition. Pfluger[29] showed that stimulation of the sympathetic nerves inhibited intestinal movements and his observations have been confirmed by almost every subsequent worker in this field.

Bechterew and Mislawski[3] found that on stimulation of the corpora quadrigemina, impulse passed to the stomach, some by way of the vagi and some by way of the spinal cord and sympathetic nerves, producing contractions or relaxation according to the part of the corpora quadrigemina stimulated.

Since local anemia has been observed to check gastrointestinal movements it was believed by some[31] that the inhibiting action of the sympathetic nerves was due to vasomotor fibers causing constriction of the vessels and a local anemia, but Braam. Houckgeest[7] found that when the intestines were exposed to the air until they became red by *vasomotor paralysis* stimulation of splanchnics had no effect on the blood vessels, but still inhibited intestinal movements.

Mental Influences Affecting Gastric Motility.—Cannon[13] has collected a number of experiments and observations demonstrating the important influence of emotion on the functions of the gastrointestinal tract. The effect of excessive emotion is usually more or less inhibitory, and it is significant that the signs of emotion, pallor, cold sweating, dry mouth, dilatation of the pupils, erection of the hairs, palpitation, rapid respiration, with trembling and twitching of the facial muscles, are indicative of stimulation of the sympathetic nerves, which is in harmony with purely experimental observations on the relation of the system to the functions of the stomach. He cites the case of a lady who came to Boston to consult a specialist. After spending the night at a hotel she ate the usual test breakfast and was examined an hour later at the doctor's office. There was found a total absence of hydrochloric acid and a considerable quantity of food eaten on the previous day was still present in the stomach. Inquiry of the family physician elicited the information that the patient's husband had availed himself of the opportunity afforded by a visit to the city to go on a spree. His behavior induced in her such an emotional state that the functions of digestion, both motor and secretory, were temporarily inhibited as was demonstrated later, for after a day of quiet and repose the functions were found normal. Cannon expresses the opinion that heaviness felt in the epigastrium may be due to stagnation.

Pawlow's experiments on dogs have in many instances been confirmed by observations on human beings, but variations have been noted. Hornborg[23] was unable to observe increased flow of gastric juice at the sight of food, but it is to be noted that the patient (a little boy) became vexed when food was withheld and cried, so no secretion appeared, being inhibited by the unpleasant emotions. Bogen[6] observed a child in such a passion for food that even after it was quieted and fed no secretion appeared.

Best and Cohnheim[4] found that drinking accelerated gastric motility in dogs, although the water was permitted to pass out through an esophageal fistula instead of entering the stomach. They consider this a psychic motility, analagous to the

psychic secretion observed in sham feeding. From the above observations it seems that the absence of gastric movement in states of physical exhaustion can be explained by *absence* of *vagus* impulse, and in emotional states by *presence* of *splanchnic* inhibition. Both conditions result in absence of gastric tonus, and therefore impaired peristalsis.

Influence of Internal Secretions on Gastric Motility.—The effect of the internal secretions on gastric motility does not seem to have been studied extensively, but Carlson[10] observed that parathyroid tetany in dogs does not lead to increase in tonus or contraction of the empty stomach, but to depression of tonus and weakened hunger contractions. This change is less marked in the stomach containing food.

From some clinicopathological studies[11] it appears that the adrenal secretion exerts an inhibitory influence on gastric and intestinal movements or at least interferes with impulses passing through the sympathetic, thus allowing the vagi to act unopposed.

Intravenously hypothesis extract produces powerful stimulation of intestinal peristalsis,[26] the movements being more coordinate than those produced by pilocarpias, although there is some irregularity as compared with normal movements. Its effects on the stomach have not been reported.

Influence of Foods, etc., on Gastric Motility.—There is a very definite reflex relation between the duodenal and the gastric motor functions. Joseph and Meltzer,[25] experimenting with animals by means of a small balloon in the pyloric part of the stomach and another one in the descending portion of the duodenum, found that during each contraction of the pyloric portion of the stomach, the duodenum stops its rhythmic activity and loses its tone only to resume both again as soon as the gastric movement ceases. This antagonistic action is identical to that relaxation of the esophagus and cardia during deglutition, observed by Kronecker,[29] and the relaxation of stomach during contraction of the esophagus.[15]

Cohnheim[17] considers the pyloric reflex the most important in the whole digestive tract. Normally the pyloris opens about every 15 to 20 seconds and there is a forcible expulsion of gastric contents into the duodenum. If one should inject 10 c.c. of acid gastric contents into the duodenum through a fistula, this regular movement ceases and is only resumed after from 3 to 12 minutes.

If oil is introduced instead of hydrochloric acid, the expulsions cease more slowly, and not so entirely but for a longer time.[4] A local anesthetic, such as novocain, introduced into the small intestine prevents this action. Kirschner and Mangold[27] found that complete division of the stomach from the lesser to the greater curvature produced no essential change in the functions of the pylorus and antrum pylori. The chemical reflex from the duodenum remained active, as before section.

In addition to the above duodenal reflex, the chemical composition and temperature of substances in the stomach have a very definite influence on the opening and closing of the pylorus. Isotonic solutions leave the stomach more rapidly than pure water, acid, hypo- or hyper-tonic solutions. These cause a temporary closure of the pylorus and remain longer in the stomach, becoming in the meantime, by diffusion and secretion, more nearly, but not necessarily, entirely isotonic. Hot and cold fluids remain in the stomach longer than those of 38° C. temperature. The pylorus is also closed against solids, so that only liquids, purees, and soft slippery masses pass out.

Clinical interest has induced many observers to study the effects of different foods on gastric motility. Wulach[47] found that fats, such as fat meat, cream and butter, remained in the stomach longest, while carbohydrates left the stomach most promptly. It has been observed that weak solutions (2 per cent. to 3 per cent.) of sugar leave the stomach sooner than water, while stronger solutions (10 per cent. to 20 per cent.) remain much longer, in consequence of the diffusion process.

The addition of pure albumin to water retards the emptying of the stomach, but egg albumin is less effective in this respect than other proteins, and the addition of a little sugar to an albumin solution tends to compensate this retarding influence.

Since bismuth salts are being used so extensively in radiographic work, it is proper to inquire whether such large doses do not produce some definite effect on peristaltic activity of the stomach, and so vitiate the conclusions to a certain extent. Weber and V. Bergemann[44] placed rubber balloons in the stomach and registered the intragastric pressure when the stomach contained water, bismuth carbonate, bismuth subcarbonate, milk and zirconium oxide and found it the same in each case. Recently Tabora[42] studied by means of the *x*-ray gastric peristalsis and motility in well individuals and in those having hypo- and hyper-chlorhydria. He used bismuth alone, and combined with hydrochloric acid and with oil. When hydrochloric acid was used, the peristalsis was deeper and more energetic, but the time of emptying was about 50 per cent. longer. When oil was added to the bismuth the peristaltic waves were flat and in a few minutes ceased. The time of emptying was much prolonged, although the pylorus was open. Only after several hours did peristalsis return. When 20 to 30 c.c. oil was again given, peristalsis again ceased, whether oil was given before, during, or after eating. The clinical value of this fact is very great.

Fifty cubic centimeters of a 5 per cent. solution magnesium sulphate retards the stomach movement, but accelerates peristalsis of the small intestine.[33] Intravenous or intramuscular injection of magnesium salts abolishes completely and for some time the normal peristalsis of the stomach and duodenum, as well as the contractions induced by Barium and physostigmine.[24]

Influence of Drugs on Gastric Motility.—Müller and Saxl[34] studied the effects of various drugs on the tonus and capacity of the stomach in adult healthy animals with a large gastric fistulæ. The fluid was introduced quickly (one minute) through the fistula, under a pressure of eight c.m. of water. The stomachs received under these conditions 200, 200, 210, 190 c.c. of water. The same stomach retained 400 c.c. when it was introduced through the stomach tube. When the animal was under the influence of the following conditions the contents varied, as will be seen from the results in the accompanying table:

Narcotized	700 c.c.	Atropine	290 c.c.
Under morphine	600 c.c.	Local anesthesia	230 c.c.
Chloroform internally	500 c.c.	Cocaine	280 c.c.
Chloral internally	370 c.c.	Alcohol	Variable result

Contrasted with the above there is another group which was found to increase the tonus and thereby reduce the capacity.

Physostigmine	80 c.c.	Strychnine	110 c.c.
Pilocarpine	100 c.c.	Adrenaline.	Without influence

Of mineral waters Karlsbader, Homburger, Bitter water, and Krondorfer gave a measurable increase in tonus.

The above results were believed to be due to direct action on muscle or local nerve supply, because the same results are produced in the excised perfused stomach. It is a reflex reaction, and atomy is an abnormal reduction of the stomach's resistance to filling.

Arnsperger,[1] observing the effects of morphine on the motor function of the stomach, concluded that small doses were without effect, while large doses retarded emptying by producing a cramplike action.

R. von Velden[48] examined eighty-two normal stomachs and found that morphine increased peristalsis, especially in the region of the pylorus. Tonus was increased, and while standing the stomach was incompletely distended. It emptied in the normal time, or even more quickly. If a larger dose of morphine was given, a constriction occurred in the pyloric region, which even separated the pylorus from the fundus and the picture resulted, the hour-glass stomach or an organic disease. This appeared in the lying as well as in the standing position. There was increased peristalsis and antiperistalsis. Even larger doses produced the same effects in a more marked degree. Atropine tends to counteract opium, but only imcompletely.

Effect of Surgical Operations on Gastric Motility.—The effect surgical operations may have on gastric peristalsis has been studied both experimentaly and clinically. Oseroff[37] removed part of the peritoneum and muscularis from the anterior wall of the stomach of a dog, allowing complete healing without adhesions and found only temporary retardation in the time of emptying. When he removed a larger strip 3 cm. wide, forming adhesions with the peritoneum and other organs, there followed permanent retardation both in the beginning and completion of emptying. Gray[20] studied gastric peristalsis in normal persons and after gastroenterostomy. He noted that carbohydrate food did not enter the pyloric portion of stomach for ten or twenty minutes and proteid food required thirty to forty-five minutes longer. In order to maintain or restore physiological conditions he thinks that the gastroenterostomy should be made in the pyloric part of the stomach.

The effect of gastroenterostomy and pyloroplasty on the motor functions of the stomach was studied experimentally by Cannon and Blake.[16] They used large female cats, and observed the effects of making the stoma large or small, on the anterior or posterior surface, with peristalsis waves of the stomach and intestine running in the same direction, and opposed to each other. After recovering from the operation the animals were fed a thin solution of cooked starch and bismuth, and examined by means of the *x*-ray.

These observers noted that the stomach does not act as a simple sack or reservoir for food, but the cardiac portion contracts, forcing food into the pyloric end, when it is mixed, and forced with the secretions into the duodenum. As the human stomach empties it shortens, especially along the greater curvature, and the contraction of the longitudinal and oblique lift the more dependent and movable part toward the fixed point of the cardia. It thus occurs that in the standing position the lowest part of the full stomach is some part of the greater curvature, while the lowest point of the empty stomach is the pylorus.

In one experiment when the food was seen to leave the stomach only through the pylorus, and never through the stoma, it was supposed that this orifice was closed, but when the abdomen was opened and the gut incised opposite the point of attachment, the opening into the intestine was found patent. The gut was again closed, and returned to the abdominal cavity, but still no food left by the surgical orifice. This has been repeatedly observed by others in cases when gastroenterostomy was performed for the relief of pyloric stenosis.[50]

Return of food to the stomach through the stoma was repeatedly observed without symptoms of a vicious circle. This return is most apt to occur when the stomach is distended and is due to a peculiar valorlike formation. When the stomach wall is stretched, the lips of the stoma separate, and the wall of the opposite part of the intestine is straightened and flattened against the stomach wall, forming a liplike valor which permits food to enter, but hinders its exit from the stomach. This valor formation was tested by distending the stomach with water and closing the pyloric and cardiac orifices. It was found to retain fluid in the stomach, but did not hinder a return from the intestine.

Vomiting was usually due to a kink in the intestine just beyond the stoma. This kink is an effective stoppage of contents, because, occurring just beyond the point, when the circular fibers of the gut are cut, the intestine is incapable of contracting and forcing the contents onward to straighten this kink, as it would normally do. These authors conclude from their observations that on physiological and anatomical grounds the anastomosis should be made as near the pylorus as practicable, because, although this is not the lowest portion of the stomach, when the organ is full it becomes the lowest as contraction of the muscles occurs, and the greater curvature is lifted up, and also because the pyloric portion and antrum pylori are physiologically the most active. It is here that the expulsive force is most powerful. This latter reason is especially important because intra-abdominal pressure serves largely to minimize the small factor of gravity. The peristaltic waves should run in the same direction in both stomach and intestine.

The effect of retrocolic gastroenterostomy on patents was studied in thirty-two cases by Hesse.[22] In one-fourth of the cases emptying of the stomach was accelerated. In only three cases was there insufficient action of the stoma, and in the majority of the cases the pylorus also functioned. There was no rythmic expulsion through the stoma, though the peristaltic waves remained normal. The form of the stomach was not essentially changed.

Electrical Stimulation of the Human Stomach, Effects of Gravity, etc.—Although attempted electrical stimulation of the stomach wall has been used clinically, definite demonstration of its effectiveness is lacking. Marshall,[32] working with animals, tried both the faradic and galvanic current, applied by metallic and moist sponge electrodes to the outside of the body, to the external and internal surfaces of the stomach, to the intestines, and to the rectum. but he only succeeded in producing feeble contractions at the pyloric portion, and a ring-like contraction of the intestine as if a cord were tied around it. If a strong current were used contractions of the voluntary muscles and diaphragm would occur.

This would give the patient a feeling of tension and some prominence in the epigastrium. He, therefore, thinks that electricity, as generally used, does not cause gastric or intestinal peristalsis. More recently Wiel[34] reviewed the literature which he found contradictory and experimented with faradic and galvanic (40 to 80 m.a.) electric currents directly on stomach and on the vagus. He found no alteration from the normal peristalsis revealed on the Rœntgen screen.

Ziegelroth[35] observed the effect of sleep and local cold and hot applications to the abdomen on the motor functions of the stomach and came to the conclusion that they were without influence. Ogarkow[36] after investigations carried out on himself found that gastric motility was strongest (emptying more completely in a given time) when lying on the right side or walking rapidly. Standing, sitting, lying on the left side, and slow walking were least favorable, while lying on the stomach or back were intermediate in effect.

Although the observations of Katsch[37] and Borchers refer especially to the intestinal movements, the agents which they used probably acted on all parts of the digestion tract, and are therefore of interest in this discussion of gastric motility. These authors fitted a celluloid window into the abdominal wall of rabbits and studied the intestinal movements under the influence of venous agents. Cold applied by ice, ethylchloride spray, and the ice cap at first increased tonus and produced anemia; later they exerted a quieting effect, and finally brought the intestinal movements to a standstill. When heat was applied, either with the Fohn apparatus (40° to 50° C.) or by means of a linseed poultice, it always produced an increase in all intestinal movements and an increased flow of blood. Massage induced peristalsis and hyperemia, but electricity, although applied by all the various methods, failed to produce anything that could be said to differ in character or intensity from normal peristalsis.

Drugs introduced into the blood stream, as a rule, influence the whole intestinal tract. The vagus stimulants, pilocarpine and physostigmine, produce powerful increase in motility and hyperemia (indicating that the vagus fibers go to the intestinal vessels). The movements, however, are atypical in character, and as compared with normal function, ineffectual, there being no proportion between the muscular activity and the forward propulsion of the intestinal contents. Atropine produces a quieting effect on intestinal movements, making them slower and the rythmic movements more regular. There is no vaso-constriction. Adrenalin acts suddenly, causes all motion to cease, and produces paleness. The quieting action is complete but more transitory than atropine and morphine. Psychic influences, if unpleasant, tend to inhibit movements and produce vasoconstriction; if pleasant, they are stimulative. The same investigators were able to observe the effects of some of these agents on a woman who had a large abdominal hernia, with nothing but the thin atrophic, translucent skin covering the intestines. Cold applied, either by dropping ether on the skin or by the Fohn instrument, produced an increase in tone and a cessation of movement. Heat, applied by the Fohn, was never quieting but always produced definite increase in movements.

Summary.—From the foregoing it is apparent that gastric motility is not a simple but a very complex function.

By means of the local autonomous neuromuscular mechanism the stomach is capable of performing its motor functions in an essentially normal manner, even when separated from the central and sympathetic nervous systems by section of both vagi and both splanchnic nerves.

Normally, however, the gastric motor functions are modified by many extrinsic influences. Motor impulses, and those for increasing tonus and accelerating peristalsis, pass through the vagus nerves. These impulses are increased by mental excitement and impaired by physical exhaustion.

Inhibitory influences, those for reducing tonus and retarding peristalsis, pass principally through the splanchnic nerves. These impulses are increased by mental depression and impaired by the internal secretions of the adrenals.

The functions of the pyloric sphincter are under the control of conditions in the stomach, and are modified by nervous reflexes from the duodenum and small intestine.

The following agents have a sufficiently definite effect on gastric motility to be of therapeutic value: heat and cold applied to the abdomen externally; massage of the abdomen; atropine, physostigmine, pilocarpine, either by mouth or by hypodermic injection; hypophysis extract and suprarenal extract intravenously.

Surgical operations performed on the stomach for the purpose of facilitating the discharge of gastric contents are sometimes only a partial success, or even an entire failure, when planned and executed in conformity with anatomical relations rather than physiological considerations. The size, shape, position, tonus, and capacity of the stomach vary under physiological conditions. Therefore, in a gastrointestinal anastomosis, the operation should be so performed and the stoma so situated that the discharge of gastric contents would *not* be hindered, but facilitated by the physiologic motility of the stomach. Gastric and intestinal peristaltic waves should run in the same direction. The stoma should be situated in the pyloric antrum, where the expulsion of gastric contents will depend upon peristalsis instead of gravity, and where it will be lowest when the stomach is nearly empty.

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THE PRESENT STAGE IN THE TREATMENT OF SYPHILIS.

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THE old doctrine that the treatment of syphilis should not be begun until the diagnosis is firmly established, while still held by a large proportion of the authorities on the subject, is losing much of its force, in view of the advance in knowledge in the past few years. We no longer wait for the appearance of the secondary eruption on the skin or mucous membranes, as the *Spirochæta pallida* may usually be discovered easily in the secretions from the chancer; and its presence is pathognomonic. But there are still some early cases in which we are in doubt: the history of the development of a lesion at a reasonable interval after exposure and the clinical picture may be suspicious, while the microscopical findings are doubtful; at so early a period the Wassermann reaction is usually negative. Under these circumstances, is it better to wait till the organisms are discovered, as Hoffmann[1] advises, or to begin treatment at once, as Neisser[2] recommends? The latter appears to be the wiser course. Hitherto it has been customary to wait for a positive diagnosis in order that we might

have sufficient grounds to insist upon the prolonged treatment, lasting at least two or three years, by which alone we might even hope to eradicate the disease. Without such positive knowledge the patient was only too sure to cease treatment as soon as his fears were allayed. Now, by a series of Wassermann tests, especially if a provocative injection of salvarsan is given, it is possible to arrive at a reasonable assurance that the disease is extinguished, even within the first year, if indeed our therapy has been so fortunate. Even the few days saved by beginning treatment at once, rather than waiting till the spirochete are discovered, in case the first search is fruitless, may be of vital importance, for we realize now as never before how early the invading organisms may reach the central nervous system, and how difficult the attack upon them becomes, once they have advanced so far. It is the permanent and progressive injury to the nervous and the vascular systems that make the disease the scourge it is in its later stages, and both are often attacked from the earliest period. To prevent the injury of these vital systems, it is important to begin treatment at the earliest possible moment, and to rid the body of its invader in the shortest possible time.

Until the past few years, the best hope was in the energetic use of mercury. Then came Ehrlich's brilliant discovery, and for a few weeks there was hope that a single injection of salvarsan would work a cure. That dream is past, and now we know that not one nor five injections of salvarsan alone will in the majority of cases be sufficient. It is no longer necessary to use salvarsan alone on the plea that only by so doing can we test its efficacy. Its efficacy is already tested; it works wonders, clinically, lesions long resistant to mercury disappearing under its use as snow before the sun, but only after repeated use, and not always then, can we expect the Wassermann reaction to become and to remain negative, and so long as the Wassermann reaction is positive we cannot claim a cure. The results of the use of mercury and salvarsan together are better, and up to the present time this is the best method known.

If the case be still in the primary stage, it may be well to excise the chancre, if this may be done without producing deformity, as when the sore is situated on a loose prepuce, because by so doing a certain number of spirochætæ are removed at once; but after all the real benefits of this operation are problematical, the important part of the treatment is the constitutional.

The way in which mercury is given is very important. Injection is probably the best method, though inunction is very efficacious also; the choice will be determined largely by circumstances such as the necessity for absolute secrecy, the possibility of having the rubbing intelligently performed, the patient's endurance of pain. Administration by the mouth has no place here; it may be useful later in the disease, but not in the early stages, where the object of treatment is to secure the maximum effect in the shortest possible time. It is best to begin with an intramuscular injection, say of one grain of the salicylate of mercury in liquid albolene, and to follow this in a day or two with an intravenous injection of salvarsan or of neosalvarsan, 0.2 g. or 0.3 g. respectively for a man, 0.15 g. or 0.2 g. for a woman. The object in giving the mercury first is to prevent the reaction which is so common after the first injection of salvarsan, and which is probably due to endotoxins arising from spirochætæ killed by that drug. The action of mercury is much slower, and apparently gives the system time to destroy these poisons without any appreciable reaction. The object in making the first dose of salvarsan so small is to test the reaction of the patient, and so to avoid the danger of injury to the nervous system by the drug itself. If these initial doses are well borne, as will be the case with practically all patients, both drugs should be given again in four or five days, the salvarsan this time in larger dosage, say 0.3 g. for a man; and then salvarsan is to be given at ten-day intervals, in doses of 0.4-0.6 g. each, for four more injections. The mercury, meantime, is to be continued in full doses, by injection or inunction. The patient should be warned to take a mild cathartic the night before the injection of salvarsan, to eat very sparingly that day, and to keep quiet for about eighteen hours after. With those precautions ambulatory treatment is safe, and is now the rule rather than the exception. Such a course will frequently prevent the development of a Wassermann reaction in primary syphilis, or convert an early positive reaction into a negative one. It should in any case be followed by a period of rest from all specific treatment lasting four to six weeks, during which the patient's general condition should receive careful attention. The Wassermann reaction should be tested at the end of this time and if found to be positive the whole course should be repeated; if negative, the second course may be made considerably shorter, but both mercury and salvarsan should still be used. The subsequent treatment will depend on the results of the Wassermann tests, and on the occurrence or non-occurrence of clinical symptoms. So long as there are any signs of the disease, whether clinical or shown by laboratory findings, treatment by courses of mercury and salvarsan should be continued and no patient should be considered cured until he has shown a negative Wassermann reaction for at least a year after the last course of treatment, and after a provocative injection of salvarsan.

This plan is of course a mere outline and details will vary with the physical condition of the patient, the character of his lesions, and his response to treatment. Either salvarsan or neosalvarsan may be used; the former is, apparently, a little the more powerful, but the technique of its preparation is more complicated, it is more irritating to the vein, and any leakage into the surrounding tissues is much more serious. (The intravenous method of injection is now used almost exclusively.) Neosalvarsan has also the great advantage that it can be given in concentrated solution, 0.9 g. in 20 c.c. of distilled water[3], thus simplifying the apparatus necessary, and reducing enormously the danger of using water not absolutely freshly distilled.

When salvarsan was first used, there were many reports of severe affections of the cranial nerves, often with severe headache and fever. These symptoms were, by many, thought to be due to the action of salvarsan itself on the nerve tissues. They seldom or never occur when treatment is begun with small doses, especially when accompanied or preceded by mercury, and what is even more significant, the symptoms yield to further treatment with mercury and salvarsan; these are due to the disease process itself, aggravated by the setting free of toxins by the destruction of the spirochætæ. Their great importance lies in the fact that they show

that the nervous system is already involved, and they demand, therefore, the most thorough and painstaking treatment. The doses, however, should be small, as large doses are apt to aggravate the symptoms, at least for a time. It is in these cases, in the early stages of the disease, that lumbar puncture and the examination of the spinal fluid are of such great diagnostic value, and it is probable also that they would be greatly benefited by the intraspinous injection of salvarsanized serum.[4]

Paresis and locomotor ataxia are now proved to be manifestations of syphilis, but treatment by ordinary methods has been unavailing. Large doses of salvarsan, intravenously, combined with mercury or not, have only a slight and temporary effect on the course of these diseases, and on the pathological changes in the spinal fluid which accompany them. It was to meet this condition that Swift and Ellis evolved the treatment by the intraspinous injection of salvarsanized serum which is at present the most promising method we have.

Potassium iodide still has its place in the treatment of syphilis, especially in the latter stages. Its use is now advised also in the earlier stages, with the object of increasing elimination, and of making the spirochætæ more accessible to the active parasiticide drugs. For the same purpose, recourse may be had to balneotherapy, massage, and any measure which tends to increase the elimination and to improve the circulation; but it is doubtful how much is really gained by these methods. It is now easy, ordinarily, to remove rapidly the clinical symptoms of syphilis, but to assure a permanently negative Wassermann reaction, to destroy the hidden and perhaps encapsulated colonies of the organism, this is, in many cases, difficult. Our treatment is not yet ideal; it may well be that some cases will react better to hectine or some of the other organic compounds of arsenic; and the laboratories may yet provide us with more valuable drugs.

Salvarsan is a powerful drug, and it should be used with caution especially in diseases of the kidneys, the central nervous system, and the smaller blood-vessels; but with careful technique and the use of small doses at the start, and with sufficient intervals between the doses, the number of accidents is growing progressively less.

To sum up: Every case of syphilis, and especially in the early stages when the chance of complete recovery is best, should be treated with both salvarsan and mercury, unless there is some special contraindication to one drug or the other, and treatment should be continued in courses of four to seven weeks, with intervals about six weeks, until all symptoms have disappeared and the Wassermann reaction is negative.

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The Metabolism of Atrophic Infants.—A. Niemann concludes from his study of two atrophic infants that the carbon-dioxide excretion estimated with reference to the extent of the bodily surface is precisely the same in marantic as it is in normal infants.—*Zeitschrift für Kinderheilkunde.*

REPORT OF A CASE OF TUBERCULOSIS OF THE SCLERA OF PROBABLE PRIMARY ORIGIN.*

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The great achievement of Robert Koch has supplied us with a means by which we can learn through a specific reaction if active or latent tuberculosis is present in the human body. Tuberculosis of the sclera will always be of interest to the ophthalmologist whether primary or secondary on account of the rarity of the disease and as Verhoeff has pointed out it is a commonly unrecognized form of tuberculosis. The case which I wish to report has some unusual features and I thought it might be of interest to the society.

Miss A., white, aged 20, was referred to me June 1, 1913, by Dr. H. D. Long of New York for the treatment of the eye condition. Patient gave an indefinite history of having injured the eye as she thought while dressing her hair. She consulted her family physician, Dr. Long. He prescribed some yellow oxide ointment. After this the inflammation did not subside, but she continued under his care and treatment for one month before she consulted me. The eye gradually grew more painful and the inflamed zone so increased and was complicated by the development of hard reddish nodules in the sclera that he thought it best to consult an oculist. Tuberculin had already cleared up the diagnosis for him. On examination I found two or three definite nodules in the sclera, on the temporal side, about 3 m.m. from the limbus. The injected conjunctiva could not be moved over it. The nodules then appeared dark red or violet in color. Another larger dose of tuberculin was given to further confirm the diagnosis. At this time .00004 gm. of tuberculin bacillen emulsion ("B. E.") produced the following reaction: marked infiltration and erythema at the site of the injection, marked constitutional symptoms. Her temperature rose to 101°, and she complained of great headache. The focal reaction in the eye was most pronounced, increased chemosis, and congestion of the conjunctiva and sclera. The eye was excruciatingly painful, but unattended by any secretion save excessive lachrymation. At this time there was no iritis, cyclitis, or keratitis. I advised weak solution of atropine and hot applications in addition to the tuberculin.

Vision:
O. D. 20/15 with correction.
O. S. 20/30 with correction.

On June 5 I saw her again, after she had had another dose of tuberculin. The eye was somewhat more injected. The conjunctiva could not be pinched up from the solid mass which remained in close apposition with the subjacent sclerotic. I found we had here to deal with a diffuse deep scleritis. The treatment was continued.

On June 10 the inflammation in the sclera seemed to be extending and the nodules were more painful. The tuberculin injections were kept up by Dr. Long. I did not see the patient again until June 20, at which time the swelling had increased. The mass was extending both toward the periphery and the limbus, and the inflammation had extended to the cornea and ureal tract. The nodules were dull reddish in appearance. The veins were thickened and the blood darkened, giving the veins a paralyzed look. The pupil was contracted. The strength of the atropine was increased and the hot applications continued, in addition to the tuberculin injections.

On July 1 I next saw her, when she was more comfortable. Up to this time she had had twelve injections of tuberculin. The process did not seem so angry. There was less congestion and the nodules were not so swollen, but there was an infiltration of the cornea at several spots. I did not see the patient again until July 16, at which time the first drawing was made by Dr. Percy Friedenberg. In a letter to me he described what he saw as follows: "On the temporal side of the cornea about at the horizontal meridian there is a de-

*Read at the annual meeting of the American Ophthalmological Society at Hot Springs, Va., May 12, 1914.

cided crescentic opacity near the limbus, and at the limbus a small, flat smooth nodule of chamois leather, or pinkish buff color. Continuous with this, and spreading through the sclera to the outer canthus, there is an area of inflammatory thickening and injection. General color, dull pink or old rose, not uniform, and near the upper margin of the area, which is broadly ribbon shaped, there runs an enlarged vein of dark rose color. The scleral infiltration is soft in appearance, almost jelly like; the corneal nodules more consistent. There is very little general conjunctival injection."

I did not see the patient again for about one month. She went away to the country, but kept up the injections of tuberculin and eye treatment.

On August 16 the thickening of the cornea was softer looking and more greyish and the congestion of the diseased sclera not so pronounced. The dose of tuberculin was rapidly but cautiously increased. Patient was now getting .0001 gm. of tuberculin every four days.

On September 1 the patient's eye was not so well. There was increased capillary pressure and venous engorgement, and, locally, circulatory disturbances which led to increased transudation and swelling of the nodules. The cornea became involved by interstitial infiltration, which was localized in the form of round placques near the margin of the limbus. The treatment was continued.

On September 15 I next saw the patient. The condition seemed to be slowly subsiding, but there was still slight iridocyclitis, due to the inflammatory process having extended from the sclera to the ciliary body.

On September 24 the patient was given .02 gm. of B. E. and on September 28 she was given .04 gm. On October 2 she was given .06 gm. and on Ortober 6 the dose was cut down to .01 gm. on account of general reaction. The injections were continued every four days.

On October 19 the patient showed the encroachment of scar on outer border of the cornea and a further encroachment below on temporal side. There was a decided injection of sclera over the affected area, purplish in color, and marked injection of vessel leading to outer canthus. She was given .028 gm., with severe general reaction, marked reaction of lesion, and marked infiltration and erythema at the site of injection. The injections were discontinued.

On October 29 the eye was much better. The infiltration in the sclera was absorbing, leaving behind a slate colored cicatrix. The pupil was dilated and the eye was not sore or painful. This peculiar slate colored pigmentation not only points to the diagnosis, but gives the etiology as well. Dr. Friedenberg made his second drawing. You can see the patch of scleral discoloration, also the remains of the dilated and tortuous vein.

On November 7 the patient was given .00002 gm. and the dose was gradually increased again until she had her last injection on December 5, which was .0004 gm., when the eye had apparently recovered and was perfectly quiet and the treatment was discontinued. The eye has remained quiet up to the present time, February 15, 1914. Her vision now is

O. D. 20/15 with + .50 axis 105°.
O. S. 20/20 with — .50 + 1.50 axis 90°.

Except for the scars on the cornea and the pigmentation of the sclera, you would not know that anything had ever happened to this eye.

Prior to sending her to me Dr. Long had made a thorough physical examination of her lungs, which was negative. Patient well nourished and healthy. Also there was no enlarged or diseased tonsils and no bacilli could be found in the sputum. Family history good. We did not subject this lady to the Wassermann, as we did not think it was necessary. Verhoeff[1] claims that these nodules in scleritis with the reaction are conclusive evidence of the tuberculous nature of the process. The question naturally arises, how was the sclera infected? Was it primary?

Some ophthalmologists claim that deep scleritis is always secondary. Parsons[2] is in doubt on the subject. A close observer like Weeks[3] calls attention to two cases of apparent primary tuberculosis of the sclera. One of the cases was reported by Brailey[4] of a young girl who was treated at Guy's Hospital. The other was Müller's[5] case which was a cyst of sclerotic, the walls of which were composed of miliary tubercles. Goerdeler[6] in his exhaustive article on rare forms of tuberculosis reports six cases of primary intestinal tuberculosis, one primary of the uterus, one primary of the liver and three primary cases of the urogenital, no other lesion being discovered at necropsy.

We all know that it is possible to have a primary tuberculosis of the conjunctiva following an injury. The history of traumatism followed by prolonged inflammation and infiltration together with the absence of any signs of systemic involvement, leads me to believe that the sclera was inoculated by the lodgement of dry bacilli in the form of dust on the conjunctiva, through which the germs passed at the time of the injury.

Notwithstanding all our advanced methods of examintion and points in differential diagnosis, we cannot state as an absolute fact that any case of tuberculosis of the sclera is primary, but the preponderance of evidence in this case indicates that it was primary. It is interesting to note that this patient had fifty injections of tuberculin. The last dose was given on December 5, at which time 0.0004 gm. was given. Fifty injections seems like a small amount to give a patient when we stop to consider that White[7] of London has taken over 500 doses himself, extending over a period of seven years, for general tuberculosis. White has now watched many patients who have taken tuberculin steadily for periods varying from two to five years. Cases of tuberculosis of the eye, of bones, of glands, of the skin, and of the throat, and the improvement in many of the cases was due to tuberculin and to tuberculin mainly.

Fenwick[8] speaks of two ways of giving tuberculin, one by hypodermic injection and the other way by the mouth. The former is obviously the more scientific and the latter has been generally condemned as of no value. Nevertheless, it is a method that Fenwick has employed as a routine in the out-patient department and he speaks of it in the highest terms.

In concluding, will say that from the experience I have had in treating scleritis, sclerosing keratitis, and anterior uveitis with tuberculin, I have found that it is not necessary to increase the dose of tuberculin to farthest limit of tolerance. I believe strongly in small doses to begin with, gradually increased and continued over a long period of time. I have never seen any harm result from its use. Well-diluted tuberculin treatment constitutes a real and great therapeutic progress.

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THE NEGLECT OF THE AGED.

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It needed the pen of a Dickens to rouse the public conscience to the neglect of the dependent child. In Oliver Twist, the child of the workhouse, he planted the germ of discontent with existing conditions, and this germ grew and multiplied and spread until the child today has the world for its guardian.

Could some kind Dickens of our time with equally persuasive and forceful pen study and expose the conditions in our almshouses and asylums for the aged he might with equal success rouse the public conscience to the neglect of the aged. And as interest in the dependent child led to the scientific study of child welfare, so might an interest in the dependent aged lead to the scientific study of senility, of the needs and wants, the peculiarities and infirmities, the happiness and welfare of the aged. There is not, so far as I know, any organization taking up the scientific study of the aged, not a journal devoted to their welfare, no movement of any kind interested in their betterment. International congresses are held to discuss child conservation, while the aged receive but the scantiest attention. The aged in institutions are dealt with as they have been dealt with for generations, though here and there some official who possessed the initiative and determination, coupled with sympathy and common sense, has introduced innovations that tended to make his aged charges healthier and happier.

The medical care of the aged has received but little consideration; indeed, it is only a few months ago that the first modern American work on this subject appeared.*

It is hardly necessary to discuss the causes for this neglect. I have referred to this matter repeatedly. There are few so altruistic that they can completely eliminate thoughts of economic value from their humanitarian spirit. In a former paper on this subject I said: "In this utilitarian age we gage the desirability of men and things by their practical value," and this applies as well in the work of philanthropy as in other fields of human endeavor. It applies with special force to the medical profession who have heretofore neglected the aged, using the term "old age" as a handy excuse for a diagnosis and a cloak for ignorance. We are only beginning to realize that old age is not a disease any more than childhood is a disease—that it is a period of life in which certain diseases prevail, while other diseases prevalent in earlier life do not occur; that the aged present many interesting medical problems; that they require special study and special care.

But the altruism of the physician is tinged with the spirit of commercialism, and it is influenced, consciously or subconsciously by the factor of economic value. The child has a prospective economic value, the patient in the hospital may if he recovers have an economic value; the aged are nearly, if not quite, economically worthless.

In many cases the sense of uselessness is imposed upon the aged by those who do not know the mental and physical capacity of the aged individual. In a mistaken spirit of kindness the aged person is withdrawn from his accustomed routine of life and is made to feel that his usefulness to mankind is lessened, and if he is at all sensitive he realizes that he is no longer a producer, but a consumer, and a burden. Not only in this, but in many other directions does the ignorance of senile mentality and the senile organism tend to the detriment of the aged, making them more unhappy, increasing their infirmities and shortening their lives. I have visited a number of institutions for the aged and found in every one, even in the best and most elaborately equipped, this lack of knowledge of the senile mind and body leading to faults in the care of the aged which could be avoided.

Much can be said in favor of institutional care of the aged; more can be said against it. Where expense is the deciding factor the rending of home ties, the separation from the family and friends, the changing of lifelong habits, the loss of self-respect in the recognition that one is virtually a pauper dependent upon the bounty of the community or body maintaining the asylum, the inevitable mental depression that follows inactivity with gloomy retrospection and dismal foreboding, all these count for nothing against the lower cost of maintenance in the institution.

Dr. Paul Ritter, Minister of Switzerland, informs me that in several cantons—Zurich, Thürgau, Appenzell, Uri, Basel-land and Lucerne—the poor and aged are cared for in asylums and in private families. Some place the dependents in different families alternately, while Zurich places its dependents with private families only in the country districts. He says this system has certain drawbacks and has not proved to be very satisfactory. From a purely humanitarian standpoint the family care of the aged is incomparably better than institutional care. The child brought up in an institution is accustomed to institutional life. The aged find in institutional life a constant, galling restraint, a severance of their past freedom; family relations and ties are disrupted; domesticity, privacy, independence, the love of home, even interest in life are lessened, suppressed or entirely abolished. Life becomes one dreary, monotonous routine, the mind becomes apathetic, the body becomes weak, existence becomes automatic; a helpless, hopeless, purposeless existence dragging along to its dismal end. How different in lands where reverence is done to the aged, where sympathy is not measured by cost, where old age pensions enable the aged to maintain their little homes or aid the family to support them, and not force them to the dreary, soul-destroying life of the poorhouse.

It is not my purpose here to appeal to the heart (though I hope this may touch the conscience), but to show faults in the care of the aged in some institutions that I visited, and how some of the faults may be remedied with little or no expense. We must remember that the asylum is usually the last resort, that the inmates enter when they can no longer earn a livelihood, when they have no means or family ties or when the family cannot or will not look after them. The separation from home, family and friends is itself depressing, and this depression is increased by the sense of lost independence, in enforced obedience to rules which ignore personal wishes and lifelong habits, and the sense of dependence upon public or private bounty. Other depressing influences are the unavoidable association with undesirable companions in misery, the segregation of the sexes and lack of mental occupation, permitting the mind to look back with regret or forward in despair.

*Nascher: Geriatrics. The Diseases of Old Age and Their Treatment. Philadelphia, 1914. P. Blakiston's, Son & Co.

I know of no more senseless, heartless rule than the segregation of the sexes. In the few institutions in which the men and women are permitted to associate they take better care of their personal appearance and they take an interest in life. The effect of segregation as compared with free association of the sexes is clearly observable in the New York City Farm Colony. Married couples are housed in cottages, where each couple occupies a separate room. The inmates meet each other, take an interest in each other's welfare; they take a pride in their personal appearance and in the appearance of the cottage and their rooms. In other parts of the institution the sexes are segregated, the inmates become indifferent to their appearance, slouching in their attitude, apathetic or morose. The superintendent occasionally secures the services of an orchestra or a dramatic company which give a concert or performance in the open, the inmates sitting on a terrace which they constructed for this purpose. On these occasions the men and women sit together and both men and women fix up to look neat and clean.

In the Home of the Actors' Fund, which is conducted like a good family hotel, the inmates are called permanent guests and they associate as freely as they would at any other hotel. They take pride in their appearance and in the appearance of their Home and of their rooms, some of which are elaborately decorated by the inmates occupying them. The inmates belong to the theatrical profession, and, being accustomed to hotel life, find here as close a semblance to their home life as is possible in an institution, with the advantage of a beautiful situation and beautiful grounds, marred only by the proximity of an adjoining cemetery, a constant reminder of death. The dining room has small tables seating four to six guests. Aside from the necessary restrictions as to rising, meal and closing hours, the inmates are free to come and go at will. They have a well-stocked library, smoking room, billiard room, parlor, sewing room, etc. This institution, now holding thirty-five guests, and which can hold one hundred, is the model institution of its kind. The principal fault here is lack of occupation for the men, for, while they are not accustomed to manual labor, the routine becomes monotonous and they become apathetic. Being considered guests, they are not urged to do anything, and they lead lazy, purposeless lives, and mind and body become "stale" from inactivity. There is no infirmary ward, and an inmate becoming ill remains in his room while a neighboring physician is called in. If the illness is serious the patient is removed to a hospital several miles away. The superintendent is a graduate pharmacist, well able to take care of minor ailments and to give emergency relief.

While most of the aged in institutions are more or less ailing or complaining, few institutions have a resident physician. In the New York City Farm Colony, with 1,000 inmates, nearly 100 were in the hospital wards, in charge of a single nurse and one visiting physician. There is nearby the Sea View Hospital for Tuberculosis, from which a physician could be summoned in an emergency, but the interne of a tuberculosis hospital is as little prepared to treat senile cases as the ophthalmologist would be to perform a cesarean section. With a growing interest in geriatrics in medical schools, it should not be difficult to secure internes for homes for the aged. Surely the aged invalid, who has sense and sensibilities, who feels the physical pain of disease and the mental anguish of neglect, who has been of some service to mankind while he was able to be of service, deserves at least the attention that is given to the idiot and imbecile, who have a resident physician in their institution.

The National Home for Disabled Volunteer Soldiers and the various state homes for soldiers and sailors generally make suitable provision for the ill and ailing. Let me quote here an extract from a letter from Dr. James E. Miller, Inspector General and Chief Surgeon of the National Home for Disabled Volunteer Soldiers:

"There are ten branches of the National Home for Disabled Volunteer Soldiers. Each branch has a hospital with bed capacity sufficient to care for one-fourth of the members present; comfortably furnished, amply equipped with modern instruments, appliances and apparatus necessary for the proper care of the sick. At four branches there are special facilities for treatment of tuberculous patients. The hospitals of the Home are equal in points of efficiency and equipment to the best in the country. There are sixty-five efficient surgeons on the medical staff of the Home."

I have not visited any of these homes, and base conclusions solely upon the published reports. The inmates are well supplied with amusements and recreations, but not with occupations which would keep their minds occupied. This probably accounts for the large number of cases of drunkenness reported. At one branch 680 out of 968 minor offenses were drunkenness out of an average number present and absent of 2,626 (1913 report). The food is plentiful, but some articles are clearly unsuitable for aged ailing individuals.

The City Farm Colony is a branch of the New York City Homes for the Aged and Infirm, the institutions formerly called the Almshouse and the Poorhouse. Of its 1,000 inmates about 100 were in the hospital building and nearly 700 were employed in the fields and shops and on construction work. This institution can serve as the model for the systematic employment of aged dependents. The inmates are mostly from the lowest and poorest stratum of society, many are ailing, others complaining, others lazy, but the able superintendent has succeeded in instilling in his charges a sense of usefulness, and they work cheerfully, many without supervision. They are urged but not forced to work, they are not hurried, and they rest when tired. The men work at trades with which they are familiar, those having no trade working in the fields, on construction work or in the broom factory or other shop where skilled labor is not required, working eight hours a day. Those least able to work set and clear away the dishes on the tables in the dining hall, while a few of the more able-bodied and better-educated men are made overseers at nominal wages. The women look after their dormitories, sewing and laundry.

The work is so thoroughly systematized that there is employment for all, nearly everything about the institution, on the fields and in the shops is done by inmates, and the products of the fields and shops are disposed of, so that the cost of maintenance is reduced to about 31 cents a day per inmate, said to be the lowest cost per inmate in any public institution for adults. The great advantage is, however, that the inmates have their minds occupied with their tasks, they feel that they are not entirely useless and their thoughts are not fixed on self and death.

This institution is conducted along strict institutional lines, with rigid rules, clearly defined duties and absolute restrictions. These rules and restrictions are probably necessary to control so large a body of paupers who are unaccustomed to cleanliness and order, yet much could be done to make their lives brighter and make them more comfortable without impairing discipline. In all my writings I have urged mental stimulation as the most effective means of warding off the mental depression which leads to melancholia and dementia. The frightfully monotonous life in the institution leads to a lethargy in which the individual becomes an automaton, acting mechanically through force of habit. It is a simple matter to stimulate interest in life while the individual still has some interest; it is difficult to rouse him out of his lethargy when he has once reached that condition. One of the most potent measures to keep up interest in life is through newspapers and the discussion of the affairs of the day. Newspapers and other reading matter could probably be obtained at little or no expense, but the aged generally have presbyopia, and they cannot read without proper glasses. The mental impression produced when we read a paper is much more powerful and lasting than when we hear it read. If these poor people were supplied with glasses and newspapers they would take a greater interest in life and in themselves. Here is a fruitful field for public and private philanthropy. I was informed that no provision was made for recreation or amusement, that the superintendent upon his own initiative secured the orchestras and dramatic talent which gave the occasional performances to the inmates. On rainy days, when the inmates cannot go to the shops or work in the fields they remain indoors and do nothing—nothing but think with regret of the past, in despair of the future. There is no piano or phonograph to chase sad thoughts away, no games like checkers or chess to while away dreary hours. True, they are paupers, they may have been improvident; now they are unfortunates and look for sympathy and kindness.

In one institution near Vienna there are enough inmates able to play musical instruments to form a good-sized band, and they give occasional public concerts. The income from these concerts supplies the inmates with little luxuries which they procure at a canteen on the grounds. It would probably not be possible to recruit an orchestra from the inmates of the Farm Colony, but out of a thousand inmates one or several would be found who could play the piano.

A universal fault in institutions for the aged is improper feeding. The falling out of the teeth is nature's signal that food which must be masticated is to be avoided. The principal article of diet which requires chewing is meat. Almost all other foods can be crushed between the tongue and hard palate, either dry or when moistened or soaked. Fats and insipid articles of food are distasteful and they should be avoided on physiological grounds. While it is not practicable in a large institution to furnish meals suitable to each individual, it is possible to so arrange the dietary that those unable to chew can get sufficient food without meat. In the New York City Home a pious Jew would not eat proscribed dishes and almost starved until he was transferred to a Jewish home for the aged. In one institution the superintendent introduced a cathartic in the food one day each week, a pernicious practice, heartless as well as ignorant. Drugs should never be given indiscriminately, never without a physician's order, or so as to incommode other inmates.

A fault which prevails in many institutions is inadequate bathing facilities. The aged find it difficult to enter a bath tub and more difficult to get up after the bath. Stout women are often unable to get up without assistance, and for this reason they dread the bath tub. This trouble can be avoided by using a shower bath and allowing the bather to sit upon a chair.

In one institution there were no carpets on the floor, the inmates were not permitted to go barefoot, but several had bladder and prostatic troubles which compelled them to go to the toilet at night. When this happened they awoke the whole dormitory. A strip of carpet removed this source of insomnia. In another institution the windows were opened during the day even in winter. At night they were closed and the heat was turned on. The bedding during the day was folded over the foot of the bed and the bed was still cold when the inmates retired. They could not fall asleep until the heat from their bodies warmed the bed sufficiently to make them comfortable, and those who had bronchitis began coughing as soon as they entered the cold bed. As there were a lot of empty mineral water jugs in the cellar, I suggested that the inmates fill these with hot water and each one put a jug in his bed as soon as he went to the dormitory after supper, and when he entered the bed he could push the hot jug to the foot of the bed and keep his feet warm.

Many aged persons have bromidrosis, and where a large number congregate in a room the odor soon becomes exceedingly offensive. In one institution there is no infirmary ward, and there are several bedridden cases in the dormitories. During a cold spell the windows could not be opened for a few days, as the bedridden patients could not be shifted and the atmosphere became nauseating. In one institution the inmates are paired off so that each one has a companion. The companion of an inmate who had hemiplegia acquired through mimicry a similar gait, and in another case an inmate acquired a senile tremor in like manner. Separation and disciplinary measures were necessary before it was possible to overcome these habits. In another case association with a garrulous dement resulted in a quarrel in which the dement was injured and the other developed delusions of persecution.

Other faults frequently met with in institutions are neglect of the petty ailments, such as broken down arches, corns and bunions, pruritus, pains in the joints (arthrosclerosis), etc.; lack of canes, the presence of curiosity seekers and professional sympathizers, inadequate facilities for holding religious services, mingling of nervous and mental defectives with impressionable, healthy cases, irrational amusements and recreations, uniform costumes, sometimes lack of sympathy and interest on the part of the superintendent in his charges, more often failure to encourage interest of the inmates in their institution.

Not alone should the inmates of asylums for the aged be urged to keep their minds and bodies employed, they should be permitted to dispose of their products or abilities and use their earnings for the general betterment of their institution. The object should always be to instil a sense of usefulness, even if it be only the ability to go on errands.

Segregation of the sexes should be prohibited, and as the association of the sexes will rouse pride in appearance they should have the facilities to

enable them to make a good appearance. This is not so important in soldiers' and sailors' homes, but in other homes this separation from the opposite sex is a hardship for which no good reason can be given. Such association will arouse interest in others and in the surroundings. A distinctive pauper costume is as humiliating as are the prison stripes.

In the course of this paper I have touched upon some other factors applicable to the institutional and communal care of the aged which should receive careful study. Such are the cottage system of housing, the distribution of aged dependents among families, the earning capacity as a contribution to the cost of maintenance, systematic employment, the canteen, stimulation of interest in the institution and in self, etc. The City Farm Colony has a well-equipped printing office manned by inmates, which could publish a weekly or monthly journal dealing with the institution and department and to which inmates could contribute.

These matters deserve attention and study, far more study than one individual working without assistance can possibly give to them. But to receive attention it will require the forceful and persuasive pen of a Dickens to rouse the public conscience to the neglect of the aged.

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A MEDICAL BUGBEAR: DISPENSARY ABUSE.

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About three million men, women, and children are now receiving treatment annually at the seven hundred odd dispensaries and out-patients departments scattered over thirty-eight of the forty-eight States of the Union. What is the greatest problem of these seven hundred institutions? On first thought it would seem to be: to give efficient treatment to their three million patients. But no! If we may judge by the most prevalent topic of discussion, the prime dispensary problem is to keep persons from getting treatment! Those persons, to wit, who are not "proper objects of medical charity" because they can pay. "Dispensary abuse" (by "persons able to afford private physicians") has been talked about in this country for twenty-five years. The subject of dispensary efficiency is but just beginning to be broached.

To exclude an improper clientèle is no doubt a fair requirement of an institution (if we can decide what "improper" is to mean). But to give efficient service to its proper clientèle is the first duty of an institution, if it is to exist at all. Efficient medical service to three million persons in the United States is a public health matter of considerable magnitude; and it is unfortunate that discussions about dispensary "abuse" have thus far crowded out almost all discussion of efficiency. Since it is happily true that the emphasis now appears about to shift, as it ought, it seems timely to review what has been said about this bugbear of "abuse" and see what is has amounted to.

Three dispensaries were founded in the United States in the eighteenth entury, but the number increased very slowly until toward the close of the nineteenth. Discussions of dispensary abuse began to appear in our medical journals after the year 1875, and became frequent after 1890. In New York City, where dispensaries multiplied earlier than elsewhere, the problem naturally came earlier to the attention of the profession, and provoked varying comments. "A Propagator of Pauperism: the Dispensary" was the title of an article by Dr. George F. Shrady, published in 1897 in *The Forum*.[1] "It may be broadly stated," says the article, "as the result of exhaustive statistical study, that fully 50 per cent. of the patients who apply for free medical aid are totally undeserving of such charity. . . . In New York City alone there are 116 dispensaries, each of which is vying with the others in propagating the worst form of pauperism."

As an example of another view, from a widely different standpoint, we may quote from a paper by Dr. W. S. Thayer[2] in which he cites, with general approval, an "eminent physician," unnamed, as follows: "My views on dispensary abuse have never been winnowed and tried out by careful investigation of the subject, but so far I think the chief dispensary abuses are: (1) The abuse of patients by careless doctors and internes. (2) The abuse of opportunities by careless doctors and externes. That any great harm comes from the free treatment of the folk who can pay, I doubt. . . . I think it more than made good, from the point of view of the public good, which is the only point of view that we can take, by the physical, psychical and educational good done by the dispensary, even for rich patients. I do not believe you can surely weed out the rich, either, by any spotting process."

In seeking the truth which lies somewhere on the middle ground between these extremes, our first question may be as to the facts of the case. What *facts* about dispensary abuse do we know, or what facts should we know, in order to form reliable judgments?

We may thus ask two questions: (1) What investigations have actually been made of the social or financial condition of dispensary patients? (2) What is the present practice of dispensaries with reference to the exclusion of patients from treatment?

Facts Known About Dispensary Patients.—At the International Conference of Charities, Correction, and Philanthropy, 1893, in the Section on Hospitals, Dispensaries, and Nursing, Mr. Charles C. Savage[3] reviewed the history of dispensaries, and stated that one-quarter of the population of New York City were receiving dispensary aid (present statistics do not indicate such a proportion). Mr. Savage based this statement on an investigation which he declared had been conducted by the New York Charity Organization Society. From the ninth annual report of this organization (page 26) it appears that, in 1884, "this society undertook to examine for the German Dispensary, the ability to pay for treatment of such of its applicants as were referred to us, with the following result: 43 per cent. were found able to pay, 27 per cent. were found unable to pay, 30 per cent. gave false or mistaken addresses."

"Each year as it became more widely known that the dispensary availed itself of our investigations, applications from those who could well afford to pay for advice and treatment diminished, until in 1889 the following very different results were reached: Those able to pay declined from 43 to 23 per cent. Those giving false addresses or other evidence of deceit fell from 30 to 25, and correspondingly. Those entitled to the benefits of the dispensary, after thus sifting out the imposters, increased from 27 to 52 per cent."

Inasmuch as the Charity Organization Society did not investigate all the applicants at the German Dispensary, but only such cases as were referred to it—which unquestionably were the doubtful cases—we can in no way estimate the real meaning of the figures which they reported. As will be seen, an investigation of one thousand cases conducted in 1910-11 led to an entirely different conclusion.

Dr. Shrady's attack, already quoted, was by no means the first of its kind,* and did not find the dispensaries without defenders. The rapid growth of these institutions in the metropolis, however, led to considerable agitation, with the result that the well-known law licensing dispensaries throughout New York State and placing them under the general supervision of the State Board of Charities, was enacted in 1899. Besides requiring certain items to be annually reported, records kept, and a registrar on duty at every dispensary—these really being highly valuable features of the law—this legislation prescribed a form which applicants for treatment had to sign, attesting their income, etc., and also required that the penalty for false representation should be printed upon the admission card given to every patient. No violations of this law appear to have been prosecuted during the fifteen years since its enactment.

In 1903 the Hospital Association of Philadelphia caused an investigation of dispensary patients to be made, but I have not been able to obtain a copy of the report. In 1905 a symposium on the subject was published in the *Boston Medical and Surgical Journal*. Dr. George W. Gay[4] sent out at this time a questionnaire to more than 400 physicians in Boston and vicinity. A large majority of the three hundred odd answers which were received stated that, in the opinion of the physicians, medical charity was abused in the hospitals and dispensaries in Boston, and that it was practicable to correct it. Such a questionnaire, of course, collected only opinions and furnished no *facts* regarding the extent or character of abuse, nor concrete suggestions how corrections should be made.

In 1907 the Chicago Medical Society appointed a "Committee on the Abuse of Medical Charities," which secured co-operation from the Associated Charities of Chicago, and presented a report.[5] This indicated that, out of fifty-five dispensaries said to be treating approximately 500,000 patients a year, only three instituted any "adequate investigation into the economic capability of their patients." The Committee of the Medical Society, however, made no investigation into the economic capability on its own part.

Dr. W. S. Thayer[2] reported in the same year (1907) the results of the investigation of a committee of the Medical and Chirurgical Faculty of Maryland. This, like Dr. Gay's report, was based on consultation with physicians. The *Journal of the American Medical Association*, commenting editorially on this report, said: "It would seem to be more to the point if an exact tabulation of Baltimore dispensaries had been made."

Such a tabulation on an extended scale was carried through in 1910 by the Medical Society of the County of New York,[7] which employed Miss Anna Moore, Ph.D., an investigator trained in the work of the New York Charity Organization Society, to study a thousand cases selected at random from the books of thirteen dispensaries in Manhattan. Miss Moore visited the homes of these patients, but was unable to locate two hundred and twenty-five out of the thousand. The tables submitted by her indicate that of the seven hundred and forty-five patients whom she located and whose financial conditions she studied, six hundred and seventy-two, or 90 per cent., were "worthy of free treatment." The remaining seventy-three, or approximately 10 per cent., seemed "Able to pay for medical treatment under ordinary circumstances. But the margin over and above fixed expenditures seems in most cases so slight that in illness demanding continued treatment or the services of a specialist, to pay a physician would mean for them serious deprivation or the incurring of a debt from which afterwards it would be difficult to escape. In fact, in almost every one of these cases, there seemed a very reasonable doubt as to how the case should be regarded."

Of the two hundred and fifty-five cases which could not be located at the addresses given, Miss Moore estimates that the addresses were probably given incorrectly with intent to deceive in thirty-two cases, or 12½ per cent. In the remainder, the failure to find the patients was due to incorrect transcription at the dispensary of name or address (estimated at 34 per cent.), and to the moving of patients or families between the time their address was recorded at the dispensary and the time Miss Moore's visit was paid.

At the Boston Dispensary studies were begun in November, 1911,[7] and have since been pursued, covering altogether five groups of patients, 1,881 in all. The primary purpose was, of course, not to estimate the amount of "abuse," but to ascertain how facts as to social and financial conditions of patients could be obtained most accurately and economically, and whether standards could be formulated for judging the eligibility of patients for admission. Incidentally these studies have led to the conclusion that the percentage of persons able to pay private physicians for the medical services which they need is very small among the applicants at the Boston Dispensary—not over 2 per cent.*

We may now summarize our answer to Question No. 1, "What *facts* are known about the extent of dispensary 'abuse?' "

So far as can be discovered, only two investigations into the facts of this matter have been made, by studying a representative group of dispensary applicants selected at random. These two studies, conducted respectively in New York and Boston, prominent centers of dispensary work, both lead to the conclusion that the percentage of so-called "abuse" is small. People who can pay for medical service seem to appear rarely as applicants for dispensary treatment.

Local conditions vary, and no dictum based upon two investigations should be applied everywhere. But until facts are forthcoming on the other side, there is no justification for denunciation of "abuse" as an evil largely prevalent among dispensaries.

* Dr. Gurteen, one of the pioneers in the charity organization movement in the United States, in his well-known "Handbook of Charity Organization" (1882), described the dispensary system as a "vast school of pauperism, demoralizing the poor, educating them in improvident habits, and teaching them, in one of the most vital departments of life, to be thriftless and improvident" (page 99).

* Miss Moore's estimate of 10 per cent. was in her own opinion a maximum rather than the probable figure for the proportion of "abuse" among the 745 patients whom she studied. Some of the details of the Boston Dispensary studies will be published in a separate paper.

The majority of statements which have been published upon this matter are based upon impressions of individual cases without reference to the proportion which these cases bear to the total group of dispensary applicants.

Present Practice of Dispensaries in Admitting Patients.—At the present time many dispensaries or out-patient departments of large size are without an effectively worked-out and well-centralized organization, and it is a natural consequence of this condition that systems of admitting new patients are unstandardized, even haphazard. There exist large dispensaries and out-patient departments which make substantially no inquiry of the applicant beyond that necessary to make the elementary clerical items of record and to pass him to the appropriate clinic. At the other extreme are institutions in which careful inquiry is made of every patient before an admission card is issued.

In middle-sized cities the point of view of the local practitioner is often more effectively felt by the chief hospitals than it is in the largest communities. The objections of local practitioners to so-called "dispensary abuse" have, in fact, brought about the most marked reactions in communities of middle size, such as Providence, Cleveland and Detroit. At the Rhode Island Hospital, about 1900, Dr. John F. Peters[9] established a system of inquiry of each applicant at the out-patient department. This system, administered by a clerk of long acquaintance in the city of Providence, involves an investigation of each new applicant by searching the tax books of the city, as well as by questioning the patient.

In New York the Dispensary License Law of 1899, already referred to, had as one of its avowed objects the prevention of dispensary "abuse." The State Board of Charity was given the very important authority of prescribing the record forms to be used in carrying out the law. As a matter of fact, it is doubtful whether the law, as a repressive and punitive measure, has been effective in preventing the entry of patients into dispensaries in New York City who really wished to get medical service free, while aware that they could pay for it. Such patients are very few in any case. It is undoubtedly true, however, that the requirement of a registrar has been of great benefit, if for no other reason than that it necessitates a person responsible for keeping the elementary statistics of every dispensary in the manner prescribed by the State Board of Charity. In most dispensaries in New York the number of patients is far too great to receive any thorough examination in the time one registrar can give to each individual. It is nevertheless true that *the introduction of some system is a good thing* in itself. The New York law has somewhat stimulated dispensary efficiency, but its effect upon dispensary "abuse" has been chiefly indirect. Doubtless this is largely because the amount of so-called "abuse," as shown by Miss Moore's investigation, is and probably always has been relatively small.

In Cleveland, Ohio, the subject of dispensary "abuse" has received considerable discussion, and, what is more rare, some elucidation. Dr. H. J. Gerstenberger,[10] at the well-known Babies' Dispensary, has had a definite system of inquiry of the financial condition of each new patient since 1907, the information gathered at the admission desk being checked by the visit of the nurse to the baby's home made within a week or less after admission.

Dr. A. R. Warner,[11] in organizing the Dispensary of Lakeside Hospital and Western Reserve University, has made one of the few distinctive contributions to the theory and practice of dispensary management and to this special problem of "abuse." In his address before the Academy of Medicine of Cleveland, October 13, 1911, Dr. Warner specified nineteen "abuses" of a dispensary. Of these the treatment of too prosperous people was only one. Three others of Dr. Warner's list were: The abuse of the dispensary by outside doctors, the use of dispensary patients as merely clinical material, and the prescription of treatment which cannot be followed by the patient, owing to lack of opportunity or funds.

After thus throwing down the gauntlet to the medical profession of Cleveland, Dr. Warner took up the constructive task of making the admission desk at Lakeside Dispensary fit the demands of his local community. In his article in the *Journal of the American Medical Association* Dr. Warner outlines the system of classification which he adopted, and which he believes to have been successful at Lakeside. Dispensary patients are grouped by him into four classes: (*a*) Suitable for admission for treatment in any department until admission is revoked. (*b*) Suitable for admission in any department for the current sickness only, any other sickness requiring another interview with the admitting officer. (*c*) Suitable for admission for major or special surgery, or for any chronic condition for which the patient cannot be expected to pay the ordinary fees for the treatment needed. (*d*) Suitable for admission for special examination or consultation only (*e.g.* *x*-ray, Wassermann) no treatment being given.

There can hardly be any question that the classification made by Dr. Warner is useful in deciding whether and how a patient should be admitted. The extent to which these definite classes can be incorporated as part of the routine of a dispensary is another matter. Local conditions would affect this considerably. It is much to be desired that Dr. Warner's scheme be now tried out by several dispensaries, particularly in cities of moderate size possessing only few such institutions.

In 1913 a questionnaire, sent out by the writer under the auspices of the American Hospital Association, included the following inquiries on the subject of dispensary abuse: "What is your system of investigation of each new patient to prevent abuse of medical charity? What is your standard of exclusions, *i.e.* what classes of patients are in practice excluded? How many patients of the total number applying for treatment were thus excluded last year?"

Of seventy-six institutions, mostly very representative ones, which responded to this questionnaire, only thirty-six stated that any applicants had been excluded. Some of the remaining forty may have forgotten to answer the question, but we may probably infer that in most of the forty cases, not much inquiry is made of applicants, and that few are excluded. The thirty-six institutions which answered the inquiry positively, treated approximately 520,000 out-patients in 1912. One of the thirty-six reported that it excluded 20 per cent. of the applicants,* one other reported 12 per cent. excluded,

* The Superintendent of the institution which, in 1913, reported this high percentage, writes, a year later, as follows: "The high percentage of cases turned away (in the report of last year) was due to the fact that the dispensary was reorganized and rebuilt, and at-

another 8 per cent. Five of the thirty-six institutions reported between 2 per cent. and 5 per cent. of applicants excluded; eight sent away between 2 per cent. and one-half of 1 per cent., and twenty-one excluded less than one-half of 1 per cent. Out of the 6,000 "new patients" applying for treatment at the morning clinics of the Boston Dispensary during three recent months, thirty-three were excluded because they were believed "able to pay."

We may now summarize our answer to Question No. 2, the extent to which, in actual present practice, dispensaries reject applicants for treatment:

The average dispensary has not established a thorough system of examinations at the admission desk. This is partly because most dispensaries are administratively weak in general, and, therefore, in this point also; but the chief reason is because dispensary "abuse" is not really prevalent enough to make it worth while to do much about it.

Facts have been secured from a representative number of well-administered dispensaries which *do* maintain systems of examination of patients.* In no case, however, are as many as 10 per cent. excluded because they are believed "able to pay," and in five-sixths of the cases the proportion excluded is less than 2 per cent.

The actual practice of dispensaries in a number of cities thus leads to the same conclusion as the investigations previously referred to, namely, that while "dispensary abuse" has often been made a big problem in discussion, it is usually a small one in reality.

The Broad Problem Behind "Abuse."—The subject which has been briefly surveyed in this paper bristles with deeper questions than have been touched. What is to be done with those who are rejected by the charitable dispensary? Is the need of the community met to-day, by private practice, in many specialties where the cost of service is high? The wealthy can pay for whatever they require; the poor can secure the same physicians as the wealthy, at charitable hospitals and dispensaries; the middle classes, constituting in numbers a majority of the population, cannot obtain the aid of specialists (by this term internists, surgeons, and pediatricians are meant, as well as oculists and laryngologists). The problem of dispensary "abuse" is merely one phase of the much larger social question: How shall the majority of the population, self-supporting and determined not to fall below the poverty line, receive medical service on the best standards of modern medicine, which require laboratory facilities and specialists' service inaccessible in most private offices except at high prices?

We may also ask for light upon such questions as: What standards, if any, can be devised for judging applicants for medical treatment? What procedure, on the part of a dispensary admission desk, is most efficient and economical in attaining the desired ends? Is the exclusion of a minute fraction of applicants a sufficient justification for a more or less expensive service at the desk, or can such a service render constructive benefit to the patients *who are admitted?* These administrative questions must be left for another paper. Dispensary "abuse" will for a while, at least, continue to be a bugbear; but it must not be permitted to be a barrier in the way of improving dispensary efficiency. Those who are responsible for the medical work or for the administration of out-patient departments and dispensaries, cannot ignore the discussion about dispensary "abuse"; but they must not allow it to dominate. Of one principle they may be sure: The out-patient department or dispensary which holds before itself as its prime duty the promotion of efficiency, will not have to worry much about the prevention of "abuse."

tracted to it a large number of men employed in automobile works and their families. Hence the 20 per cent. turned away during the period following reorganization. . . . In the Annual Report, forwarded to you under separate cover, you will note that the social worker turned away 1 1/3 per cent. of the cases. This simply covers the cases referred to her by the admitting officer, who could not decide the standing of these cases at the time of their application. In addition to this number, the admitting officer referred back to private physicians 2 per cent. of first applicants. This dispensary is thus now rejecting 3½ per cent. of the applicants."

The reason for rejecting patients at many institutions is not, by any means, only because they are believed to be able to pay physicians. At least half of the cases at the institution reporting 8 per cent. excluded are turned away because they are at the time of their application under treatment at another institution. In cities with several dispensaries this factor accounts for a considerable proportion of the number who are reported as not admitted.

* The establishment of such systems has often been largely for other reasons in addition to the "elimination of abuse."

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25 Bennet Street.

SYPHILOPHOBIA.

By DOUGLASS W. MONTGOMERY, M. D.,
San Francisco, Cal.

It has been said that no physical torture is equal to the mental anguish of melancholia, and one of its aggravated forms is syphilophobia, combining as it does the sense of shame with that of personal uncleanness. On account of the publicity recently given to venereal diseases it seems to me that this affliction is becoming more frequent. The following case is an excellent example of the trouble, and brings out prominently many of its characteristics.

A man engaged in a sedentary, studious occupation, thirty-eight years of age, and unmarried, called for advice May 2, 1910. He said that he acquired syphilis in 1905, again in 1908, and again in 1909, and two days previously a sore had appeared on the mucous surface of the lower lip, accompanied by sore throat and headache. When questioned closely he admitted that these were the only symptoms constituting the previous so-called syphilitic infections.

The patient was a rather spare, dark complexioned man of a serious melancholy type. He was the kind of individual whom the older physicians with their ideas of humors would have designated as being of bilious temperament. His vocation, as above mentioned, was sedentary, and he was naturally disinclined to take active exercise. He had a heavily coated tongue, flatulent dyspepsia, and frequently had vertigo to the extent of almost falling. The area of liver dullness was somewhat enlarged, and although he had a movement of the bowels each day, the dejections were scanty. His urine was of rather low specific gravity, but otherwise normal. He had at times pain in the right great toe, and complained of headaches as of the bones of the skull. He had a small patch of seborrheic eczema on the left cheek, that had appeared at the same time as the herpes on the lip. He had gone through the usual seral and spirochetal examinations with negative results.

As far as the lesions on the lip were concerned, the present examination, the history, and the subsequent attacks showed them to be herpes, an affection to which men of his temperament and digestive frailties are particularly disposed.

The basis of herpes simplex is a constitutional disposition, and the immediate cause of an outbreak may be due to any one of a multitudinous variety of irritants. As has been mentioned, digestive disturbances, such as this man had, are frequently a cause. Sugar is another excitant, and in some people the different fructoses are varyingly noxious. I know one man, for instance, who is fond of black figs, and during their season gets a sore mouth if he indulges. Another patient has a similar experience during the cantaloup season. With some men the irritation of cohabitation will cause herpes progenitalis, and these patients are especially apt to suspect that their trouble is venereal. Both menstruation and pregnancy are causes of outbreaks in women. Climate has also an influence. A patient of mine, who had repeated attacks of herpes progenitalis while living in San Francisco, went to Alaska, and from the time he left Portland on his way north until his return to Portland on his way south, a full year, he had no outbreak. On resuming his residence in San Francisco, the old attacks reappeared with their former frequency. As is well known bacterial infections, such as those that cause la grippe or pneumonia, will cause an outbreak of herpes.

The patient's mental condition was aggravated by an interesting circumstance. The attacks of herpes that he imagined to be syphilitic infections so preyed on his mind that his relatives and a doctor conceived the idea of telling him that he was correct in his surmise. They thought that by giving him a course of treatment for syphilis he would imagine himself cured, and that the difficulty would be solved. On the contrary, however, with a new herpetic outbreak, his deplorable mental condition was aggravated, and this was his condition when he sought my advice.

The nature of herpes was carefully explained to the patient, and he was put upon a rational diet and suitable medication, but each new attack brought out an expression of the same mental anguish. Finally on March 21, 1912, he came to the office with almost a triumphant look on his face, saying that he would finally satisfy me of the correctness of his assumption that he had contracted a luetic infection. He stripped and showed a beautiful herpes zoster of the right lumbar region. Five days previously I had seen some bright red papules in this region, but thought they might be flea bites. That night the patient was kept awake by pain in this locality, and following this the present eruption had developed. It was now a typical manifestation of the disease, and, as is frequently the case, on the maturation of the eruption the pain was almost gone. The lymph nodes in the right groin were enlarged and somewhat tender. A few days before the appearance of the zoster the patient had been

exposed to infection. On account of his naturally pessimistic temper the patient was certain from the occurrence of the eruption, the enlargement of the lymphatic nodules in the groin, and the exposure to infection that he had contracted syphilis. I was able to show him that the enlargement of the regional lymphatic nodules is an almost constant accompaniment of herpes zoster, and as for the eruption itself it was so characteristic that I urged him to see independently any well-informed physician to confirm the diagnosis. This was a complete refutation of his position, and after this I heard no more about syphilitic infections.

In regard to the demeanor a medical man should assume in such cases, I consider it a great mistake to yield to the patient's insistence, and to admit the presence of an infection that he does not really believe to exist. It can only lead to disaster, and any wavering is fatal.

In order that the physician may convince the patient of the correctness of his diagnosis he must be familiar with the diseases that may simulate syphilis, even the apparently insignificant ones, such as herpes simplex. These patients read up most industriously on their particular hobby, and although they do not usually offensively dispute the several points they most ingeniously and persistently advance in support of their position, they tend to remain unconvinced in spite of whatever their physician may say to the contrary. I do not know anything more wearisome or demanding more patience than the management of such a case. Under such circumstances one often feels that John the Baptist was the wisest of all the orators as he went out into the desert and preached to the eyeless winds. In the present instance after nearly two years of varying success and failure, the fortunate accident of an intervening herpes zoster rid the patient of his delusion.

323 Geary Street.

Medicolegal Notes.

Medical Services Rendered in Emergency—Reasonable Value.—The president of a corporation, in the course of the trial of an action against the corporation, fell from his chair to the floor of the courtroom, unconscious. A physician who was testifying for the plaintiff offered his services, and administered first aid. This was continued for from 15 to 20 minutes, when it was decided that the patient was dead. A day or two after the physician sent a bill for $500, which the deceased's executors refused to pay and the physician sued therefor. The deceased left a very large estate, and the admission of evidence as to its value was objected to by the defendants. It was held that this evidence was properly allowed and properly taken into consideration, and that, together with the experience of the physician as such, and the nature and difficulty or easiness of the case, and what was considered by him and by other physicians an ordinary or reasonable charge for the services, were the proper elements upon which a judge or jury might act in fixing the value of the services. The services performed here were not difficult. They did not require any special degree of skill or knowldge, nor were they of such a character that it required a physician of years of experience or study to perform them properly. They consisted of what a medical student could perform as well as a physician of years of experience. Two physicians testified for the plaintiff that $500 was the value of the plaintiff's services, while experts called for the defendant placed the value at from $10 to $15; one stating that a fair charge would be from nothing up to a maximum of $15.

On the question of who was liable for the services, it was held that the case fell within the rule that one who becomes ill, and through unconsciousness or otherwise becomes incapable of acting or deciding for himself, is liable on the theory of an implied contract or promise that, having received the benefit of necessary medical aid and attendance, he must pay for them, no matter by whom the physician was summoned to perform them; and from the necessity of the case any one is authorized to call a physician to treat him, without liability on the part of the person so calling the physician.

The attention of the court was not called to any case in the state of New York where the question was presented as to the right of a physician to recover from a patient or his estate for services rendered to him while unconscious, or in extremis, when called by a stranger or spectator to treat the patient, or where the physician acts of his own volition; and counsel agreed there was none in the state that could be cited for either the plaintiff or the defendants. The court held that a physician's right to recover on an implied contract was the same in either case. Duty requiring him to give his aid, and having given it, he may expect payment by reason of the promise created by law from the patient to do so, although he never asked for the aid or consented to it being given. In an emergency case, requiring immediate attention to save life, the physician when called, or when he volunteers his services, should not stop to inquire by whom he will be paid, or to make it known that he expects to be paid. It would be an inhuman act to do so or to give that subject a thought; and, while the question whether or not the services were intended to be gratuitous is one of fact, the plaintiff may rest his case upon an implied promise and can recover, unless it is shown either that there was no intention to charge or that the credit was extended to a third person. Offering his aid does not establish the fact that he intended his services to be gratuitous. In the present case the intention to charge the deceased or his estate was sufficiently established by the fact that a day or two after the plaintiff rendered the service he made a claim and sent a bill for it to the estate.

If a distinction must be made in the application of the rule as to liability of persons becoming unconscious by an accidental injury or otherwise in a large city, having free ambulance service and free hospital treatment, and elsewhere, where there is no such free service and treatment, then there still remains the question whether, in a large city, such immediate attention was required, and this is a question of fact, involving the consideration of the nature of the disease or of the accident, the time and place when unconsciousness occurs, the time that must elapse before other or free medical treatment can be obtained, and other considerations depending upon the circumstances in each case. Here the facts showed that immediate attention was necessary, as death occurred before the ambulance surgeon arrived.

Taking into consideration the easiness of the services, the occasion and circumstances under which they were performed, and all the evidence in the case, the court gave judgment for $15 as the reasonable value thereof. —Schoenberg vs. Rose, 145 N. Y. Supp., 831.

Proceedings for Revocation of License—Jurisdiction of State Board of Health.—Proceedings having been commenced before the Kentucky State Board of Health for the revocation of a physician's license, the defendant sought to enjoin the board from proceeding in the matter on the ground that the statute under which the board acted was void. The statute, Ky. St., §2615, authorizes the revocation of a physician's license for fraud in obtaining the same, for commission of a criminal abortion, or conviction of a felony involving moral turpitude, for chronic or persistent inebriety, or addiction to a drug habit to an extent which disqualifies the physician to practice with safety to the public, and for "other grossly unprofessional and dishonorable conduct of a character likely to deceive or defraud the public." It was held that the ground quoted should be construed to mean other unprofessional and dishonorable conduct than the acts previously specified, also involving moral turpitude, and, as so construed, the statute was a valid exercise of the police power. The proceeding before the board was not judicial, but purely administrative. The board was not authorized to act arbitrarily, but only on reasonable grounds, and if it did act arbitrarily, and there was no other adequate remedy, the courts would intervene to protect the private right of the physician to continue his practice. The petition for injunction was therefore dismissed.—Forman vs. State Board of Health, Kentucky Court of Appeals, 162 S. W., 796.

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THE WOUNDED IN NAVAL WARFARE.

SHORTLY before the outbreak of the present war there was read a paper on this subject before the Section of Naval and Military Medicine and Surgery of the British Medical Association, by Fleet-Surgeon D. Walker Hewitt. At that time no one dreamed that the principles enunciated in this address would soon be put to test by a conflict in which the most modern methods of scientific slaughter are demanding the keenest resources of this, the most brilliant era of surgical history. Of particular significance is the fact that although the English army surgeons have had in recent years a vast amount of experience, nevertheless their naval brethren have never had an opportunity of testing their first-aid and other methods under actual conditions of modern warfare.

The conditions of naval warfare are entirely different from those that obtain on land. The army medical officers, in addition to the routine care of the sick and wounded, are compelled to take cognizance of various matters of hygiene and sanitation incidental to fighting on land, and of the danger of epidemics and a doubtful water supply. In contrast with these duties the naval surgeon must contend with the lack of space; with overcrowding; with the difficulties of transportation from inaccessible positions; and with the absence of Nature's germicides, sunshine and fresh air. At the same time the naval medical officers must carry on their arduous work in such a way as not to interfere with or hamper the fighting machine. No amount of zeal and ingenuity can convert the man-of-war into a floating hospital, and all of the arrangements for the immediate relief of the wounded in naval battles must be subordinated to fighting efficiency.

The most essential requirement in this relief is the presence on board ship of a first-aid party every individual of which should have a correct knowledge of how to carry a wounded comrade and where to carry him. The real first aid during action should, with rare exceptions, be carried out in the dressing stations under the eye of the surgeon. If first aid is rendered by the naval ambulance corps at the spot where the men fall at their guns, grave dangers are incurred. The greatest of these, which played such grim havoc in the old days of the cockpit, is sepsis, with its accompaniments and sequelæ. Lacerated wounds, burns, and scalds are especially prone to sepsis, and everything depends on the primary treatment of these cases.

On a battlefield the wounded men are scattered over wide areas. First aid where they fall is a necessity inasmuch as on account of the nature of the wounds inflicted by the bullet or bayonet hemorrhage is common and demands the immediate use of the tourniquet. On the other hand, in a naval engagement the character of the wounds is so different that cases of primary hemorrhage are rare. The shell wounds which lacerate the tissues are not as a rule accompanied by bleeding. The paramount duty of the first-aid party on a warship, therefore, is to carry the wounded in a proper manner to the surgeons and the dressing stations of the ship. The most important duty of the surgeons is not to do major operations but to administer the essential emergency measures of relief. This work should not be left to the first-aid party. It is impossible for the bearers to examine the nature of the wounds while the fight is going on around them.

One of the greatest difficulties that confront the naval surgeon to-day is that owing to the numerous bulkheads and armored hatches, the transport of the wounded is rendered quite difficult. But at the same time this compartment system may diminish the casualties under armor and the great bulk of the wounded will be in the exposed or semi-exposed parts from which access to the dressing stations is still easy. The application of surgical dressings by the bearers should be permitted only when the casualties are heavy and the dressing stations are filled, and when the wounded are in positions from which they can be removed only slowly and with great difficulty, such as the engine rooms or tops. Owing to the restricted space on a warship the stretcher has a limited field of usefulness. One or two men unencumbered by a stretcher can, if properly trained, carry a comrade up or down ladders or through narrow spaces. The methods of "manhandling," as it is technically called, are regarded as of more importance so far as first aid is concerned, than the niceties of bandaging and other surgical details.

It may seem like a refinement of modern warfare, undreamed of in the days of Admiral Lord Nelson, that before going into action the crew should, if possible, scrub their bodies well with soap and water and wear clean or sterilized clothing. The dressing stations, of which two or more are fitted up with great care on the larger ships, should be in a position protected by armor and not too hot. Hewitt is inclined to believe that in the smaller ships the wounded should be distributed over a larger number of first-aid stations than in the big vessels where ample protection can be provided. The danger of a single shell to all the wounded and the medical staff when they are huddled together in an unprotected space was illustrated in the Japanese ship *Hiyei* in the battle of the Yalu. The sooner the wounded are removed from the fighting ship the better for all concerned.

An important question in naval warfare is the fresh air supply to the dressing stations. In spite of supply fans, when the guns are at work and the

enemy's shells are bursting around on the decks and possibly between decks, those below are not safe from the suffocating effects of lyddite and of charred and burning paint. It is suggested that a supply of oxygen should be carried in time of war. Aseptic or antiseptic methods or a combination of both must be adopted as considered necessary. Experience has shown that lacerations from shell wounds, burns, and scalds form the great bulk of the serious cases, and the primary danger of all three is summed up in the one word "shock." Sepsis and secondary hemorrhage are important sequelæ but at this stage the patients should be in hospitals on shore or on hospital ships. The performance of major operations during the action is out of the question. Men who are slightly disabled should be restored to their stations as soon as possible. When the action is over the wounded should be promptly transferred to hospital ships or land hospitals, partly for their own sake and partly for the sake of the fighting efficiency of the man-of-war.

THE TREATMENT OF UNCOMPLICATED TUBERCULOUS FOCI IN BONES.

SHALL we be radical or conservative in the treatment of pure tuberculous infection of bone? This question is almost as old as modern surgery itself, and we are but little nearer the ultimate solution of the problem today than we were a decade ago, though the trend of opinion seems slowly but surely setting toward the use of the more radical measures. A tuberculous focus in bone, as elsewhere, may become encapsulated and remain quiescent for a long period of time; but there never can be absolute assurance that the barriers will not some time be broken down and a mixed infection inaugurated which will finally result in extensive destruction of bone with, perhaps, invasion of neighboring joints and soft tissues.

One of the pioneers in the recognition of the value and in the practice of radicalism in the treatment of tuberculosis of bones and joints, the late A. M. Phelps, often said in his lectures "limit the length of your incision by the length of the patient, if necessary, but thoroughly eradicate the focus if possible." This was, of course, an intentional overstatement designed to impress upon the class that the source of the trouble must be reached and removed, and that half-way measures were often worse than useless. The large incision, thorough curetting, the application of 95 per cent. carbolic followed by 95 per cent. alcohol, careful antiseptic dressing, and attention to details brought him many brilliant results in early tuberculous bone involvements. Recently recruits to the more radical methods of treatment have been appearing in increasing numbers; and among these should be particularly mentioned Ely, Sherman, and Huntington of San Francisco. Ely, while a believer in conservative methods in the treatment of tuberculous bone and joint disease during the early years of life, advocates radical measures when adults are affected. Sherman, after thoroughly curetting, follows Phelps in the use of carbolic acid and alcohol, then adopts Mayo's procedure as advised in the removal of a tuberculous kidney, namely, filling the cavity with salt solution and closing the wound by layers.

Huntington (*Annals of Surgery*, June, 1914) makes a strong plea for the radical treatment of uncomplicated tuberculous foci in bone. As he says, "The objects to be obtained by early, direct interference are: (*a*) Permanent cure by elimination of the focus; (*b*) reduction of time of treatment from years to months; (*c*) prevention of complications, such as abscess formation, mixed infection, disintegration of bone and joint structures, crippling deformity and loss of function; (*d*) avoidance of systemic invasion and loss of life." After thoroughly exposing and clearing out the focus he packs the cavity with camphor-phenol gauze. After a few days the amount of gauze packing is reduced, then entirely dispensed with, and finally the bone cavity remaining may be filled with Beck's paste or the Mosetig-Moorhof wax. The wound may then be closed and fixation secured by a rather loosely applied plaster-of-Paris dressing. Sixteen cases are referred to in which he carried out this procedure, the results being in general much better than in similar cases under the more conservative methods of treatment; and we must agree with him that "to leave an accessible tuberculous bone focus, whether isolated or not, to smoulder until provoked to renewed activity at a later period is without justification, and seems to do violence to surgical principles. Certainly such a course in the presence of an osteomyelitis due to ordinary pathogens would be reprehensible. Can it be otherwise than true that thorough removal of the focus and surrounding tissue is as logical for tuberculous as for ordinary osteomyelitis?"

CAUSATION OF DIABETES IN CHILDREN.

IT is not rare for children of school age while in the full bloom of youthful vigor to develop a malignant type of diabetes. In this country at least these cases seldom come to autopsy, nevertheless there is every reason to believe that the actual disease is pancreatitis, the diabetes being the clinical expression. Although these children are doomed from the start, a knowledge of the causation of the pancreas lesion might lead to the use of prophylactic measures or at least prepare the parents for the possibility of a tragedy. In rare instances pancreatitis has been due to a metastasis of mumps, and there is always a possibility that not only mumps but some of the other infectious children's diseases may so cripple the pancreas that it may become infected from the intestine, or perhaps through the blood as a result of tonsillitis. As mumps frequently appears in children at a relatively late period, it is certainly well to examine the pancreatic region, the stools and urine, not only during the disease, but occasionally at later periods, in order to make certain of the integrity of the organ.

In the abstract columns of the MEDICAL RECORD for September 5 was an account of a very serious pancreatitis syndrome described by Dracinski and Mehlmann (*Deutsche medizinische Wochenschrift*, July 30) in connection with mumps. Of hundreds of victims, but five presented this severe complica-

tion, but this takes no account of possible mild implication of the organ. The diagnosis of pancreatitis had not of course the corroboration of autopsy, and it is regrettable that the authors did not mention the stool finds, which should have clinched the matter.

Antityphoid Vaccination in the British Army

In an appeal issued by the British War Office to the profession in England it is pointed out that antityphoid inoculation remains unfortunately on a voluntary basis in the British Army, and the benefit of its protection to the troops can be secured only by persuading the officers and men as to the reality of the danger of typhoid fever and as to the protective value of the vaccine. The following facts relating to antityphoid inoculation are emphasized: No army in recent wars has escaped typhoid fever, which in several campaigns has killed more men than the enemy. In the South African war, for instance, there were 57,684 cases of typhoid fever, of which 19,454 (33 per cent.) were invalided and 8,022 (13.9 per cent.) died. The deaths from typhoid fever exceeded the total number of men killed in action. About 93 per cent. of the British garrison of India have been protected by inoculation, and typhoid fever, which used to cost the troops in India from 300 to 600 deaths annually, was last year responsible for less than 20 deaths. Inoculation was made compulsory in the American army in 1911 and has practically abolished the disease; in 1913 there were only three cases and no deaths in the entire army of over 90,000 men. Arrangements were made some years ago at the Royal Army Medical College to prepare and maintain a very large reserve of typhoid vaccine, and from this reserve there have been issued since mobilization more than 170,000 doses for the use of the troops.

Castration and Mammary Carcinoma.

Removal of the ovaries in the hope of favorably modifying the course of inoperable cancer of the breast has been performed a number of times since its first introduction by Beatson. We are not aware that this material has ever been collected and analyzed, but there is no doubt that castration does act as a palliative in some cases. Before the Northeast German Gynecological Society last spring (*Deutsche medizinische Wochenschrift*, July 23), Lampé reported that, after a considerable experience with Beatson's method, he had extended its scope by castrating in operable cases as a preliminary to amputation of the breasts. During the interval between the two operations he noted very prompt evidence (even within the first few days) of involutionary changes. The tumors became distinctly smaller and softer and a few outlying nodules in the skin vanished. In one case the cancer was almost cured, having undergone atrophy within four months until it was but a third of its original size. In this case the greatly enlarged axillary glands underwent complete involution. Benthin, who discussed the report, believes that the results indicate the existence of an endocrinous relationship between the ovaries and mamma. The more or less marked atrophy of the breasts which is so often observed to follow complete ovariotomy tends to confirm this belief.

News of the Week.

The American Red Cross Ship.—By the time this paper is printed the former Hamburg-American liner *Hamburg*, renamed the *Red Cross*, and painted white with a red band running lengthwise of her hull will probably have sailed from this city for Europe. The ship is officered by retired officers of the U. S. Naval Service and manned by a crew of American citizens. She carries ten hospital units, each composed of three surgeons and a staff of twelve nurses. The ship will touch first at Falmouth, where six surgeons and twenty-four nurses—two units—will be landed for England. At Rotterdam will be landed two units for Russia, two for Austria, and two for Germany. The units for France will be left at a French port. Surgeons and nurses for Servia have been sent in a Greek ship. The surgeons are under the command of Major Robert W. Patterson, Medical Corps, U. S. A. Miss Helen Scott Hay is in charge of the nurses. The surgeons making up the ten units sailing on the *Red Cross* are:

Dr. Reynolds M. Kirkby-Smith, Sewanee, Tenn., director; Drs. John A. C. Colston and M. H. Todd, Baltimore, assistants.

Dr. Rhoades Fayerweather, Baltimore, medical school, director; Drs. Lewis C. Spencer and H. C. Slack, Baltimore, assistants.

Dr. William S. Magill, New York, director; Drs. Philip Newton and Paul M. Zinkham, Washington, assistants.

Dr. Robert W. Higs, Buffalo, director; Drs. Fred W. Eastman, New York, and Henry M. Shaw, Johns Hopkins Hospital, assistants.

Dr. Edward H. Egbert, Washington, director; Drs. Brown S. McClintic, Peru, Ind., and Arthur M. Zinkhan, Washington, assistants.

Dr. Charles H. Sanders, Washington, director; Drs. J. F. Spearman, Baltimore, and Grover A. C. Stem, Washington, assistants.

Dr. Cary A. Snoddy, Knoxville, Tenn., director; Drs. Fred G. Benton of New York, and Walcott Denison, St. Louis, assistants.

Dr. John Bartlett, Chicago, director; Drs. Russell A. Jewitt, Cleveland, and John C. Miller, Shenandoah, Pa., assistants.

Dr. Howard W. Beal, Worcester, Mass., director; Drs. V. N. Leonard and William T. Fitzsimons, New York, assistants.

Dr. Bial F. Bradbury, Norway, Me., director; Drs. R. H. Mann, Knoxville, Tenn., and John Lancer, New York, assistants.

Health of the American Troops at Vera Cruz.—Despite four months of duty in the tropics at Vera Cruz, the American soldiers and marines have maintained a very satisfactory average of health. The sick rate for the week ended September 2 was 2.40 per cent. for the army and 1.63 per cent. for the marines. Fifty men were sick in the hospitals and twenty in quarters. Of these, sixty-four were incapacitated by disease, and six by injury. Fifteen cases of malaria were reported. Ninety-seven soldiers remained sick at the end of the week, as compared with 106 remaining sick August 26.

The Death Rate in New York City during the first eight months of this year was 14.16 per thousand, which is 0.3 point lower than the mortality for the same period last year. If this apparently small reduction in the death rate continues it will mean a saving of approximately 1,675 lives during the year. There were more deaths among infants dur-

ing the month of August than in the same month last year. The extreme heat during the first week of August is considered the reason for this increase. In August, 1913, the deaths among infants under one year averaged 60 in every 1,000 born during the month, while this year the figure increased to 67.

Enforcing the Registration Law.—Six indictments and convictions of physicians in North Carolina were secured during the first two weeks in August for failure to comply with the law of the State requiring the registration of births and deaths. The Board of Health has issued a bulletin calling attention to these convictions and notifying the physicians of the State that other indictments will follow unless the law is strictly obeyed by all. The law has been in operation since the beginning of the year and the Health Board says all should now be familiar with its provisions and hereafter no excuses will be accepted from delinquents.

The Medical Department of the University of Alabama.—It is stated, and also denied, that this medical school, now located in Mobile, will this year or next be removed to Birmingham. The reason given for the move is that the city commission of Mobile has failed in its promise to turn over the management of the City Hospital to the University, and has even taken from the university what little authority it formerly had over the hospital. The college is one of the largest in the South, having a faculty of 40 professors and instructors and 150 students. Dr. Eugene D. Bondurant is dean of the institution.

Gifts to Hospitals.—By the will of the late Abby Hause of Philadelphia, her entire estate valued at $5,000 is bequeathed to the German Hospital for the endowment of a free bed. To the Lynn (Mass.) Hospital $10,000 was bequeathed by the late Luther S. Johnson; had he survived his wife the hospital would have received $140,000. The late Mary P. Welcome of Leominster, Mass., provided in her will for a gift of $200 to the Leominster Hospital Association.

The Physicians' and Surgeons' Hospital is the name of a new institution, ground for which was broken in New Haven, Conn., on September 1. The hospital will be for the accommodation of pay patients only, the charge for a bed being from $10 per week in the wards to $75 per week in the private rooms. The attending staff will be organized on a novel plan, as no physician or surgeon will be eligible for election to it who has not demonstrated, by publication in the medical press or by some other actual work done, that he is capable of filling a staff position in an efficient manner. If he becomes a member of the staff he has to write an article for publication in the medical press at least once a year, describing some work which he has personally done or some discovery which he has made. Failure to do this automatically terminates his membership on the staff. It is expected that the hospital will be ready for the reception of patients in about one year.

New Hospitals.—St. Elizabeth's Hospital, Brighton, Mass., was opened for the reception of patients on the last day of August. The building, which has 200 beds, is of cement with a terra cotta roof, three stories high, with wings forming a court in the rear. The basement contains the kitchens and dining rooms for all the hospital attendants. The first floor is taken up with a pharmacy, a surgical outdoor department, a nose and throat department and a nurses' lecture room. The offices are also on this floor. The second floor, besides having most of the wards, has also the maternity department, a library and a recreation room for the nurses. The third floor contains the remainder of the wards and has a chapel, a students' room, and an operating room. The physician-in-chief of the hospital is Dr. John R. Slattery, the surgeon in charge is Dr. John W. Lane.

The Wing Memorial Hospital, Palmer, Mass., was opened for the reception of patients on September 9. The superintendent of the hospital is Miss Margaret Hill, formerly of the Highland Hospital, Fall River. The hospital has no free beds and no medical staff, the charges being from $10 per week in the wards to $25 per week in the private rooms. Any physician may take his patients there, providing for them such medical or surgical attendance as he may desire.

Gifts to Charities.—The Montefiore Home and Mount Sinai Hospital, New York, receive bequests of $500 each by the will of the late Bernard J. Salomon of this city.

The sum of $5,000 is left to Mount Sinai Hospital by the will of the late Moses Weinstein of New York, which also provided that one-half of the residue of the estate, up to $5,000, should go to the New York Institution for the Instruction of the Deaf and Dumb.

The will of the late Jacob Langcloth of New York provides for bequests of $5,000 each to Mount Sinai Hospital, the German Hospital, and the Manhattan Eye and Ear Hospital, and of $1,000 each to the Isabella Heimath and St. John's Guild. The bulk of the estate, which was estimated to amount to more than $10,000,000, is to be used for the foundation of a home to be known as the Valeria Recreative and Convalescent Home. The institution is to be nonsectarian and is to be open to "people of education and refinement who cannot afford to pay the charges exacted at health resorts."

Obituary Notes.—Dr. HASKET DERBY, one of the pioneers in ophthalmology in this country, died at his home in Dorchester, Mass., on August 21. He was born in Boston June 29, 1835, and was graduated in medicine from Harvard in 1858. After a term of service in the Massachusetts General Hospital he spent four years in the study of ophthalmology in Europe. Upon his return he served as surgeon in the army, and at the conclusion of the Civil War began practice in Boston. He retired from practice several years ago. He is survived by his widow, one daughter, and five sons, one of whom is Dr. George S. Derby of Boston.

Dr. CHARLES H. BACON, a former mayor of Lockport, Ill., died at his home in that city after a long illness on August 26. He was born in Albany, N. Y., November 12, 1834. He was a graduate of the Northwestern University Medical School, Chicago, in 1862. He served from the time of graduation to the end of the Civil War as surgeon in the Northern Army, and at the close of the war began practice in Lockport.

Dr. JOSEPH F. ROBERTSON of Steubenville, O., a graduate of the Columbus Medical College, Columbus, O., in 1881, and a member of the American Medical Association and the Ohio State and Jefferson County Medical Societies, died at his home, after a long illness, on August 17, aged 62 years.

Dr. CHARLES MARINER COOLIDGE of North Waterford, Me., a graduate of the Dartmouth Medical School, Hanover, in 1888, died, after a brief illness, on August 12, from heart disease, aged 49 years.

Dr. THOMAS JOSEPH MURPHY of Bangor, Me., a

graduate of the College of Physicians and Surgeons, Baltimore, Md., in 1899, and a member of the Maine Medical Association and the Penobscott County Medical Society, died at his home, after a long illness, on August 14, aged 51 years.

Dr. FRANK ELY OSBORN of McAllen, Tex., a graduate of the University of Nebraska, College of Medicine, in 1903, a member of the State Medical Association of Texas and a member and president of the Hidalgo County Medical Society, was struck and instantly killed by a railroad train while attempting to cross the track in his automobile, on July 30, aged 37 years.

Dr. PHAON D. KEISER of Lehighton, Penn., a member of the Medical Society of the State of Pennsylvania and the Carbon County Medical Society, died at Mahoning, Penn., on August 5, aged 76 years.

Dr. HENRY M. HASKELL of Redlands, Cal., a graduate of the Bellevue Hospital Medical College, New York, in 1878, died at his home, on July 31, aged 62 years.

Dr. WILLIAM I. WOOD, until recently of Massillon, Ohio, a graduate of the Cleveland College of Physicians and Surgeons in 1888, died in Cleveland on August 6, following an operation for appendicitis, aged 56 years.

Dr. ROBERT FRANCIS GIBSON of West Somerville, Mass., a graduate of the Harvard University Medical School, Boston, in 1901, and a member of the American Medical Association and the Massachusetts and Middlesex District Medical Societies, died at his summer home in Hill, N. H., after a long illness, on August 16, aged 41 years.

Dr. DANIEL CAMPBELL ROSE of Stoughton, Mass., a graduate of the Harvard University Medical School, Boston, in 1869, died at his home suddenly, on August 13, aged 76 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

RED CROSS AND AMBULANCE SOCIETIES—HOSPITALS, HOUSES, ETC., OFFERED TO THE WAR OFFICE—A DEMONSTRATION OF RED CROSS WORK—SCARCE DRUGS AND THEIR MANUFACTURE—REPORT OF COMMITTEE OF COMMONS ON PATENT MEDICINES —DR. ADDISON IN OFFICE.

LONDON, August 28, 1914.

YOU will understand that everything seems to be overshadowed by the war and though we carry on our usual avocations, even doctors are so absorbed in day-to-day and hour-to-hour telegrams that they will talk of nothing else. But as you will know as soon as we the pressing news I will merely note some points as to the Red Cross and St. John Ambulance Societies and such like movements. The British Red Cross Society has received since the declaration of war donations from the Australian branch of £5000, a like sum from Sir E. Cassell, and other contributions which make nearly £50,000, and Queen Alexandra as president is daily receiving letters from persons who can only spare small sums. Other assistance is being rendered in most various ways. The Empress Eugenie, who sent £200 to the fund, has fitted a wing of her house for the reception of wounded officers of whom fully trained nurses have volunteered to take charge.

Lord Dunraven has chartered and fitted out a steam yacht as a hospital ship which he will himself command. General Sir Ivor Herbert, Lord-Lieutenant of Monmouthshire, has brought together a committee for coordinating the work of the St. John Ambulance, the Red Cross, and other organizations desirous of establishing supplementary hospitals and convalescent homes—not to supersede in any way local branches on committees of existing societies but to assist in obtaining concentrated effort on definite objects and avoiding overlapping, so as to secure the most efficient results.

The Crystal Palace and Park have been offered to the war office for a temporary hospital for sick and wounded.

So many offers of houses for the use of the sick and wounded or for conversion into hospitals are being made that the war office has been obliged to issue a notice that for the present no more are wanted, but should necessity arise for further accommodation an appeal will be made for it. The admiralty has closed the temporary naval hospital at Grimsby because the number of hospitals fitted out by private enterprise has rendered it unnecessary.

At the Botanic Gardens on Saturday afternoon there was a display of ambulance work provided by a number of Red Cross voluntary detachments for the purpose of affording the public an opportunity of seeing the nature of much of the work of the Red Cross on the field of battle. The display was under the command of Mr. James Cantlie, Surgeon and Honorary Colonel of the R. A. M. C., whose work in this direction is probably well known to you. For the purpose of the demonstration an engagement was supposed to have taken place in defence of one of the Park gates and a number of the defenders, represented by Boy Scouts, wounded. Gunshot wounds predominated, though others were also represented of which one was loss of a hand by explosion of a shell. The Red Cross party went to work with all sorts of improvised materials for bandaging and other help. They constructed a stretcher out of handles of hayforks and carried the bandaged wounded to the clearing hospital. This was soon filled and some of the less grave cases, having been attended to, were removed to one of the rest stations so as to leave room for further arrivals. From the rest stations they were passed on to the stationary hospital and in due course to the base hospital. At both these last there were operating theaters, dispensaries, and field kitchens.

A shortage of the drugs usually manufactured in Germany has caused an excessive rise in prices and the government has appointed a committee of medical men to "consider questions arising in connection with the supply of drugs for curative purposes in the United Kingdom, with special reference to the ways in which the medical profession can assist in effecting economies in the use of these drugs of which the supplies are at present small." No doubt there are many cases in which a plentiful or inexpensive drug may take the place of one that is scarce or costly. But would it not seem more reasonable to seek fresh sources of supply for the temporary deficiency and for the future to rely more on ourselves? There are many able chemists among us who might well seize the opportunity of establishing manufactories of the fine chemicals which they have been content to let us buy from Germany. Want of capital to lay down the plant is generally assigned as the reason if you put the case before

accomplished chemists. To such, I respond, associate yourself with capitalists. This is done in other industries such as the electrical and scientific instrument production and similar cooperation would be equally successful. I am told that the duty on alcohol is another impediment as so much is consumed in the refining of fine chemicals. But now is the time to press the government, which is asking doctors to economize in these drugs, to do their share by remitting this heavy duty on one of the necessities for manufacturing them. If the committee of medical men for considering "the questions arising in connection with the supply" do not secure this remission (already granted them for research work) they can have little influence on the government which appointed them.

The select committee on patent medicines and appliances and advertisements relating to them issued a report on Wednesday evening. The committee held 32 public sittings, examined 42 witnesses, and asked 14,000 questions. One of the recommendations agreed upon is that the administration of the law on advertisement and sale should be under the authority of the Ministry of Public Health when such a department of state is created.

Dr. C. Addison, M.P., whose support of the ministry in the House has for some time marked him out as expecting office has been appointed Parliamentary Secretary to the Board of Education.

The issue of a new edition of the *Pharmacopœia* has been postponed *sine die*,—it is said in consequence of the war. To many the reason assigned does not seem very obvious.

FIFTH ANNUAL SESSION OF THE CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA.

(From Our Special Correspondent.)

THE evening session of Wednesday, July 29, was as replete with interest as the previous meetings. The attendance was excellent and the many who were present were well repaid for their trouble. Professor Krönig, of Freiburg, should have read a paper on the treatment of uterine cancer by *x*-rays and by radium, but was unable to attend the meeting owing to the fact that he had been called upon to hold himself in readiness for war service. Dr. C. Jeff Miller, of New Orleans, took his place, and as he had recently paid a visit to the clinic of Professor Krönig, gave his views in a paper entitled "A Review of Professor Krönig's Work in the Non-Operative Treatment of Carcinoma." He said that Krönig had given up operative measures in the treatment of early operable uterine tumors as also for advanced cases. Reliance was wholly placed upon radiation treatment. The results of *x*-ray treatment were regarded as superior to those of hysterectomy for fibroids, although in women under 40 myomectomy was undertaken when feasible. It was advisable to extend treatment over a period of three or four months and must be repeated on several occasions. According to statistics collected at Frieburg malignancy developed in only 1 per cent. of fibroids, and even when this happened radiation would cure it. The statements of Professor Bumm that deep-seated cancer could not be influenced by the *x*-rays were not in accord with the experience of Professors Krönig and Ashchoff, who had convinced themselves that undoubted cases of cancer of the stomach had been cicatrized, and that even when there had been secondary growths in the liver complete retrogression had sometimes been brought about. In the Freiburg clinic radium and thorium were used in heroic doses, and a special apparatus had been devised so as not to burn the patient's skin. Krönig was a believer in high dosages of radium strongly filtered as possible remedial and curative agents in the treatment of malignant disease in deep organs. He employed large quantities of radium and thorium from a greater distance than it was usually employed. For example, for carcinoma of the cervix he did not apply radium through the vagina but only from outside the abdomen. He was not in favor of the implantation of radium into actual growths. Dr. Miller confessed a certain amount of skepticism as to the results of Krönig's methods of treatment, but highly praised his enthusiasm.

The next paper read was by Dr. J. F. Percy, of Galesburg, Ill., on the "Treatment of Inoperable Carcinoma of the Uterus by Application of Heat." He passed in review the various methods of treatment of inoperable carcinoma now in vogue and pointed out that heat was the oldest and most effective treatment. He further drew attention to the fact that the main object was to get rid of the gross mass, and referred to the different methods of applying heat with this object in view. After showing that all of these methods possessed great drawbacks, he suggested a practical system of applying heat in otherwise inoperable cancer of the uterus which had none of the objections which could be urged against the other methods. The required apparatus was not only easily portable, but also inexpensive. He referred to the development of heat through a most efficient electric heating iron which could be perfectly regulated by means of a rheostat when applied to the involved tissue. With this electric heating iron and the vaginal dilator a maximum penetration and dissemination of heat was obtained in the involved structures. More than this, the low degree of heat, which his experiments showed to be more effective than intense heat, could be maintained accurately. This low degree of heat did not burn up the cancerous mass, but merely made it so hot that the hand of the surgeon, encased in a medium weight rubber glove, could not hold it. When this degree of heat was reached and maintained for from 10 to 20 minutes, the cancer cells were absolutely killed, while the normal tissue cells were not injured. The important thing was not to convert the pathology into charcoal. The charcoal or carbon thus formed inhibited the further dissemination of heat not only through the cancer mass but beyond. More than this, when the pathology was converted into charcoal, drainage was prevented for a number of days. This permitted of the absorption of a larger quantity of broken-down cancer cells than the average of these patients could tolerate, and many of them died as a result of this mistaken method of applying heat. Carbonization was produced in a few minutes by a cautery heated to a bright cherry color. Carbon inhibited the dissemination of heat. To overcome this still greater degrees of heat were required, which were extremly difficult to control, endangering the rectum, the bladder and the ureters. The heating iron, when used through the water cooled speculum, should not be hot enough to scorch a pledget of white cotton, if laid on the heating iron even for half an hour. Percy's experimental work and the operation itself demonstrated that when this "cold iron" was applied to the affected tissues, not only was there much less de-

struction of normal cells, but a far greater penetration of heat, sufficient to kill carcinoma. He believed that a large number of cases, if not practically hopeless when first presenting themselves for treatment, would give, treated by this method, approximately 50 per cent. remaining free from recurrence over five years.

Dr. Thomas Wilson, Professor of Midwifery and Diseases of Women in the University of Birmingham, read a paper on the "Results of Radical Operative Treatment of Cancer of the Uterus." In this paper the author laid especial stress on the difficulties of estimating justly the results of any curative method of treatment of cancer. He pointed out that cancer did not grow with equal steps, but now halted, again receded, and anon made rapid and tumultuous progress. When cancer began in the uterus one patient had recognizable symptoms at the very beginning, while another was conscious of nothing unusual until the disease was already far advanced. All things tended to show that the actual living virus of cancer, when at length it was discovered, would be found to pass through varying phases of growth and activity, now active and virulent, now sluggish or stationary. On the other hand, marked differences existed in individual hosts as well as in the various organs and tissues of the body.

Professor Wilson pointed out that in Great Britain, as, generally speaking, in America, gynecological work was spread over a large number of clinics of small or moderate size, and the opportunities afforded to the individual operator were comparatively limited. In testing and establishing a new operation, such as the extended abdominal hysterectomy for uterine cancer, this arrangement had many disadvantages when compared with the large clinics and extensive opportunities that were found on the European Continent. To this more than to any other cause was probably due the fact that these operations had been practised extensively and successfully in Vienna and Germany far in advance of the work that had been done here.

Dr. T. W. Eden, London, in discussing the papers read, commented on the fact that in these separate lines of treatment had been advocated for the same disease. He was inclined to reject the views of Dr. Percy, but if he could prove his claims by statistics, then in years to come everyone would do him honor. Dr. Eden was not in favor of radium in the treatment of cancer, and pointed out the discrepancy of the conclusions of Professor Bumm and Professor Krönig. He was of the opinion that the best promise of improvement was seen in *x*-rays combined with operation; one method alone should not be relied on, but combinations of methods adopted.

Dr. W. E. Miles, London, had never treated cancer of the uterus with *x*-rays or radium, and so would only consider surgical treatment. He insisted if a radical operation was to be performed on the necessity for removing not only the organ in which the primary growth originated but also the tissue through which spread would take place if the disease were unchecked. Mr. Miles emphasized the point that the crux of the cancer problem was early diagnosis.

Dr. Joseph C. Bloodgood, of Baltimore, remarked that the preceding papers truthfully revealed the results of operations for fully developed cancer diagnosed clinically. But surgeons had been too much taken up with the details of technique of extensive operations and thus they had not given sufficient consideration to the beginnings of cancer. He pointed out that in the great majority of cases cancer gave warnings to those in whom it was developing, and therefore any campaign of education in the beginnings of cancer was justifiable, no matter what the cost. At the stage in which cancer ought to be treated the mortality in skilled was so small as to be practically negligible. The early preventive treatment of cancer was all important, as it never began in a healthy spot.

The last evening session of the Congress, held in the Hotel Cecil on July 31, was mainly devoted to a discussion on intestinal stasis. As usual the hall was crowded with an audience eager to learn the views of some prominent British authorities on this much-vexed question. The speeches delivered on the subject were interesting and the majority of those who debated the matter appeared to be in favor of less radical methods than those advocated by Sir Arbuthnot Lane for the cure or relief of intestinal stasis.

Before the symposium on intestinal stasis commenced, Dr. W. L. Rodman, Philadelphia, opened a discussion on carcinoma of the breast. He dwelt chiefly upon the difficulty of diagnosing correctly between chronic fibrous and glandular hyperplasia, the result of abnormal involution of the breast, and cancer. He pointed out that the former condition was very common, especially about the menopause, and since the age of occurrence was so similar it was important to differentiate the two lesions. Chronic fibrous hyperplasia was frequently bilateral, whereas only 2 per cent. of breast cancers were bilateral. Early cancer was not painful, whereas abnormal involution was always painful. The pain was at its height immediately before each menstrual period, and enlarged superficial veins were then seen over the breast. Such veins were also seen in sarcoma, but not in carcinoma. Twenty per cent. of cancer of the breast occurred between twenty and forty years of age, and cancer, unlike benign neoplasms, soon became fixed by infiltration. If there were atrophy of the superficial fascia, however, small, or dimpling of the skin, however slight, the probability was that carcinoma was present unless chronic mastitis had previously existed. Comparison of the two breasts was of great importance in diagnosis, but retraction of the nipple had been given too much attention. In cancer the nipple was retracted, infiltrated, fixed and immobile, while in benign growths there was mobility and no fixation of the nipple. Rodman remarked that the differentiation of benign from malignant cysts was even more difficult than in the case of solid tumors, and he stated that although the expert might be able with fair certainty to tell the benign from the malignant growth by inspection, the less experienced could not do so; only froen sections examined at the time of operation would save the operator from mistakes. According to his experience the chance of making a mistake in the examination of a frozen fresh section was actually less than in that of fixed tissues.

Mr. W. Sampson Handley, London, said that cancer of the breast was not always a fixed tumor, nor did the skin always dimple over it. He agreed with Dr. Rodman with regard to the importance of frozen sections, but pointed out that pathologists as good as those with whom Dr. Rodman worked were rare. Mr. Handley's researches had convinced him that permeation was the true method of the growth and dissemination of cancer of the breast. The reason why permeation so long escaped observation was that it was at first a fugitive process.

While Dr. Rodman was speaking some disturbance was caused by a militant suffragette who insisted upon attempting to address the meeting. For about ten minutes she persisted in her attempt, but her voice was completely drowned by the shouts of those present. Eventually this disturber of the peace was removed forcibly by a commissionaire.

The symposium on intestinal stasis was opened by Sir Berkeley Moynihan, of Leeds. He first dealt with the membranes, veils or webs frequently found in the intestinal canal and admitted that their frequent presence was beyond cavil. He pointed out that the question of the origin or bearing of these bands could be disputed. Most of these he confidently believed to be of congenital origin. But the bands found at the hepatic and splenic flexures of the colon were seldom congenital. He agreed with Sir Arbuthnot Lane as to their origin. Yet he was disposed to doubt if these bands were responsible for intestinal delay and obstruction, for the gut was generally not hypertrophied as it should be if some obstruction existed. Delay undoubtedly occurred in the typical case of intestinal intoxication, not from obstruction by the bands, but from incapacity of the enfeebled intestine to empty itself. Moynihan was not in favor of radical operations, but was of the opinion that if surgical treatment was to be adopted it was wiser not to do a short-circuiting operation, but to take out the lower end of the ileum, the cecum and the ascending colon. As to the relations of intestinal stasis to gastric and duodenal ulcer and cholelithiasis, he believed that the cause lay more often in the appendix and not in intestinal stasis. Therefore, when surgical treatment was directed to these diseases the surgeon was exceeding his duty towards his patient if he dealt with anything beyond the demonstrable lesions of the case. Moynihan had seen cases of rheumatoid arthritis improved beyond the wildest expectation by operative abdominal measures. But it had to be remembered that drainage of an infected gall bladder or removal of a diseased appendix would cure some cases of this disease, and it had also to be borne in mind that most of these cases were not benefited by operative measures intended to prevent intestinal stasis. The same held good of tuberculous joints. Some of the worst kinds of such cases showed marvelous improvement after the whole of the surgical assault had been devoted to the intestinal canal. The casual relation was worthy of a wider trial and investigation, but more than that could not yet be said. Almost all the diseases that affected patients submitted to surgery, as well as many of those which were still for the present in charge of physicians, were regarded as amenable to surgery directed to the intestines. Moynihan accordingly felt that in existing circumstances he was very strongly disinclined to accept the evidence so far put forward in support of these views, but was eager to examine all new evidence bearing on the subject.

Sir Bertrand Dawson, London, said that the term "intestinal stasis" was being used in two different senses. One signified the actual delay in the passage of the intestinal contents; the other indicated the clinical picture of the results of such stasis. The employment of bismuth meals showed that many persons had delayed ileal effluent without suffering from any symptoms attributable to it. The large intestines played the principal part in the production of the symptoms of intestinal stasis; and the best results from coleotomy were seen when the large bowel was definitely diseased. It was important to put aside any bias against the colon, and not to get into the habit of regarding it as a useless organ which was just as well removed as left. The indications must be definite before the operation was advised. Apart from the mortality of colectomy, which was not negligible, it was often followed by frequent actions of the bowels at irregular intervals. The intestines were also easily affected after colectomy by changes of temperature and by fatigue. The successes of the operation were brilliant, but the failures were almost as striking. This was not in itself a condemnation of the operation, but merely constituted a plea for critical selection of cases, for the failures were not due to any faults of technic. If an appendix were removed, but the symptoms were not cured, at least no harm had been done to the patient. A gastroenterostomy which was unsuccessful could be undone, but a mistaken colectomy could never be undone, while a further reason for careful selection of cases was the fact that we did not know yet the full effects of colectomy on the future nutrition of the patient.

Dr. I. C. Bloodgood, of Baltimore, urged for the collection of more facts in the consideration of this subject. In how many cases, for instance, in which the appendix had been removed had there been failure to cure the patient's symptoms? In how many cases of gall-bladder disease, acute or chronic, with or without gall stones, was there a failure to cure symptoms by drainage of the gall bladder, removal of the stones or by removal of the gall bladder? In the past 25 years 700 such cases had been treated in the Johns Hopkins Hospital, and so far only three of them had returned with symptoms referable to the colon. For the purpose of anaylzing their cases at the Johns Hopkins Hospital the cases of colon disease were divided into five groups. In one of these groups, in which clinically the symptoms had been those of intestinal stasis, the patients had been relieved by the proper treatment of naso-pharyngeal and Simes affections. In the second group abdominal operations had been performed. In the Johns Hopkins Hospital gastroenterostomy was an operation which was not done if it could be avoided, but when it had been done the results had been uniformly good. The third group included those in whom adhesions had been found, embryonic or acquired. The results of operations for division of the adhesions, though good, had not been so good as those in similar cases from operations of a different type. The fourth group included the terminal cases now being discussed. Dr. Bloodgood concluded by saying that he could not convince himself that side tracking was an operation of choice, though it might be one of necessity.

Sir Arbuthnot Lane spoke very briefly. He merely remarked that he had nothing whatever to add to what he had said over and over again upon intestinal stasis. If his views were correct they must eventually prevail; if not, they would just as certainly perish. He was content to leave his audience to judge the result.

Injury of the Deep Branch of the Ulnar Nerve.—C. Woodward reports the case of boy aged 15 years who fell on a spike and wounded his left wrist and palm. The wound was infected and healing occupied some weeks. There was paralysis of the interossei, ulnar lumbricales, and adductors of the thumb. Owing to the absence of sensory changes this lesion was prone to be overlooked at the time of the injury.—*Proceedings of the Royal Society of Medicine.*

Progress of Medical Science.

Boston Medical and Surgical Journal.

August 27, 1914.

1. Therapeutic Artificial Pneumothorax as Associate Treatment in Pulmonary Tuberculosis. J. A. Lyon.
2. The Functions of a Dispensary or Out-Patient Department. M. M. Davis, Jr.
3. An Analysis of One Hundred Cases Studied in Connection with the Municipal Criminal Courts of Boston. V. V. Anderson.
4. Remarks on the Diagnosis and Treatment of Early Pulmonary Tuberculosis. J. B. Hawes, 2d.
5. Some Unusual Phases of Sigmoidoscopy. R. W. Jackson.
6. Gonorrhea in Male Children. W. D. Bieberbach.

1. Therapeutic Artificial Pneumothorax as Associate Treatment in Pulmonary Tuberculosis.—J. A. Lyon states that therapeutic artificial pneumothorax gives the best results when administered to those suffering from unilateral pulmonary tuberculosis free from adhesions. That its application should be confined to this class of patients is by no means true, and if it were its usefulness would be extremely limited. Bilateral cases in which the active disease on the untreated side is limited to the apex, will in many instances show satisfactory improvement after being subjected to this treatment. When the treatment is resorted to when the active disease has extended beyond this point on the untreated side, the results will frequently be poor. The replacing of tuberculous pleural effusion with sterile nitrogen gas prevents, the formation of pleural adhesions and prevents the reaccumulation of the fluid. It is the author's belief that artificial pneumothorax is applicable to a very limited number of advanced cases of pulmonary tuberculosis, and that the best results follow its careful administration in that class of incipient and moderately advanced patients who fail, after a reasonable length of time, to respond to the older and better known forms of treatment.

2. The Function of a Dispensary.—M. M. Davis, Jr., states that dispensaries and out-patient departments, as one knows them today, have developed under the joint stimulus of two forces: the charitable impulse to relieve the sick poor, and the medical impulse to secure clinical material for hospital study or for teaching purposes. The dispensary has thus been either a medical "soup-kitchen" or a medical feeder or both. As a medical "soup-kitchen" the dispensary has not been taken very seriously by the lay public. As a medical feeder, it has not been recognized by physicians as possessing distinct functions of its own. Both as a medical and as a charitable institution it has been overshadowed by its rich relation, the hospital. Though the hospital beds treat fewer patients than the dispensary clinics, in the wards appear the crises and climaxes of disease which are usually more dramatic, and apparently more important. Certain advances in medical science, together with the rapidly growing interest in public health work, raise the question as to whether the dispensary or out-patient department has any distinct functions of its own, and whether, if so, dispensaries are at present so organized as to fulfill these functions properly. The development of modern medicine has created specialists and the best medical work can only be done as the team-work of specialists. The work of specialists demands such elaborate equipment, and their team-work requires so much time, that it is impracticable on a basis of private practice except for the wealthy. Dispensary organization as now developed is applicable not only to help the poor, but to provide medical service for those who can pay reasonable fees. In no other way can the best medical service be made available to the people as a whole. The organization of self-supporting dispensaries, on a business though not a merely commercial basis, is thus called for in the near future. The dispensary has a special medical field of its own. In this field fall a large group of important diseases, and many other diseases in their early stages. The dispensary is also peculiarly adapted for preventive work. The dispensary and the hospital are interdependent; the hospital is the center for advancing medical knowledge and medical education in its community; the dispensary is a center in which medical knowledge is to be applied for the benefit of the largest proportion of the population. The dispensary feeds hospital wards, follows up discharged patients (thus promoting hospital efficiency), and forestalls the need of hospital service by detecting and curing illness before it requires bed care (thus promoting economy of hospital service). Criticism of inefficient dispensary work is wholesome. The number of dispensaries in the United States has increased from about 100 in 1900 to over 700 in 1914. Standards of service must now catch up with magnitude of service.

3. Municipal Criminal Courts of Boston.—V. V. Anderson has made an analysis of one hundred cases, in order to illustrate the varying types of individuals that are to be met with in the ordinary daily run of the municipal criminal courts of Boston, as well as the great importance of handling each according to the particular problem he or she presents. In each instance there was obtained a life history of the individual; a record of his present physical and mental condition; and a fairly accurate knowledge of his mental capacity, of his mental traits, and of the preponderating opportunities and interests as shown by study of his mental content. This information was laid before the judge with suggestions as to the prognosis and treatment. The one hundred cases appear on the court record under the following offences: 22 cases of larceny, 45 cases of drunkenness, 6 cases of assault and battery, 1 case of selling drugs, 10 offences against chastity, 2 cases of running away from home, 2 cases of vagrancy, 7 cases of non-support, 1 case of highway-robbery, 3 of threats, and 1 of obtaining goods under false pretenses. It was found that the 22 larceny cases contained 8 feeble-minded individuals, 2 cases of dementia præcox, 3 constitutional psychopaths, 4 subnormal individuals, 2 epileptics, 1 case of ataxia paraplegia and 2 normal individuals. Of the 45 individuals arrested for being drunk, the record showed that 11 of them were feeble-minded, 3 were suffering from dementia præcox, 1 was a case of alcoholic hallucinosis, 17 were constitutional psychopaths, 5 were subnormal in mentality, 5 were epileptics, 1 was a case of senile dementia, 1 was a case of hysteria, and 1 was normal. Of the six arrested for assault and battery, 3 were feeble-minded, 1 was a case of dementia præcox, 1 was a case of epilepsy, and 1 was normal. The one individual arrested for selling drugs was a paretic. Of the 10 individuals arrested for offences against chastity, 5 were feeble-minded, 3 were subnormal in mentality, 1 was epileptic, and 1 was normal. Of the two individuals arrested for running away from home, 1 was feeble-minded and 1 was subnormal. Of the two vagrants, 1 was feeble-minded and 1 was a constitutional psychopath. Of the seven cases of non-support, 1 was feeble-minded, 1 was suffering from dementia præcox, and 5 were constitutional psychopaths. The one individual arrested for highway robbery was, from the intellectual standpoint normal. Of the three cases of threats, 1 was suffering from dementia præcox, and 2 were constitutional psychopaths. Finally, the one individual arrested for "obtaining goods under false pretenses," was a constitutional psychopath, who had been on one of his periodic drunks for several weeks, was markedly disordered mentally.

4. **Diagnosis and Treatment of Early Pulmonary Tuberculosis.**—J. B. Hawes, 2d, states that there are two grave mistakes which any physician may make in the diagnosis of early pulmonary tuberculosis. The first and most important of these errors is putting off making a diagnosis until too late; the second consists in making a diagnosis on insufficient evidence. The chief factors which lead many doctors to delay making a positive diagnosis of incipient consumption and instituting treatment may be grouped as follows: (1) Waiting for a positive sputum. (2) Disregard of the fact that a hemorrhage from the mouth almost always means pulmonary tuberculosis. (3) Failure to note and give due weight to constitutional signs and symptoms. Such signs and symptoms may be: Fever and rapid pulse. Unexplained loss of weight. Loss of strength and energy. Undue fatigue and ease of tire. (4) Failure to take a careful history. (5) Unwillingness to make a definite diagnosis for fear of losing the patient or of making a mistake. (6) Being in too much of a hurry. The chief factors in causing errors on insufficient evidence are: (1) Failure to remember that in young adults particularly, extensive signs in the lungs without constitutional signs or symptoms are often not of tuberculous origin. (2) Disregard of the fact that in children processes due to either pneumonia or influenza may cause consolidation, produce symptoms, and run a course resembling a tuberculous process in every detail. (3) Ignorance or forgetfulness of the fact that exophthalmic goiter often closely resembles incipient phthisis. (4) Forgetting that pulmonary syphilis is not as rare as is commonly supposed. (5) Failure to bear in mind that it is perfectly possible for a person to lose weight and strength, become weak and anemic, and even develop a cough and run a fever without these being due to tuberculosis.

5. **Some Unusual Phases of Sigmoidoscopy.**—R. W. Jackson notes that occasionally there may be surprising consequences of sigmoidoscopy, sometimes harmful and sometimes beneficial. Not frequently the sigmoidoscope produces abrasions and irritations of the bowel which are unpleasant, but which are usually avoidable with careful handling of the instrument. As to the more serious consequences of sigmoidoscopy, Tuttle says: "It may be suggested that there is danger of rupturing a weakened and inflamed intestine by such distention, as a matter of fact it is never so great as to produce any such effect. Whenever the pressure assumes any force, the air will escape through the sphincter or the plug will slip out." There are cases of intestinal perforation from pneumatic endoscopy or from forcing the instrument through some ulcerated area.

New York Medical Journal.

August 29, 1914.

1. General Paresis. D. M. Kaplan.
2. Digitalis in Chronic Diseases of the Heart. L. F. Bishop.
3. Conservation of Vision. F. Allport.
4. Surgical Treatment of Infantile Paralysis. J. W. Moore.
5. Is the Consumption Crusade Becoming a Burlesque? T. J. Mays.
6. Rontgen Diagnosis in Fractures of the Cranium in Children. R. Rosenbaum.
7. Congenital Malformations of the Rectum and Anus. M. R. Bookman.
8. The Injurious Effects of Light on the Eyes. W. B. Lancaster.
9. Placental Blood for Transfusion. G. Rubin.
10. An Aid in the Use of the Allis Inhaler. P. A. Sheaff.

1. **General Paresis.**—D. M. Kaplan states that serological phenomena can be subdivided into four classes: (1) those of irritation; (2) those significant of cord compression; (3) those of syphilis and (4) those of general paresis. The phenomena of irritation comprise the pleocytoses encountered in the course of a meningitis. This increase in the number of cells in the cerebrospinal fluid may be marked or only slight. The number of cells can be used as an index of the severity of the meningeal irritation. In cord compression pleocytosis may be obtained without the presence of a protein excess. To find a very marked protein excess without a pleocytosis must be considered, however, as paradoxical. This is exactly what happens in patients with spinal cord compression. As far as syphilis of the central nervous system is concerned a positive serum Wassermann is inconclusive in settling the etiology of a given neurological disorder. Where the reaction is positive in the spinal fluid, one cannot doubt the syphilitic nature of the nervous disease. Of all positive serum and, to a lesser extent, spinal fluid Wassermann reactions, those obtained in general paresis will remain positive for a much longer time after treatment than the positive reactions obtained in the other syphilogenous nervous diseases. A positive Wassermann reaction obtained in a paretic's serum and spinal fluid possesses distinguishing characteristics. This peculiarity is the property of all Wassermann reactions that belong to the "Wassermann fast" type. The "Wassermann fast" phenomenon, in general paresis, is the expression of a spirochetal location that is so favorable to the existence and propagation of the spirochete that the latter is in a position to furnish continually the substances that bring about a positive Wassermann reaction in the serum and very often in the spinal fluid. The most characteristic landmark of general paresis, however, is to be noted when the cerebrospinal fluid of such a patient is brought in contact with a properly prepared solution of colloidal gold. The manner in which colloidal gold is precipitated by the spinal fluid of a paretic, is not obtainable with other syphilogenous diseases of the central nervous system. So far as paresis is concerned, it occurs with greater regularity in this disease than all the reactions already concerned. The precipitation of colloidal gold in general paresis occurs in over 95 per cent. of cases and in only one instance out of 634 analyses was a reaction obtained which corresponded to the characteristic curve of general paresis in a case of multiple sclerosis. Eight other cases of multiple sclerosis gave a negative result.

2. **Digitalis in Chronic Diseases of the Heart.**—L. F. Bishop points out that fibrillation of the auricle and very serious valvular disease, constitute the most frequent conditions in persons who are benefited by the use of digitalis over periods of months and years without interruptions. In both conditions, when broken compensation has recurred on two or three occasions and has been restored by digitalis after days of anxious waiting for the desired effect, a condition of well being, without these dangerous attacks, can often be maintained by suitably regulated doses taken continuously. The third type of disease in which the continuous use of digitalis often is indicated, comprises the later stages, or, as the author often calls them, the "digitalis stage," of arteriosclerosis, when the high blood pressure has a tendency to be succeeded by a lower pressure that falls beneath the line of compensation. The important point is to anticipate the need of digitalis. Careful observation often reveals defective kidney action several days before other signs appear. Thus, it may be needed once a week, or once in two weeks. If there comes a time when the digitalis will not act, it is not due to the fact that the heart has become habituated to the drug, but because the heart is no longer able to respond to the remedy. There is no such thing as a digitalis habit. On the other hand, there are many persons whose lives depend on digitalis, for without it they would have enjoyed but a short lease of life. The

continuous use of small doses does not lessen the efficiency of larger doses if required. Sometimes it is best to stop the digitalis entirely for a week, and then begin with larger doses. Digitalis may finally produce a true strengthening of the heart, and its use can suddenly be withdrawn without any danger. Groedel summarizes the matter as follows: (1) In all cases of cardiac insufficiency, when larger doses (the administration of which has to be restricted to a short period) of digitalis produce only transitory results, the continuous administration of small doses of digitalis is indicated and is beneficial in most cases. (2) The patients do not become so used to the remedy that they could not do without it. (3) The remedy does not prove ineffective in consequence of patients getting into the habit of taking it. There are certain contraindications that should be borne in mind; for instance, if the secretion of urine apparently diminishes under digitalis, it is well to stop for a while, and allow this effect to subside. Later, even larger doses may lead to diuresis. Digitalis is not yet completely known, and the author hopes there may be a few discussions of this important matter of its use as a chronic treatment of chronic conditions.

3. **Conservation of Vision.**—F. Allport emphasizes several points connected with the annual, systematic examinations of school children's eyes by school teachers: The examinations are simple and require no medical education. Teachers are not expected to make diagnoses. A child can be easily examined in five minutes, and each teacher should examine the children attending her own room. The tests not only benefit the children by leading to the correction of their eye, ear, nose, and throat defects, but the correction of these defects benefits the teachers, because such corrections usually add materially to the intellectual and moral character of the children, thus rendering them much easier to teach, and more pliable to discipline. There is no objection to these examinations being made by doctors or school nurses. This, however, would cost large sums of money and boards of education and health are never allowed enough money for even ordinary purposes. The author recommends the distribution in all schools of crisply and plainly written leaflets concerning the care of the eye, ear, nose, and throat.

4. **Surgical Treatment of Infantile Paralysis.**—J. W. Moore notes that the treatment of infantile paralysis may be divided as follows: (1) Acute febrile stage or that of onset. Within a few hours or a few days after the onset the paralysis appears. The paralysis may extend slowly or the extreme limit may be reached at once. Thus the duration of this stage may be from a few hours to a week. (2) Stationary period: In this stage the constitutional symptoms cease but the paralysis remains. Duration a week to a month. (3) Stage of spontaneous repair. Some hold that this stage ends within six months after the constitutional symptoms cease, but it is the working principle of this department to base the ending of this period at two years. Here the muscles or parts of muscles that suffer paralysis from secondary congestion and exudation about the local myelitis, recover their power, in whole or in part, while those muscles that get their nerve supply from degenerated nerve cells waste away. During this stage, then, contractures and distortions appear in the paralyzed limb. (4) Stage of residual paralysis: This stage has its beginning where the stage of spontaneous repair has its ending—namely, in two years after the initial onset. Treatment of the first stage is essentially medical. Treatment of the second and third stages implies massage, electricity, and support. Massage and electricity, should never be neglected. The routine use of galvanism, so long as it will induce contraction of the paralyzed muscles, is essential; support to the weakened muscles continuously by light braces, easily removable for daily massage and active and passive movements, is of the utmost importance. Should the contractures become so powerful that braces or apparatus will no longer prevent deformities, then conservative measures, such as tendon lengthening, etc., are advisable. There is nothing more distressing than when the attending physician neglects measures of support. The fourth stage or the stage of residual palsy, is the period of radical operation. One is confronted with two conditions: (1) Deformities; (2) loss of muscular power. If the treatment of the stage of spontaneous repair has been neglected, and the patient comes to the surgeon with contracture of the unopposed muscles, conservative measures must be carried out to correct the existing deformity, in the form of manipulation, forcible stretching, tenotomies, tendon lengthening, etc., and the limb must be retained in overcorrected position in plaster of Paris, before radical operation is to be undertaken. On the other hand, if the paralyzed patient has been properly and successfully treated through the stage of spontaneous repair without existence of notable deformity, here the immediate radical operation offers the best prognosis. Radical operation consists in utilizing the muscular power which remains unparalyzed, that is, tendon or muscle transplantation; or in extensively paralyzed conditions, where the joints are useless and flail-like, arthrodesis is desirable, especially in the subastragalar joint. However, in paralytic luxations of the shoulder or hip joint, muscle transplantation or reefing of the capsule gives excellent results. In tendon transplantation there are two methods to be considered, the one advocated by Vulpius, of Heidelberg, and the other by Lange, of Munich. The method of Vulpius consists in suturing the healthy tendon to the tendon or muscle which it is intended to strengthen. The objectionable feature of this procedure is that the paralyzed tendons stretch and the exertion is not likely to last, particularly where considerable strain is to be thrown on it, as in the leg muscles. The procedure has been abandoned by most surgeons. Lange's method consists in suturing the healthy tendon into the periosteum near the insertion of the weak muscle that is to be strengthened. When the joint is flail-like, and no muscular power remains, tendon transplantation is useless, and some method of joint fixation must be employed. A method of screw fixation of the ankle joint has recently been advocated by Magruder. He asserts that it is an effective substitute for arthrodesis, in that it is less destructive to tissue, quicker in results, much surer and much simpler.

5. **Is the Consumption Crusade Becoming a Burlesque?**—T. J. Mays believes that the campaign of education in the prevention of tuberculosis has been followed by widespread terror and demoralization. The ordinary feeling of pity and sympathy are chilled and calloused. A consumptive in a family is frequently neglected by the other members. Coughing on the street, in public conveyances, churches, and theaters is viewed with suspicion. Even the members of a family in which there is a sufferer from this disease are circumspectly avoided. The doors of hotels, of boarding houses, and even of health resorts are closed against them. The campaign of education in its present form is carried to extremes. It causes a revulsion in the minds of the people; some of its cruder elements, like the chamber of horrors, etc., should be eliminated, and one should proceed on less strenuous lines. The campaign of education has signally failed to make an

impression on the course of consumption; the imprisonment of all consumptives in closed institutions, is the last culmination of a most desperate movement, which, after causing irreparable injury, will end in greater failure than any of its preceding steps. The medicopolitical reformers of the present day are nursing a monster in the form of the goddess of health, which has already riveted the yoke of oppression on their consumptive countrymen, and this on evidence so frail that it would not be tolerated by any impartial tribunal.

The Journal of the American Medical Association.

August 29, 1914.

1. The Medical Treatment of Chronic Intestinal Stasis. W. A. Bastedo.
2. International Standard for Testing Vision and Standardizing Other Visual Tests. E. Jackson.
3. Convergence Insufficiency. A. Duane.
4. Summary of Research Studies in Psoriasis. J. F. Schamberg, A. I. Ringer and J. A. Kolmer.
5. White-Spot Disease. G. M. MacKee and F. Wise.
6. Radium. Its Use and Limitations in Skin Diseases. F. E. Simpson.
7. The Relative Value of Radium in Dermatology. A. F. Holding.
8. Radium and the Roentgen Rays in Radiotherapy. Their Uses and Limitations. W. S. Newcomet.
9. The Place of the Roentgen Ray in Therapeutics. G. C. Johnston.
10. Epithelioma of the Lids. C. Fisher.
11. A Study of Three Hundred Cases of Appendicitis with Special Reference to Pelvic Complications. A. MacLaren.
12. Has the Last Word Been Spoken Concerning Appendicitis? J. E. Moore.
13. Thrombosis and Embolism, Their Significance and Consequences in Abdominal and Pelvic Surgery. A. McLean.
14. Standardization of Surgery. An Attack on the Problem. R. L. Dickinson.
15. Kraepelin's Conception of Paraphrenia. M. J. Karpas.
16. The Relation of Pathological Conditions in the Nose and Throat to the Origin and Treatment of Hyperthyroidism. S. P. Beebe.
17. The Use of Celluloid Splints in Treatment of Diseases of the Nervous System. G. W. Robinson.
18. Anaphylaxis Following Skin Grafting for Burns. H. L. Underwood.
19. Twelfth Annual Summary of Fourth of July Injuries. Special Article.

1. Medical Treatment of Chronic Intestinal Stasis.—W. A. Bastedo sums up the treatment of chronic intestinal stasis as follows: Regularity of defecation, measures to improve intraabdominal pressure, measures to increase peristaltic activity, and measures to increase the bulk and softness of the colon contents. In the average case attention to habits of life and to the amount and kind of food, and the administration of a softening agent or a very mild laxative will be effective in overcoming the stasis, and, therefore, the toxemia. In severe cases, the addition of an oil enema at night may work a marvelous change for the better. In these chronic cases the drastic cathartics should be omitted from use. If measures such as those spoken of, when carried out thoroughly, do not overcome the stasis and the toxemia, the question of surgery should be seriously considered.

2. International Standard for Testing Vision and Standardizing Other Visual Tests.—E. Jackson states that the cards of test-letters in common use are admirably adapted to the subjective determination of errors of refraction; but as a test for visual acuity they probably afford the poorest and most inexact standard on which any scientic observations are now based. As a scientific standard they possess two essential defects: (1) The different letters when made as uniform as possible are visible from very different distances. This makes them unsuitable for a scientific standard. (2) They can be readily committed to memory by all who are sufficiently familiar with them to make them a convenient test. This lessens their value as a practical test. There is a great advantage in the use of the incomplete square or the broken ring of the international test. If the card on which one or more of these tests are symmetrically placed is simply turned, it becomes impossible for the person tested to know, except by sight, in what direction the incomplete side is placed. By using a single broken ring or a symmetrical group of them printed on the center of a symmetrical card, the same card can be used for any number of repetitions of the test, without giving any hint of the correct answer, except by vision sufficient to recognize the figure.

5. White-Spot Disease.—G. M. MacKee and F. Wise conclude that white-spot disease is a special form or type of scleroderma which can be differentiated both clinically and histologically from other affections with white lesions. Lichen planus sclerosus and atrophicus or lichen albus, although giving rise to white lesions, has nothing in common with white-spot disease. The unclassified cases of white-spot disease, such as those of Westberg, Johnston and Sherwell and Hazen, belong to the scleroderma group and, therefore, are true examples of white-spot disease. The discrepancies in histological and clinical findings are due to the fact that the studies were made at different times with respect to the evolution of the disease.

9. The X-Rays in Therapeutics.—G. C. Johnston concludes that the *x*-rays are of distinct value in the treatment of a number of conditions. The results to be expected depend on the employment of a correct technique which implies the ability to prescribe correctly and administer the necessary dosage at the necessary time in each individual case. The Coolidge tube has placed in the hands of the profession an instrument capable of great good if carefully and intelligently employed. The value of radium as a therapeutic agent should be no longer disputed. The physician employing these various agents must be thoroughly familiar with the possibilities of present day surgery as well as expert in his own technique in order that his patient may obtain the benefit of everything that science has to offer. Physicians and the public must never forget that every case of malignancy remains for a certain length of time after its inception a curable disease by proper surgical procedure.

11. Appendicitis with Special Reference to Pelvic Complications.—By A. MacLaren. (See MEDICAL RECORD, June 27, 1914, page 1192.)

12. Appendicitis.—By J. E. Moore. (See MEDICAL RECORD, June 27, 1914, page 1193.)

13. Thrombosis and Embolism.—By A. McLean. (See MEDICAL RECORD, July 4, 1914, page 38.)

14. Standardization of Surgery.—By R. L. Dickinson. (See MEDICAL RECORD, July 4, 1914, page 38.)

15. Kraepelin's Conception of Paraphrenia.—M. J. Karpas states that it must be admitted that the splitting up of a large heterogeneous group into subgroups with the object of restricting the disease picture to definite clinical types implies a marked advance in objective psychiatric nosology. Hence the paraphrenia group is such a welcome addition to the modern classification of mental disorders. One must bear in mind in many instances a well defined line of demarcation between dementia præcox and paraphrenia is quite often very difficult to make; especially is this true of the confabulatory and fantastic forms. It is important to emphasize that in the psychopathology of dementia præcox, emotional and volitional deterioration and distortion of personality stand out quite prominently, but they are only objective landmarks to aid one in establishing such differentiations. Kraepelin lays little or no stress on the type of personality in paraphrenia or other forms of psychosis, which is so much emphasized in American psychiatry. Should it be possible to outline a characteristic type of personality and the underlying psychological mechanisms of a paraphrenic symptom complex our knowledge of this important group would be greatly enriched.

Insurance Medicine.

Association of Life Insurance Medical Directors.—The twenty-fifth annual meeting of this Association will be held in Hartford, Conn., on Wednesday and Thursday, October 7 and 8, in the Hunt Memorial Building. The first session will be called to order at 10 A.M. on Wednesday, October 7. Besides the general business which will be brought before the Association, the following papers will be read: "Decreased Mortality from Tuberculosis," president's address, by Edward K. Root, M.D., medical director, Ætna Life Insurance Company; "Heredity and Predisposition in Life Insurance," by Arthur B. Wright, M.D., medical director, Travelers' Insurance Company; "Analysis of 1,000 Ordinary Rejections, 1888-1903, of Applicants Holding Other Ordinary Insurance, Observed in 1914," by William Perry Watson, M.D., Consulting Medical Director, Prudential Insurance Company of America; "The Terms on Which Some Substandard Risks May Be Accepted," discussion introduced by T. F. McMahon, M.D., medical referee, Manufacturers' Life Insurance Company.

Inflammatory Rheumatism and Allied Disorders as Affecting Life Insurance Risks.—Dr. C. Nauman McCloud, Medical Director Minnesota Mutual Life Insurance Company, states that until very recently but little was known about the etiology of these affections. Inflammatory rheumatism is now regarded as one of the most special and definite diseases with which we have to deal, although there may be different types which the future will determine, just as there are different types of the pneumonococcic infection. In a brief review of the newer theories as to the etiology of inflammatory rheumatism we must correlate the close relationship of the tonsils to this disease. During the past twenty years investigators have endeavored to settle this problem and confusion has existed because the organisms did not altogether coincide, yet the recent work of Rosenow of Chicago seems adequately to adjust these differences. In 1892 Sahli discovered *Staphylococcus pyogenes aureus* in the synovial membrane of the joints and also in the pericardial exudate of a patient suffering from inflammatory rheumatism. Dana, in 1894, isolated a diplococcus from a case of chorea following rheumatism. In 1899 Wassermann, Westphal, and Malkoff reported a case of chorea following inflammatory rheumatism, which later died, in which was found a diplococcus in the tissues that appeared in cultures as a staphylococcus. More recently Poynton and Paine have been able to reproduce inflammatory rheumatism in rabbits by injecting them with blood of rheumatic patients and later were able to demonstrate the same diplococcus as found in the patient. They called this microorganism the *Diplococcus rheumaticus*. The experiments of Rosenow show that the same organisms may be changed by cultural methods so that they may demonstrate progressive phases of transmutation. This range extends from the streptococcus to a pneumococcus. He has produced at will, in the inoculated rabbit, suppurative arthritis, multiple proliferating arthritis, endocarditis, pericarditis and myocarditis, myositis of skeletal muscles, in various phases, and at another stage produced a typical pneumonia. These experiments probably clear up this difference in results from the varying types of streptococci described by the various investigators, and further develop the interesting fact that the same organism producing inflammatory rheumatism is found in the tonsils of rheumatic patients. While the presence of the *Diplococcus rheumaticus* in the tissues is essential in the production of this disease, there are predisposing causes of much practical importance, and among these are the following: Heredity.—Inflammatory rheumatism renders the patient liable to other attacks, and as a result a constitutional tendency is developed which may be transmitted to the offspring. Sex.—In childhood rheumatism is more frequent in females, and it is apt to be less acute but more obstinate due to some intrinsic peculiarity of female metabolism. The condition of the tonsils at this age is an important factor, as necrosed tonsils are too frequently associated with rheumatic conditions. Personal Hygiene.—Care of the throat, proper clothing to protect the body from sudden climatic changes is necessary. It has been definitely proved that the tonsils, teeth, and alveolar processes are a source of these infections. Billings and his co-workers have shown that the organism found in the abovementioned tissues and organs is the same as that found in the joints of an arthritic patient, and they have produced at will these same conditions in animals. Patients suffering from arthritis deformans have been relieved of their helplessness by proper dental attention and removal of the tonsils, which resulted in an arrest of the severe arthritis and muscular wasting. The specialized mortality investigation relating to rheumatism has shown that applicants who have had rheumatism have proved to be fair risks. While this seems to be contrary to clinical experience, it may be due to a somewhat loose application of the term rheumatism, as covering such conditions as lumbago, sacroiliac involvements, etc.

In insurance work, Dr. McCloud says, the examiner is chiefly concerned with the heart involvement in cases of inflammatory rheumatism. The medicoactuarial investigation will include a study of the mortality among persons who have suffered from acute articular rheumatism, the last attack being within five years, and excluding muscular rheumatism. It is to be hoped that a classification according to the date of the attack can be made, so that results may be obtained which will be more directly helpful to the medical director in rating cases with this history.—Medical Section. American Life Convention, March, 1914.

Mitral Stenosis and Life Insurance.—At a meeting of the British Life Assurance Medical Officers' Association held on November 5, 1913, Dr. F. de Haviland Hall pointed out that a much too optimistic view seemed to have been taken of the prospects of the applicants with circulatory disturbance, and the additions were consequently quite inadequate to the risk. The speaker adduced an instance going to show that this conclusion was correct. The applicant for insurance was 36 years of age, 5 feet 11 inches in height, and 182 pounds in weight. His father had died at the age of 52 of Bright's disease. His mother was alive at the age of 67, but she had suffered several times from rheumatic fever. The applicant was found to have a double mitral murmur and on exertion he suffered from dyspnea. He was taken with ten years' addition, the premium to be paid in ten payments. He died from heart disease after the second instalment had been paid.

Book Reviews.

A Synopsis of Surgery. By Ernest W. Hey Groves, M.S. M.D., B.Sc. (Lond.), F.R.C.S. (Eng.). Surgeon to the Bristol General Hospital; Consulting Surgeon to the Cossham Hospital; Lecturer on Surgery at Bristol University. Fourth Edition, Revised and Illustrated. Price, $3.25 net. New York: William Wood and Company, 1914.

This work is not designed to supplant or serve the purpose of a text-book, but rather is an epitome of the salient facts in surgical practice, and the author has accomplished his purpose most admirably. The essential features in the etiology, pathology, symptomatology, diagnosis and treatment are clearly brought out, though in as brief a manner as is compatible with conveying a lucid impression of the subject in question. It may well be called invaluable for quick reference, for purposes of review, and as an aid in the preparation for examinations.

In this edition the author modestly states that the most important new feature is the revision, and to some extent the rewriting, of the pathological and bacteriological sections by Dr. George Scott Williamson; but additional new matter has been incorporated covering recent theories of shock, intratracheal and other methods of anaesthesia, spinal-cord tumors and resection of spinal nerve roots, while the entire book has been carefully revised and brought into accord with the latest teachings in the realm of surgical practice. It is without question one of the best outlines of the practice of surgery in existence, and a valuable aid to the practising surgeon as well as to the student.

Surgery: Its Principles and Practice. For Students and Practitioners. By Astley Paston Cooper Ashhurst, A.B., M.D., F.A.C.S., Instructor in Surgery in the University of Pennsylvania; Associate Surgeon to the Episcopal Hospital and Assistant Surgeon to the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases. Large octavo, 1141 pages, with 7 colored plates and 1032 illustrations in the text, mostly original. Price, cloth, $6.00 net. Philadelphia and New York: Lea & Febiger, 1914.

According to the publishers' announcement, this book "will be promptly recognized on its merits as the leading text for students, and the ideal guide for all those who have practical surgery to do." The reviewer regrets that he cannot concede this claim. In the preface of a recent book on another topic there occurred this statement: "I will go even further and say that a book that does contain useful information but information that is already contained in other books previously published, has no right to exist unless the author at least presents the matter from a new point of view, or classifies it in such a manner as to make its comprehension more easy, more assimilable. It is unfortunately only too true, however, that thousands of books are published annually which have absolutely no *raison d'être*. They present merely a rehash of some other book or a résumé of several." This book does not deserve quite so harsh a criticism as this; but there is a surfeit of such surgeries that have recently appeared or been revised and brought strictly up to date, so that there should be some compelling reason for a new author's appearance in the field—a reason which we confess we have failed to discover in the work itself.

While it is true that the author has drawn upon his own experience in the preparation of parts of the work, a very considerable portion falls in the category of compilations from other books and journal articles. It is also true that he has well summarized recent literature, and the entire book gives evidence of wide reading and the expenditure of an enormous amount of labor in collating material of this nature, but the proportion of original to borrowed material seems very unequal.

The most satisfactory sections are those covering injuries and diseases of the bones and joints, including fractures and dislocations, and those on the surgery of the chest and abdomen, particularly of the upper abdomen, where the influence of the author's association with Deaver in the preparation of a recent masterly work on this subject is manifest. The section on hernia also deserves special mention. There are, of course, many excellent features. The illustrations are almost uniformly good and to the point, while an unusually large percentage are original. The style is easy, the text is clear, and for the most part truly reflects the present conceptions of surgical principles and practice. However, it is better as an addition to one's surgical library than as a textbook in the usual sense of the word; for only too often one cannot be sure whether he will find an important subject treated *in extenso*, briefly, or not at all.

Renal Diagnosis in Medicine and Surgery: Being a Handbook of the Theory and Practice of Functional Testing of the Kidney. By Dr. Victor Blum, Tutor in Urology at the University of Vienna. English translation by Wilfred B. Christopherson. Price, $2.00 net. New York: William Wood & Company, 1914.

Only a comparatively few years ago the determination of the functional value of a kidney was based upon and limited to the interpretation of the clinical symptoms and the examination of the voided urine; that from a supposedly sound kidney thus being mixed with that from the diseased side. To obtain urine from the diseased side only various measures were adopted, among which may be mentioned compression of the ureter on the sound side by pressure through the abdominal wall, and the use of one of the various separators, that of Luys being the most practical in the average case. While seldom absolutely accurate and usually difficult in application, the separator furnished an approximate sample of the urine from each side and the usual physical, chemical, and micoscopical tests could then be applied to each specimen. The development of the catheter-cystoscope simplified the collection of urine from the individual kidney and attention was soon directed to the problem of determining the functional condition not only of the kidney as a whole, but of the different portions of the renal parenchyma, topical diagnosis. The methylene blue, indigo-carmine, phenolsulphonephthalein, sodium chloride and potassium iodide, and many other tests were gradually developed; so that at the present time the state of the kidneys may be fairly accurately determined before operation or during the course of medical treatment of renal disease. As Blum states, "The significance of the modern methods of examination is threefold: (1) In the diagnosis of renal competency and incompetency; (2) in the differential diagnosis of the various forms of nephritis; (3) in the diagnosis of 'harmless' albuminuria." Blum has certainly covered the ground, and has epitomized in this book about all that it is necessary for one to know as to the development, technique, and the practical application of all the functional tests that are in general use at the present time.

Bacteriology for Nurses. By Isabel McIsaac, R.N. Second edition, revised. Price, $1.25 net. New York: The Macmillan Company, 1914.

This book is the result of "an endeavor to bring the essentials of an enormous subject into a practical arrangement, which will serve to introduce young nurses to one of the most important phases of nursing, viz., the prevention of infection." The subject is taken up in a clear and acceptable fashion, though the distribution of space is somewhat puzzling, for more is devoted to a description of the bubonic plague than to any other disease with the exception of tuberculosis. The revision for the new edition could have been accomplished a little more thoroughly in some respects. For instance, the author in the section on syphilis quotes Colles' Law, which has been rather thoroughly discredited by the Wassermann reaction, and also says that cases of gonorrhea and syphilis "almost never recover." In the main, however, the book adequately fulfills its purpose.

Manuel Pratique de Diagnostic Bactériologique et de Technique Appliquée a la Détermination des Bactéries. Par R. Le Blaye et H. Guggenheim. Price, 8 fr. Paris: Vigot Frères, 1914.

This practical manual aims to be to the bacteriologist what the botanical manual is to the botanist, to furnish a quick and simple method for the identification of any microorganism. The first half of the book is devoted to a brief description of bacteriological technic and the preparation of media and the taking of cultures. The second half is wholly devoted to tables which present, in what is said to be an entirely new form, the entire field of pathogenic microorganisms. Thus in one table is collected all the bacteria which liquify gelatine and directions given which will enable one to differentiate between them. It is probable that when one became accustomed to use these tables that they could very quickly furnish any desired information. The chief objection is that an equal amount of time spent in the intensive study of the subject would give the student sufficient information so that the tables would not be necessary to him.

Society Reports.

AMERICAN PEDIATRIC SOCIETY.

Twenty-sixth Annual Meeting, Held in Stockbridge, Mass., May 26, 27, and 28, 1914.

THE PRESIDENT, DR. SAMUEL MCC. HAMILL OF PHILADELPHIA, IN THE CHAIR.

President's Address.—Dr. SAMUEL MCC. HAMILL, Philadelphia, Pa., made this address in which he first paid a tribute to the memory of Dr. Forchheimer, Dr. Rotch, and Dr. Putnam. He said that as friends they would miss them, but that they should miss much more their stimulating influence in this Society, and, above all, their contributions to the subject of pediatrics and the betterment of the world. As a text for his remarks he took a quotation from the first volume of the Transactions of this Society, quoted from Dr. Jacobi's first epistle to the Pediatricians, written in the year 1888 on the occasion of the first scientific meeting of the American Pediatric Society. It read: "Questions of public hygiene and medicine are both professional and social. Thus every physician is by destiny a 'political being' in the sense in which the ancients defined that term; viz., a citizen of the commonwealth, with many rights and great responsibilities." In that communication, after defining at length the close interdependence of pediatrics to general medicine, surgery, neurology and to all other branches of medicine, he emphasized the relationship of pediatrics to the most vital questions of public hygiene. The speaker quoted further from Dr. Jacobi's paper of twenty-six years ago which indicated in very definite terms what he thought to be the duty of this society and its individual members to the problems of the commonwealth. Though Dr. Jacobi had been the pioneer in pointing out this duty of the American Pediatric Society others had from time to time suggested that the American Pediatric Society, primarily founded to stimulate and encourage scientific work to the highest degree, should assume broader obligations and grapple with larger problems. In the light of the standing of this organization had they the right to refuse consideration of the vital problems of preventive medicine that were being unwisely and irrationally disposed of by men and women who were often swayed by sentiment and who were without the knowledge of medicine, upon which, in the final analysis, every problem relating to the child must rest. In answering this question affirmatively Dr. Hamill said he would not convey the impression that the American Pediatric Society should sacrifice one particle of its scientific endeavor along lines of laboratory and clinical research, but that it should add to its program scientific investigation along the lines of preventive medicine as it applied to the welfare of the child. The subjects of birth registration, the regulation of the midwife, the problems presented by the day nursery and the foundling institution, and the problems of school hygiene, all demanded their attention. Many of the private schools for boys and the great majority of girls' schools, as housed in our cities, were a menace to the public health. They were receiving neither advice nor supervision. The problems of the physician and the sociologist were inseparable. This, the speaker said, was well illustrated in the matter of the health aspects of the child labor problem. As Dr. Rotch had pointed out, the knowledge which the pediatrist alone could give would prevent the enactment of laws which were unwise and unjust both to the child and to his parents and employer. The health departments of some of our cities had made special provisions for the care of the city child by the creation of departments of child hygiene, and this society should do all in its power to stimulate the creation of such departments, rightly conducted, that the terrific morbidity and mortality amongst infants and children would be reduced. Much of the invalidism of the adult, mental and physical, much of the moral obliquity of the child and the adult, had as their foundation the neglect of the medical aspect of these sociological problems. Those in close touch with charitable, philanthropic, educational and social institutions in our cities, most of which were in part public health programs, and most of which were formulated and carried out without medical advice, understood the crying need of the assistance that such a society as this could render. There was no other which could fully replace it.

As to our method of procedure, the suggestion of Dr. Edsall that this society act as a center for the accumulation and dissemination of knowledge relating to these subjects was admirable. They could not treat all of the innumerable themes that were awaiting them at once, but these could be brought up one by one at the yearly meetings. Dr. Hamill therefore recommended that at the present meeting three committees of three members each be appointed—the first to study the present status of the child labor problem, and to present a critical and constructive report at the next annual meeting; the second to study the vulvo-vaginitis problem in its relationship to public health, its report to be submitted at the same meeting; and the third to be known as the Committee on Cooperation with the Children's Bureau of the United States Department of Labor.

The Use of Dahlia.—Dr. JOHN RUHRÄH of Baltimore read this paper, in which he gave a brief history of the observations on aniline dyes with reference to their antiseptic action, and reviewed the recent observations of Simon, May, and others, showing the germicidal properties of certain of the basic aniline dyes. He stated that two years ago in searching for an efficient local application for streptococcus infections of the throat Dr. Charles Simon had suggested dahlia. He started with a local application of a weak solution and soon found that the saturated solution, that is, about a four per cent. solution, could be applied to the mucous membranes of the throat or any other part of the body without producing pain or subsequent irritation. The drug seemed to penetrate only a short distance and for the deeper affections had no value, but for superficial involvements of the mucous membranes, whether due to the streptococcus or other organism, the effect was quite striking. In some instances there was but little effect while in others there was marked lessening of the intensity of the inflammation and coincidently a lessening of the constitutional symptoms. Dahlia had the advantage over other applications in that it was not painful, did not produce irritation, and was markedly antiseptic. The drug also had a stimulating effect on healing. It had been used with remarkable effect on vaccinations that were slow in healing and upon other abraded surfaces, particularly those which were infected. Others had used it with success in chronic eczema, herpes, tinea, tonsurans, furunculosis, and erysipelas.

Dr. ABRAHAM JACOBI of New York said that he had published a paper some eight years ago in the Journal of the American Medical Association on the effect of methylene blue in cases of cancer in which he had called attention to the advantages of this agent in chronic cancer by giving it, not subcutaneously, but internally. The paper had been conscientiously overlooked, as many good things were. He had used methyl blue for twenty-three years and was still satisfied with it.

The Diagnosis of Whooping Cough by the Complement Deviation Test.—Dr. ALFRED FRIEDLANDER of Cincinnati presented this communication. He stated that they had succeeded in making the diagnosis of whooping cough in all stages by means of the complement deviation test. After describing his technique, which had the advantage of requiring but a very small amount of blood, he reviewed the series of cases which had been subjected to this test and showed that in eighteen cases of whooping cough there were 100 per cent. of positive reactions; in eight normal children there was 100 per cent. of negative reactions; in three cases in the catarrhal stage, two gave positive and one a negative reaction; in a case not whooping cough, but in which the course was otherwise typical, there was a positive reaction. In no case had he had a positive reaction when the patient had not either a pertussis infection or a history of pertussis within four years. It was a matter of record that the success of vaccine therapy in whooping cough depended in a large measure on the time of its application. If it were possible to diagnose whooping cough in the catarrhal stage surely and definitely its rapid cure seemed assured.

Dr. ROWLAND G. FREEMAN of New York said that this work seemed very promising, but the general impression seemed to be that they were still uncertain as to whether the specific organism of whooping cough had really been found. In one laboratory in New York they had been experimenting all winter but without results.

Dr. CHARLES GILMORE KERLEY of New York said he had had the opportunity of discussing this subject with Dr. Freeman of London, Eng., who had treated 1134

cases of whooping cough with vaccines. He felt rather vague as to the results, but thought that the vaccines probably did some good; used in conjunction with the pneumococcus vaccine he thought they gave good results.

Dr. Samuel S. Adams of Washington, D. C., thought that the value of this test hinged on the early diagnosis. Was there a history in these cases? A history of disturbed sleep was a symptom which usually appeared long before other symptoms. It seemed that if this test was to be of value we must get the child before there was a distinct history.

Dr. L. Emmett Holt of New York called attention to the close resemblance in some cases between influenza and whooping cough, which made it very desirable to differentiate them bacteriologically. They had had a great deal of influenza in the Babies' Hospital during the past winter and took cultures from all the inmates of the institution, with the result that the influenza bacillus was found in the sputum of a very large proportion of the cultures. In some cases the symptoms were quite typical of whooping cough. This close resemblance between the two diseases in some cases might account for the negative result in the series reported.

Dr. Alfred Friedlander of Cincinnati said that in reference to the question as to how long the children had been coughing, the periods had varied from three to ten days. When a child showed any definite history of cough the test was made and the normals had some cough. In some the diagnosis of influenza was made in accordance with Dr. Holt's statement. One could no longer question the specificity of the Bordet-Gengou bacillus. They had been using it in three stains and got a definite deviation of the complement in each. So far as the value of the vaccines was concerned there was room for doubt; from relatively small doses one got no results.

Endocarditis in Children.—Dr. Floyd M. Crandall of New York presented this communication, which was based on the study of the case histories of private patients, some of whom had been followed for many years. His general conclusion was that cardiac disease in private practice ran a considerably more favorable course than in hospital and dispensary practice. Four symptoms were particularly suggestive of myocarditis; namely, irregular heart action, syncope, cyanosis and precardial distress. In the later stages the occurrence of cyanosis and edema was of more grave significance in children than in adults. It was usually impossible to determine the condition of the heart muscle in a young child except during sleep. If anemia was a marked symptom the prognosis was not so gloomy, as relief of the anemia might mitigate the heart symptoms. A point of great interest was the occasional rapidity of the development of the physical signs of endocarditis. It was a common statement that the severity of the case was not in proportion to the amount of sound heard on auscultation; this statement was not wholly true. It was difficult to believe that a loud rasping murmur was not more serious than a soft blowing one. The physician who ignored the gravity of a cardiac murmur and lightly said the child would grow out of it was taking a criminal risk. The earlier the endocarditis occurred the better the prognosis because of the more perfect adaptation of the child to the heart and the heart to the child. An aortic lesion was a very dangerous thing in a child, but fortunately was a rare occurrence. The evil effects of anemia on a child with cardiac disease could scarcely be overestimated, as it was a contributing factor to weakness and fatty degeneration of the heart muscle. The evidences of infection through the tonsils in acute rheumatism were strong, and for this reason in the rheumatic child it was highly important that enlarged tonsils should be removed. The effect of endocarditis on the growth and development of the child were of particular interest, and it seemed that a constitutional tendency and rheumatic involvement were often more important factors in the development of the child than the heart lesion. The treatment of endocarditis divided itself into the treatment of acute and of the chronic conditions. Six weeks was the shortest time that any endocardial case might be allowed to leave the bed. Rapidity and irregularity of the heart on getting up were indications for a longer stay in bed. The time of getting up was largely a matter of judgment in the individual case. The maintenance of a restrictive treatment too long and too rigidly after the preliminary stage was a mistake, and might defeat its own object. A period of daily rest was of great importance to the cardiac child. In the management of this condition arbitrary rules might do more harm than good. In few other conditions was it more essential that we study the case and treat the patient rather than the disease.

Dr. Henry Dwight Chapin of New York called attention to the tendency of these cases to acute dilatation under great stress. In line with the address of the president, the physician had a duty to the public in pointing out the danger of the too strenuous athletics encouraged by our schools and colleges. These matters were left too much to physical directors, who were not alive to the dangers.

Dr. Henry I. Bowditch of Boston said he wished to emphasize the point just brought out by Dr. Chapin. The child with a damaged heart did not have a fair chance in life and needed the closest observation. A committee to take up this subject to which Dr. Chapin had referred would be productive of good results. As one observed more closely he would see that family history played an important part in these cardiac cases. There were frequently other cases of endocarditis in the family and it would be interesting also to note their association with streptococcic infection of the tonsils.

Dr. Fritz B. Talbot of Boston cited a case of endocarditis which had just come to his attention in which the sister had had rheumatism and endocarditis three weeks before; if these cases were studied more closely it would often be found that there was a history of other cases in the family. They had been conducting a heart hospital with very good results and were also trying to see what social workers could do in the way of keeping these patients in bed at their homes. They could not say as yet which was better, the hospital or the home treatment.

Dr. J. D. Crozer Griffith of Philadelphia believed that it was possible, where there was a great degree of debility, to keep the patient in bed too long. These patients might be divided into three classes: A small class where there was absolute failure of compensation; a larger class which responded well to treatment and in which recovery usually followed, and a class in which there was a tendency to an independent anemia not yielding readily to treatment. Some of these latter cases in spite of all treatment still remained discouraging.

Dr. A. D. Blackader of Montreal, Canada, said that, in reference to the effect of endocarditis on the development of the child, it had been pointed out that growth was dependent on wide arteries and a low blood pressure. A slight endocarditis by lowering the blood pressure and favoring wider arteries favored an increase in growth and these children might be found a little taller than others in the same family. When the temperatures had become normal small doses of potassium iodide given over a period of three, four, or five weeks was productive of benefit. Its effect on acidosis was well known and it was believed to have some effect on the viscosity of the blood. In mild lesions confined to the mitral valve, excepting for the more strenuous exercises, children should be allowed to develop the heart at the time that the remainder of the body was developing.

Dr. Henry L. Coit of Newark asked the essayist when he said that the child might get up when the pulse was 100 or less whether he meant 100 when recumbent or 100 when standing.

Dr. Isaac A. Abt of Chicago, Ill., called attention to the statement that aortic lesions were rare in childhood; in his personal experience he had not found them as rare as had been supposed and he was seeing an increasing number of cases. Occasionally in children with murmurs there might be only slight temporary dilatation after exercise, perhaps lasting for a period of days. What should one do in regard to exercise in these cases?

Dr. Rowland G. Freeman of New York said that no one had spoken of the value of the *x*-ray as a guide in the control of these cases of endocarditis. Cases showing an enlargement should be subjected to the *x*-ray when they show an improvement of symptoms. In a case coming under his observation in which the symptoms showed an improvement an *x*-ray picture showed greater enlargement than when the first picture was taken.

Dr. D. J. Milton Miller of Atlantic City called attention to certain adventitious murmurs not due to endocarditis which were exceedingly difficult to diagnose.

These cases were frequently permitted to go without treatment and sometimes disastrously. In cases of endocarditis in children small doses of morphine were valuable, especially when there was nervousness.

Dr. PERCIVAL EATON of Pittsburgh, Pa., suggested the longer administration of iron in the cases complicated with anemia. These children were sometimes kept in bed too long; one was apt to forget how much could be done by beginning with a very little exercise and very gradually increasing it.

Dr. HENRY I. BOWDITCH of Boston related a family history illustrating the hereditary predisposition to endocarditis and indicating an association to infection of the tonsils and expressed the conviction that this hereditary factor had something to do with the production of the endocarditis in some cases at least.

Dr. FRANK S. CHURCHILL of Chicago, Ill., said it would be interesting to know what the blood pressure was in these cases and whether it was different in the functional and the organic murmurs; whether it was less when the children were lying down than when sitting, and less when sitting than when standing. One could counteract the effects of too long rest in bed by passive exercises. The question of allowing the child up when the pulse was 100 depended on the age of the child and the blood pressure.

Dr. L. E. LA FÉTRA of New York thought that possibly the family tendency to endocarditis might be explained by the predisposition of the lymphoid tissue to infection being handed down from one generation to another. The blood pressure, together with the pulse rate, could be used to determine when the patient might be allowed out of bed. Sometimes the heart might be a little rapid for a few days after getting up, but after a short time it got its second wind, so to speak, and then went along all right.

Dr. HERBERT B. WILCOX of New York said that the anemia in these cases was amenable to treatment. One should get these children with endocarditis complicated by anemia into the country. They had tried this experiment last summer and most of the children returned permanently improved. This seemed to indicate why better results were reported in the treatment of cases in the families of the well-to-do than in those of the poor.

Dr. FLOYD M. CRANDALL of New York said that some of these patients if kept in bed too long developed hospitalism. It was well not to center the mind of the child too much on the heart condition. In connection with the relation of the family history of rheumatism to endocarditis, a family had come under his observation in which there were seventeen cousins and every one of them had either chorea, endocarditis, or rheumatism.

Treatment of Sibilant Bronchitis.—Dr. B. K. RACHFORD of Cincinnati read this paper, in which he expressed the belief that the symptom groups commonly described in the literature under the titles migraine, asthma, recurrent sibilant bronchitis, recurrent vomiting, recurrent coryza, and urticaria, as they occurred in children, were closely related food intoxications which could be successfully treated by very much the same dietetic and medicinal treatment. The case histories given showed the relationship of these conditions. During the attack sweets, fats, eggs, and raw fruits were to be avoided. Strawberries, rhubarb, tomatoes, salads, shellfish, tea, coffee, pastry, gravies, cream, cod liver oil, and alcohol were excluded from the diet. Saccharine might be used instead of sugar and skimmed milk was allowed. Eggs in every form, even in cooked foods, were eliminated, and oranges were especially to be avoided. The foods allowed were beef, mutton, fowl and fish in moderation, cereals, bread and all vegetables not proscribed above, cooked fruits, skimmed milk, and thick soups. About two months after the patient had recovered from the acute attack the above diet might be carefully modified by adding one egg a day and two weeks later milk containing four per cent. fat. A few weeks later a small quantity of sugar might be allowed, and at the end of five or six months the child might return to his original diet, with the exception that he must eat sparingly of sweets and must eat nothing between meals. If the symptom group returns on the addition of any article of food that particular food must be excluded from the diet. Exercise and fresh air were important. Alkalies in the form of bicarbonate of potassium, or citrate of potassium should be given in fair-sized doses three or four times each day. In younger children a teaspoonful of citrate of potassium might be distributed through the food each day. Tincture of belladonna, two to four minims three or four times a day, should be given for a short time. In the intervals the belladonna was discontinued, but the bicarbonate was continued for six or eight weeks.

Dr. PERCIVAL J. EATON of Pittsburgh said that last year he had seen ten cases similar to those just described and during the past winter he had seen from ninety to one hundred, and had felt that an element had come in which he had not seen before. He had met cases in nurslings and in children of all ages up to seven or eight years. These cases were new to him whether due to infection or to diet, though the latter was a new idea to him.

Dr. FRITZ B. TALBOT of Boston, Mass., said that Dr. Schloss had given the answer to the cause of these cases in his excellent paper on "Egg Anaphylaxis." In a case coming under his observation, in which there was egg anaphylaxis and asthma, when the immunity to egg was established the asthma disappeared. There might be anaphylaxis to other articles besides egg, and it seemed very probable that the condition just described was due to anaphylaxis. In one case one-sixty-fourth of a grain of egg given in capsule produced a reaction each time it was administered.

Dr. GODFREY R. PISEK of New York said that from what had been said Dr. Rachford's treatment was only palliative; the real treatment must reach the causative factor. It was not sufficient to stop the egg alone, but all foods containing egg as well. Some foods, especially the acid ones, brought out an intolerance for certain other foods, so that each case had to be studied from the individual standpoint.

Dr. HENRY L. COIT of Newark, N. J., called attention to the fact that many cases having an anaphylaxis for egg also had it for macaroni. In one case in which it was necessary to transfer a child from milk to a diet in which the carbohydrate would be in the form of starch and cereal, one teaspoonful of wheat jelly was given with a result that there was a rise in temperature, prostration, and vomiting. The mother was urged to try again and the same result followed the giving of the wheat jelly. The anaphylaxis in this case was overcome by vaccinating the child with a minute quantity of the wheat jelly.

Dr. WALTER LESTER CARR of New York said he wished to endorse Dr. Rachford's paper. Many of these children were unusually susceptible to infection, especially by influenza; they belonged to the so-called lithemic type, and one frequently found them with enlarged tonsils, deviated septum, etc. The children having this instability did better if treated as in enteritis, with ether, skimmed milk, or lactic acid, skimmed milk, and general dietetic regulation.

Dr. ISAAC A. ABT of Chicago said that during the reading of the paper he was reminded of the descriptions given under the title "exudative diathesis," a condition in which there was a predisposing constitutional state associated with certain definite symptoms. Under this term Czerny included exudative inflammatory conditions which might manifest themselves as eczema, scrofula, recurrent bronchitis, asthma, urticaria, etc. The symptoms might be more pronounced after eating eggs or milk, or after mild infection. One must not consider this predisposition a simple anaphylaxis. Many children could tolerate milk and eggs and detoxicated on starches.

Dr. CHARLES GILMORE KERLEY of New York stated that he had read a paper on this subject before the Medical Society of the State of New York, at which time he had presented six cases of children affected with recurrent bronchitis and three in whom asthma was also present. These conditions were different from infectious colds and were nearly always associated with the lithemic, rheumatic, or gouty history. The carbohydrates were at fault, and the children were relieved and gained from three to six pounds in weight by the elimination of carbohydrates from the diet. Starches and vegetables furnished the necessary amount of carbohydrates. Cream was eliminated and only one pint of skimmed milk allowed daily. In addition to the dietetic treatment citrate of soda was given and the bowels were kept open by a suitable laxative. The majority of cases have been benefited by this scheme of treatment.

Dr. SAMUEL S. ADAMS of Washington said that it seemed to him that this was a question of simple idiosyncrasy. Instead of looking for the scientific and the mysterious, we should come back to first principles and take from the diet the article of food which was causing the trouble.

Dr. J. Milton Miller of Atlantic City said that there seemed to be an external factor in some cases that caused irritation. Certain children could not remain at the seashore because of external irritation, but were all right as soon as taken to the mountains.

Dr. John Ruhräh of Baltimore said that it seemed to him that they were confusing two things, acid intoxication and anaphylaxis.

Dr. Percival Eaton of Pittsburgh said that the cases to which he had referred were breast fed and anaphylaxis did not come in. He had seen cases with egg anaphylaxis in which a drop of egg on the hand or face would cause a red spot. Perhaps the cases to which he referred were not the same as those described by Dr. Rachford; it seemed more probable that they were streptococcus or influenza infections.

Dr. B. K. Rachford of Cincinnati, in closing the discussion, said he wished to emphasize the fact that magnesium salts helped to fix the alkali in the tissues. The alkalinity was better kept up when both soda and magnesium were combined. In reference to the criticism that this treatment was palliative it might be observed that one might not always know the cause, but the fact remained that most of these cases responded almost immediately to the alkaine treatment.

Memorial to Dr. Putnam.—Dr. John Lovett Morse and Dr. Charles Hunter Dunn presented this memorial. Dr. Charles Pickering Putnam, for many years a member of this society and its president in 1909, died April 23 last, in his seventieth year. He was one of a family of physicians. He graduated from Harvard College in 1865 and from the Harvard Medical School in 1869. After studying a time in Germany he began to practise his profession in Boston, in 1871. He was a general practitioner, but for many years made a study of pediatrics. He was a lecturer in the Harvard Medical School on diseases of children from 1873 to '75 and a clinical instructor until 1880. At this time he did some excellent pioneer work in orthopedics. He served the Boston Dispensary as district physician from 1871 to 1873 and as orthopedic surgeon from 1873 to 1876. He became physician to the Massachusetts Infant Asylum in 1875, and was also president of its board of trustees from 1898 to 1910. He was chiefly instrumental in the boarding-out system established by this hospital many years ago. Dr. Putnam was from the beginning of his career the leader in Boston in charitable and social work connected with children. He was one of the founders of the Boston Society for the Relief of Destitute Mothers and Infants, which was a pioneer in establishing the policy of keeping mother and child together. He was president of this society from 1904 until his death. He was one of those who, in 1879, took part in the movement for establishing the Associated Charities of Boston, the second charity organization society in this country. He always took a very active part in its work, and was its president since 1907. Dr. Putnam took a leading part for many years in all the movements for the care of the poor and the neglected and delinquent children in Boston. He held many public positions, among the most important of which was that of the chairman of the Board of Children's Institutions, from 1902 to 1911. His work was never properly appreciated and he was frequently misjudged, largely because the public and the politicians were unable to understand the absolute honesty of the man or to realize that he was always working for the good of the community, and not for his own advantage or preferment. He was one of the incorporators of the Boston Medical Library, in 1875, and served upon important committees of this institution until his death. He helped to organize and carry on the Directory for Nurses established by this institution and at the time of his death was in charge of it. This was the first directory established for nurses in Boston. He was a tireless worker and a remarkable organizer. He had the unusual faculty of interesting others and of making them work as hard as he did himself. He was the ideal family physician, beloved of all his patients. One can never quite fill his place for them. No one man can take his place in the community and in public work. It will take many men to do that.

Memorial to Dr. Thomas Morgan Rotch.—Dr. Abraham Jacobi presented this memorial. He said that in 1873 Rotch wrote the "Emigration of the White Corpuscle in Inflammation," an essay to which was awarded the first prize by the Boylston Medical Society for 1873, and in 1878 he wrote "Absence of Resonance in the Fifth Right Intercostal Space, Diagnostic of Pericardial Effusion." The first impressed him as the work of a young man (he was born in 1849) given to study and scientific erudition; the second told of good observation and practical tact. In 1880 at Richmond the Section on Pediatrics of the American Medical Association was formed, of which he was made secretary. The American Pediatric Society was formed in 1888, and he was its second president. One was not unacquainted with the great influence Dr. Thomas M. Rotch has wielded in American medicine, which had to overcome more obstacles than in any country on the face of the globe with the exception of Great Britain. After his return from Europe, in 1876, when he studied in Vienna, Berlin, and Heidelberg, he practised medicine in Boston, always with a view to benefiting the welfare of children and the teaching of their physiology and diseases. The pediatric department of Harvard University owed him everything. This university was the first in America to establish a chair of pediatrics as a proper reward for his incessant labors in that branch of medicine. It happened in connection with that fact, and was characteristic of his modesty, that Rotch asserted that the administration of Harvard was induced to raise that chair to a professorship only by the appreciative mention of pediatric work in the first volume of Keating's Cyclopedia. The list of his medical writings was too voluminous to reiterate. Among the numerous positions that he held were the following: Professor of pediatrics of Harvard University, consulting physician to the Boston City Hospital, visiting physician to the Children's Hospital, medical director of the Infants' Hospital, consulting physician to the Infants' Hospital; he was a member of this and many other medical organizations.

Dr. Rotch was one of those whose greatness was won by hard work in a limited sphere. He appreciated the boundary lines restricting everybody, but felt from the beginning of his career the necessity of constructive work. That was why a large number of his papers were dedicated to the subject of infant feeding. His call to present to the British Medical Association what was considered the American method of infant feeding was the first proof of the impression his personality and teaching had made far and wide, and was followed by the foundation in London of a milk laboratory like that established by Rotch in Boston. It was well known to them all that the first Boston laboratory was not initiated until Rotch had proved to the profession in New York and other cities the desirability of high grade clean milk for infant feeding. That example became the teacher of the profession and the public. For the last twenty years Dr. Rotch was much interested in developing the work of the Infant Hospital, the first in this country to admit patients restricted to the first two years of life. This was only part of the initiative work of Dr. Rotch. It must be left to those who are intimate with his daily life and emotions to record in appropriate terms and with sufficient energy the great merits of Rotch in connection with his teaching and working in the two large hospitals he controlled.

Now the number of constructive clinicians in this country was not large; not one should be buried in silence, least of them a man who had genuine and permanent merit. There were his vast knowledge, enthusiastic industry, clear and logical expression, and other gifts of a great clinical leader. These gifts were increasingly developed with every year of his teaching life. The disproportionate chapters of his great "Pediatrics" were improved from year to year. Gradually it became a book of greater usefulness and proper proportions. With years of learning, guided by his watchful brain, he became more statesmanlike in his views and researches. His big book, the "Living Anatomy and Pathology of Early Life," was pervaded by a humane and humanistic study of the growing child. He gave a distinct discrimination between the actual and chronological ages of the growing child, insisting upon the cautious examination of a child wishing or compelled to do manual labor, according to the anatomical development of his body as exhibited by his osseous growth. It was exactly that class of research and that class of students that would prove the blessing of science and sociology. It was quite possible that Rotch would be remembered by the permanent influence his hospital would exert on the health of thousands of patients and on the ever living stimulation students and doctors would derive from his creations. This influence Dr. Jacobi estimated much higher than the immediate good done to the sick. His value to the profession was greater than that which would come from similar work performed by one equally gifted but more personally

ambitious. Dr. Rotch was a general practitioner, a great teacher, and to his work he added the outflow of his kind and humane heart, and the appreciation of the fact that only good men can be great and good doctors. That is what Hippocrates meant when he said that "where there is love of our calling there is love of mankind," or Nothnagel when he said before nearly closing his eyes: "Only a good man will be a good doctor." That is what Rotch *did*. Though being given to inveterate research he never swerved in pursuing it from the dictates of conscience and humanity. No man who does research work alone or laboratory work on dead tissue alone will ever rival in his results the warm-hearted person who studies the eye of the patient who is under observation, and estimates the innermost folds of a man's heart who clamors for relief. The human suffering body is to men like Rotch much more than a physiological makeup. There was still more to Rotch's credit. There were those who disagreed with him in regard to his theories and teaching on the feeding of babies. Those here and outside who found fault with him should not forget what they inherited from him before he died; our inheritance was the impressive teaching of the necessity of studying the infant and the child. He belonged to the few who taught pediatrics because they could not help it. No disposition of his own made him shoulder the hard work of accomplishing his beneficial ends. Let nobody forget that it was he amongst a few who in America raised pediatrics to the rank of a scientific and humane practice. Dr. Jacobi said he wished his American colleagues would soon appreciate the fact that the young men sent to certain European centers to learn medical science and morals found their goal quite often after their return, when meeting the good and great men sequestered in this and other scientific bodies.

The Clinical Study of Typhoid Fever in Children.—Dr. Henry Dwight Chapin of New York presented this communication, in which he quoted statistics showing that typhoid fever occurred more frequently in children than was formerly supposed. He stated that during the epidemic in the fall of 1913 on the lower East Side of New York City there were 521 cases reported, and of these 221 occurred in children under fourteen years of age; this large proportion of children was probably due to the fact that the milk supply was responsible for the epidemic. The eleven cases which formed the basis of this study were treated in the wards of the Postgraduate Hospital. The duration of the fever was very variable, ranging from seven to forty-two days. In only five cases did the temperature run very high during the active stage of the disease. The diagnosis was confirmed in every case by the Widal test and it is doubtful if without this test and a knowledge of the epidemic most of the cases would have been diagnosed correctly. These cases failed to show the leucopenia that was supposed to accompany typhoid fever. A study of the polymorphonuclears showed what might be considered a polynucleosis when one had in mind the age of the children. The lymphocyte count was more irregular, being normal in only one case. A study of the urine showed that the kidneys were not much affected in this series. The gastrointestinal symptoms were neither marked nor severe. The children seemed to both enjoy and digest the generous diet that was given them. The children were allowed the general ward diet with the exception of meat. This included milk, cocoa, eggs, bread, toast, crackers, cereals, jelly, potatoes, gravy, broths, custard, junket, apple-sauce, orange juice, ice cream, and lady fingers. Nourishment was given every three hours. An effort was made to give them forty calories per kilo body weight, but in not a single instance was it possible to make them take the required number of calories through the febrile stage. In some instances sugar of milk or malt soup was added in order to increase the total number of calories, but this also failed. The most remarkable case occurred in a child of three years who showed a gain of eight pounds after a fever lasting nineteen days. There were no severe complications and no relapses. Of the eleven cases, seven gained in weight during the fever, two showed a very slight loss, and two an appreciable loss. Among the complications were two cases of tonsillitis, two or otitis media, one of hypostatic pneumonia, one pyelitis, and one severe bronchitis. The deduction from this series of cases was in favor of more liberal feeding in typhoid fever.

Dr. L. Emmett Holt of New York asked how long the patients remained in the hospital.

Dr. Henry Dwight Chapin replied that their stay was from three to four weeks.

Dr. Samuel S. Adams of Washington, D. C., said that an analysis of 550 cases in the Children's Hospital under Dr. Acker showed that they were taking about all the foods that Dr. Chapin had mentioned. There was no doubt but that the children did better under modern methods of feeding in typhoid fever and that there were fever intestinal hemorrhages. One point in favor of this method of feeding was the absence of wailing and crying; the children were never hungry. Typhoid fever was never a rare disease and it had long been recognized in children. McPherson recognized it in the seventies, and they had seen typical attacks in infants five and six months old.

Dr. L. E. La Fétra of New York said that, in reference to the difficulty of getting the children to take forty calories per kilo body weight, they had found that after a few days forty or fifty calories were readily taken and sometimes two or three times that amount was taken with benefit.

Dr. Abraham Jacobi of New York spoke of the occurrence of typhoid fever in young babies and said that he recalled a case in an infant fifteen days old in which at autopsy ulcers and Peyer's patches were found. That these were sometimes not apparent was due to the fact that Peyer's patches were not so well developed in young infants. He had heard of several other similar cases.

Circumcision in Masturbation in Female Infants.—Dr. Rowland G. Freeman of New York read this communication. He stated that masturbation occurred with moderate frequency in female infants and was due to adhesions between the clitoris and the surrounding tissues, the clitoris frequently being buried in these adhesions. In a normal robust child they caused little irritation, but in a nervous, sensitive child they might lead to intense irritation. The treatment of this condition was both general and local. The general measures included proper hygiene and the elimination of all sources of irritation, but no cure could be effected by such measures alone. The only satisfactory method of treating this condition was by circumcision, an operation that should be performed by one accustomed to doing it, the foreskin being removed as completely as possible. The result of this operation was most satisfactory. In some instances there was a recurrence of the habit and a reformation of the adhesions necessitating their being broken up a second or third time.

Dr. Abraham Jacobi of New York said that this paper was a revelation to him in that it showed a new cause for masturbation. Irritation leading to this habit might be due to constipation, fissure of the anus, the presence of oxyuris, to vaginal catarrh which was the result of uncleanliness, to irritation resulting from the presence of an oxyuris that had travelled up into the vagina, to cystitis, pyelitis, or stone in the kidney causing peripheral irritation. In his experience masturbation was a disease very frequent before the end of the first year of life.

Wednesday, May 27—Second Day.

Infantile Scorbutus and the Pasteurization of Milk.—Dr. John Lovett Morse of Boston presented this paper, in which he called attention to the rapid increase in the number of cases of scurvy coming to the medical outpatient department of the Children's Hospital during the four years ending in 1913, and to the coincident increase in the amount of pasteurized milk used in Boston during that period. Whereas, in 1904, among 2,579 new cases coming to the hospital, there were three cases of scurvy, in 1913, among 2,416 cases coming to the hospital, there were 21 cases of scurvy. A much smaller proportion of the cases afflicted with scurvy in 1913 were fed on proprietary foods than was the case ten years ago. A study of the diets of the babies developing scurvy in 1914 showed that the milk modifications that were taken were all reasonable ones. While there could be no doubt but that there had been an increase in the number of cases of scurvy in Boston during recent years, it was not proven that this increase had been due to the introduction and the progressive use of commercial pasteurized milk, neither had it been proved that heating the milk, whether to a temperature of pasteurization or of boiling, has anything to do with the etiology of scurvy. They do suggest, however, that there may be some such connection, and that further study along this line seems to be justified.

Dr. Henry John Gerstenberger of Cleveland asked what the results of treatment were in these cases. He had had one case which was cured simply by the addition of orange juice to the diet, without any change in the milk.

Dr. D. J. Milton Miller of Atlantic City said that his experience showed that scurvy was on the increase. He had seen twelve cases in the last two years in private practice. In speaking of this subject a few years ago Dr. Northrup had raised the point that scurvy was frequently not recognized by the average practitioner. In five of his cases there was a history of bipasteurization of the milk. Stapleton, in relating the history of his life in the Arctic region, stated that his men, when the fat supply gave out, developed ravenous appetites that could not be appeased by lean meat, and also scurvy. When a fresh supply of fat was secured their appetites became normal and the scurvy disappeared. This seemed to indicate that a diet not properly balanced might be a factor in the production of scurvy.

Dr. A. D. Blackader of Montreal, Canada, stated that his experience in Montreal coincided with that of Dr. Morse in regard to the increase of scurvy. He had seen an increasing number of cases for the past two years and especially this last winer. He did not alter the food, but simply added orange juice.

Dr. William P. Northrup of New York said that in the paper to which Dr. Morse had referred he had emphasized the fact that after the milk had been pasteurized commercially the lady in the home gave it another boil. The newer practitioners do not know scurvy as the older ones did.

Dr. Isaac A. Abt of Chicago said that some experiments on animals were interesting in this conjunction. Pigeons fed on cereals developed polyneuritis; guinea pigs fed on cereals developed a peculiar susceptibility to scurvy; guinea pigs fed on raw milk had extra brittle bones; some fed on milk heated from 60° to 112° C. got scurvy and those fed on oatmeal and raw milk did not show the disease. Milk heated at 90° F. to which oatmeal was added showed antiscorbutic properties. This brought up the question as to whether cereal could be considered a causative factor in rickets.

Dr. Floyd M. Crandall of New York said that the apparent increase in rickets might be due to the fact that the present generation had not been as alive to this disease as the previous one. This subject was formerly a very popular one for medical literature. He had been surprised that so few papers were written on this subject. This was interesting in connection with the tendency to write along certain lines at certain times; for example, a few years ago there was a flood of literature on the subject of poliomyelitis.

Dr. Thomas S. Southworth of New York said that the practice of feeding infants orange juice had increased just as had the practice of feeding pasteurized milk, and this opened up the question whether there should be a much larger amount of scurvy now than some years ago.

Dr. Rowland G. Freeman of New York said that in New York nearly all the milk sold was pasteurized, and yet he had not seen a case of scurvy all winter.

Dr. Godfrey R. Pisek of New York said he wished to confirm what Dr. Freeman had said in regard to the absence of scurvy in New York. He had not seen a case the past year.

Dr. Henry Heiman of New York said he also could confirm what had just been said. He had not seen a case of scurvy in New York recently. Scurvy was due not so much to pasteurized milk as to artificial foods. Scurvy was a form of food poisoning. Rickets in his experience had occurred after the use of pasteurized milk, but equally as often with other forms of feeding.

Dr. J. P. Crozer Griffith of Philadelphia called attention to an investigation of this subject by a special committee. This committee found that there was nothing wrong with the food, but it did not get much further. A change of food was what was needed, but as to what that change should be could not be predicated. Ten cases occurred in infants that had been breast fed and no one could tell what was wrong. There must be a scientific basis to account for this condition, but as yet we could not blame pasteurized milk, sterilized milk, or any other single food.

Dr. Samuel McC. Hamill of Philadelphia said he would like to know at what temperature the milk was pasteurized in these cases. One should be careful in making statements about pasteurized milk when it was so necessary to pasteurize it in order to protect children.

Dr. John Lovett Morse of Boston, in closing the discussion, stated that the milk in his cases had been pasteurized in different ways, and possibly some of it was not pasteurized. All the children were given orange juice. Sometimes they did not change the food, but allowed the baby to have the same formula, but did not heat the milk. With regard to the failure to recognize the disease, physicians ought to know more about it than formerly; much attention was paid to this subject at Harvard. After reviewing the literature it must be confessed that there was nothing in the evidence that pasteurization had any effect on the nutrition, yet here were these figures, and there was something in this increase in this disease which they had not explained.

Experiences with the High Caloric Diet in Typhoid Fever in Infants and Young Children.—Dr. L. E. La Fétra and Dr. Louis C. Schroeder of New York presented this communication, which was based on the observation of forty-eight cases. The children were fed at three hour intervals, beginning at 6 A. M. and continuing until 9 P. M. The articles given were very much those prescribed for a child in health, with the exception that the only meat used was creamed chicken. To increase the caloric value of the liquid food, lactose, cocoa, and cream were added. In no case was an exclusive milk diet given. Eggs and toast were offered from the beginning. The amount of food taken depended to a great extent on the nurse's tact and encouragement. The number of calories that were actually taken after the first few days and that seemed from a clinical point of view to have been actually utilized was from 100 to 300 calories per kilo body weight. Unless toxic nervous symptoms were present the fever did not prevent the taking of a generous diet; as the temperature fell the amount of food taken was greater. The diagnosis was established by positive Widal reaction in 44 of the 48 cases and by positive blood cultures in 36 cases. The length of time in the hospital averaged 28 days, the extremes being 13 and 79 days. The general condition of the patients was remarkably good. The so-called typhoid state occurred in a much smaller percentage of cases than with the older methods of treatment. Abdominal distention was present in only six cases and in but one of these was it severe or troublesome. Five of the patients had blood in the stools at some time in the course of the disease, but in only two cases were the hemorrhages severe. One patient was transfused three times, lost more weight than any other case, and during his convalescence took the largest number of calories that they had ever seen recorded, viz. 8,000 in twenty-four hours. There was not the slightest doubt but that the severe nervous symptoms seen in the late stages of the disease heretofore were due to starvation and the consequent increased toxemia. Pneumonia and bronchopneumonia complicated three cases, and in the only death that occurred it was found at autopsy that the fatal issue was due to the pneumonia. There were but three relapses and one recrudescence. During the course of the fever 60 per cent. of the patients gained in weight. This was the most remarkable fact in this series. If one considered the weights of the patients at the time of leaving the hospital it was found that 92 per cent. had gained in weight.

Dr. Frank S. Churchill of Chicago asked Dr. La Fetra whether he had noticed any connection between the intestinal hemorrhages and the high caloric diet.

Dr. Charles Gilmore Kerley said he had been using a diet similar to the one described but did not allow meat until the third week. He had long been advocating a more generous diet in typhoid fever. One found much less tympanitis since abandoning the milk diet. An exclusive milk diet was the chief means of producing tympanites.

Dr. John Lovett Morse of Boston said he had learned his lesson as to the need of a more generous diet twelve years ago during an attack of the typhoid fever and had been giving a more generous diet ever since. With the high caloric diet one would not have the constipated stools that one got with the exclusive milk diet. They were feeding typhoid fever patients a varied diet and trying to keep the calories as high as Dr. La Fetra did. It was difficult to give the high caloric diet during the febrile period and the dietetic treatment of the disease should be divided into two periods, the febrile and the postfebrile.

Dr. L. E. La Fétra of New York said that in reference to the diet during hemorrhage, it was not very high at that time. In the boy with hemorrhage as much food was given as he would take when his temperature was 103° F. Dr. Morse was right in making the distinction between the two periods in feeding.

The Gaseous Metabolism of Infants.—Dr. Francis G. Benedict and Fritz B. Talbot of Boston presented this

communication, which was read by Dr. Talbot. He gave a complete historical review of all the history on gaseous exchange and the calorimetry of infants and presented several of the important problems in this field. A respiration apparatus, measuring simultaneously carbon dioxide production and oxygen consumption and provided with a sensitive arrangement for registering automatically and graphically the slightest body movement, was used to study fifty-eight infants during approximately 1,000 periods of observation. Continuous records of the pulse rate and a graphic registration of the degree of muscular repose enabled many important correlations with the respiratory studies. A series of twelve hour continuous pulse records, accompanied by ocular observations of the degree of repose, showed a sudden and considerable increase of the pulse rate with crying or nursing and a rapid return to the low level with cessation of crying and feeding. A comparison of the pulse rate with muscular activity as determined by the kymograph records of a swinging crib showed invariably a close agreement. The metabolism also increased or decreased as the pulse rate and activity increased or decreased. Distinct evidence of an increased pulse rate and metabolism independent of external activity was interpreted as being an indication of internal work and suggested the pulse rate as an indication of internal work. Particular stress was laid on a comparative study of the basal metabolism of the infants, *i.e.* the metabolism during complete repose as shown by the kymographic records. Under these conditions it was found that while in general the smaller the infants had the smaller total metabolism, there were a sufficient number of striking exceptions to prevent the formulation of a definite law. Similarly there was no striking uniformity in the metabolism per kilogram of body weight, although with normal children the plotted chart gave indications of an approximately regular line. As many of the infants were under weight, the total metabolism was compared with the normal weight for the age, but no approach to uniformity or regularity was apparent. A discussion of the supposed relationship between body surface and metabolism and a critique of the methods used for measuring body surface introduced the discussion of the values found in these infants. No relationship was found between the age of the infants and the heat produced per square meter of body surface, nor could any relationship be noted between the heat production per square meter of body surface and the actual body weight, the normal weight for the age, or the expected body weight. Evidence secured with normal and atrophic infants of different ages and weights was presented to show that the active mass of protoplasmic tissue determined the heat production. This active mass of protoplasmic tissue might be stimulated to a greater or less cellular activity, the intensity of the stimulus being indicated by the pulse rate.

(*To be continued.*)

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

SOUTH DAKOTA STATE BOARD OF MEDICAL EXAMINERS.

January 13 *and* 14, 1914.

(*Concluded from page* 404.)

EYE, EAR, NOSE, AND THROAT.

1. Treat a case of severe corneal ulcer. 2. Describe and give treatment for dacryocystitis. 3. What do you understand by the following: hypopyon, Argyll-Robertson pupil, mydriasis, presbyopia, ptosis? 4. What would be your treatment for penetrating wound of the cornea? 5. Give four common symptoms caused by nasal obstruction. 6. Give symptoms and treatment for hypertrophied turbinate. 7. Treat a case of chronic otitis media. 8. Describe the Eustachian tube, giving anatomy and function. 9. Give your method of differentiation between middle and internal ear disease. 10. Give three common causes for deafness and treat a given case.

SKIN AND GENITOURINARY.

1. Diagnose secondary syphilis and outline treatment. 2. Give causes and treatment of orchitis. 3. Give etiology, diagnosis, and treatment for urticaria. 4. Give symptoms, diagnosis, and treatment of urethral stricture. 5. Give etiology, diagnosis, and treatment of erysipelas.

HYGIENE AND SANITARY SCIENCE.

1. How would you fumigate a residence containing approximately 10,000 cubic feet of space? Name materials employed and amount of each. 2. Describe how sewage is purified in sedimentation tanks. 3. Describe the life-cycle of the common house-fly. 4. Instruct briefly a patient suffering from pulmonary tuberculosis as to the precautions he should adopt to avoid the spread of the disease. 5. Instruct briefly your nurse attending a case of diphtheria.

MEDICAL JURISPRUDENCE.

1. A, attending a confinement case, finds it necessary to use instruments and calls B to administer the anesthetic. A does not sterilize the instruments and the patient becomes infected and brings suit to recover damages. Does B share the responsibility with A? 2. A, in performing a laparotomy relies on B, a trained nurse, to pack the abdominal cavity with sponges. B also removes the sponges, but in so doing, one is overlooked. Who is liable: A, the surgeon, or B, the nurse? 3. If in your practice you are called to treat an injured wrist, said injury, according to your judgment is a severe sprain and you treat it accordingly, using reasonable care and skill. Later the patient calls another surgeon who discovers the injury to be a fracture. Would you be guilty of malpractice? 4. Can an unauthorized or unlicensed physician maintain an action for libel or slander against one who charges him with misconduct or incapacity in the discharge of his professional duties? 5 Would a physician be liable who takes an unprofessional, unmarried man with him to attend a case of confinement when there is no emergency requiring his presence?

ANSWERS.

EYE, EAR, NOSE, AND THROAT.

1. *Management of corneal ulcer:* The treatment consists in putting the eye at rest, instilling atropine, and the application of a bandage. Leeches to the temple will relieve the pain. Hot compresses have the same effect. The eye should be douched with sublimate solution, 1:5000, and iodoform dusted upon the cornea. Stronger sublimate solution, boroglycerid 50 per cent., and formalin 10 per cent. are sometimes necessary. Cauterization is occasionally indicated. If perforation seems probable, it should be hastened by a puncture.—(*Cyclopedia of Medicine and Surgery.*)

2. *Dacryocystitis.* "The initial symptoms are conjunctivitis, local pain, and redness of the skin. The distended sac soon appears as a tumor involving the tissues near the inner canthus of the eye. If left to itself, this tumor may ulcerate and the pus burrow through the skin, establishing what is known as a lacrimal fistula, which may remain a lifetime and become in itself a safeguard against a new attack. Often the distended sac loses its elasticity and becomes a permanent tumor. *Treatment*—Any nasal affection should be corrected, and a free passage for tears into the nose established. The latter is generally effected by the passage of sounds. Bowman's sounds or probes are usually employed. The canaliculus should be slit, and the following day the passage of probes commenced."—(*Cyclopedia of Medicine and Surgery.*)

3. *Hypopyon* is a collection of pus in the bottom of the anterior chamber of the eye. *Argyll-Robertson pupil* is a condition in which the pupil accommodates for distance but not for light. *Mydriasis* is dilatation of the pupil. *Presbyopia* is loss of accommodative power of the eye, occurring normally in advanced life. *Ptosis* is drooping of the upper eyelid.

4. *Penetrating wounds of the cornea* are serious owing to the danger of prolapse of the iris and injury to the deeper parts. They should be treated by thorough cleansing, atropine or eserine, according as they are central or peripheral, and a pressure bandage. If extensive, the edges may be stitched together.—(*From* May's *Diseases of the Eye.*)

5. (1) A feeling of fulness across the bridge of the nose; (2) mouth-breathing; (3) loss or diminution of the sense of smell; (4) aprosexia.

6. HYPERTROPHIED TURBINATE. *Symptoms:* Nasal obstruction, odor on the breath, increased secretion, mouth breathing, nasal twang to the voice, congestion of nasopharynx. *Treatment:* Cleansing the nose with a spray, cauterization of the turbinate, or removal of a portion of the hypertrophied turbinate.

7. *Treatment of chronic purulent otitis media:* "Cotton must never be worn in the discharging ear. The discharge must be mopped out, but if very thick and copious, syringing by means of sterile water or sterile water containing salt (gr. 5-5 1) or carbolic acid (1 : 40), once or twice in 24 hours in bad cases is permissible. After mopping the ear, 10 drops of an antiseptic solution may be instilled. Formalin solution (1 : 1000-1 : 2000), carbolic acid solution (1 : 40), or, if granulations are present, absolute alcohol, may be dropped in and allowed to remain for a few minutes, and then turned out into a towel. This treatment should be continued once or twice a day in very bad cases, and less often when the discharge decreases. If, after several months, improvement does not take place removal of the ossicles under general anesthesia may be necessary."

Treatment of chronic catarrhal otitis media should be directed to the nasopharynx, and should be unirritating in character. The condition of the general health should be improved. Oleaginous should be preferred to watery sprays. Inflations of the tympanum should be avoided. When the nasopharyngeal condition has improved, gentle pneumomassage of the membrana tympani by means of the Siegle pneumatic speculum may be performed. If, in spite of this conservative treatment, the condition becomes worse, resort may be had to the removal of the incus."—(*Pocket Cyclopedia.*)

8. The *Eustachian tube* is a canal which connects the tympanic cavity with the nasopharynx. It is an inch and a half in length. The tympanic end is osseous; the pharyngeal end is cartilaginous. The diameter of the tube is not uniform, being largest at the pharyngeal end, and smallest at the junction of the bony and cartilaginous portions. Its function is to afford equalization of air pressure on each side of the membrana tympani, and to afford drainage for the middle ear.

9. "In order to make a differential diagnosis between middle-ear and internal-ear affections, it may be stated, as a general rule, that (1) in diseases of the inner ear, low-toned tuning-forks are heard better than the higher ones by aerial conduction, if any fork is heard at all; while in diseases of the middle ear, if the nerve be not affected, the reverse is true—*i. e.*, the higher forks are heard better. (2) In disease affecting the labyrinth or internal auditory nerve, the bone conduction becomes very much impaired or lost, as shown by Rinné's or Weber's tests. In the case of a person with normal hearing, a vibrating tuning-fork should be placed on the mastoid process, and the surgeon should be notified by a signal from the patient when he ceases to hear the sound. If the fork is then held close to the meatus, it will still be heard several seconds longer. In middle-ear or external-ear diseases the tuning-fork will be heard much longer when placed on the mastoid than when held close to the meatus. In a case of deafness in which the labyrinth is involved, the bone conduction becomes much impaired or lost altogether. Notes of a low pitch are, as a general rule, heard better than high ones. In consequence, the watch is not heard as well as the voice. . . . When the acoumeter is not heard by bone-conduction there is a reasonable certainty that the internal ear is affected. It must not be forgotten, however, that diminished bone-conduction is frequently observed in cases of adhesive catarrh of the middle ear as a result of secondary implication of the internal ear, or of intralabyrinthine pressure."—Bacon's *Manual of Otology.*)

10. *Three common causes of deafness:* Impacted cerumen, inflammation of the middle ear, and perforation of the membrana tympani.

Treatment consists in removing the cause, if possible. *Impacted cerumen.* Disintegrate it with hydrogen peroxide, which is left in the ear a few minutes, and followed by an irrigation of warm water.

SKIN AND GENITOURINARY.

The second stage of syphilis is characterized by: Sore throat, mucous patches; the skin lesions or syphilides, which are characterized: By not itching; by being of a coppery or raw ham color; by being painless; by polymorphism, macules, papules, pustules, etc., being present at the same time; by being generally symmetrical. In this stage may also appear: Iritis, periostitis, alopecia, fever, and insomnia.

Treatment consists of mercury during the early part of this stage, and iodide of potassium (either with or without mercury) during the latter part of the stage; salvarsan (either intramuscularly or intravenously) may be used in this stage. The general health must be maintained.

2. ORCHITIS. *Causes:* Injury, rheumatism, gout, mumps, epididymitis, syphilis, tuberculosis, and other infections. *Treatment:* Rest in bed, elevation of the scrotum, application of fomentations or of lead water and laudanum.

3. URTICARIA. An inflammatory affection of the skin, characterized by the formation of evanescent whitish and pinkish elevations, attended by intense itching. It usually arises from some disturbance of the alimentary canal. Certain articles of food, such as lobsters, crabs, sausage, strawberries, etc., and certain drugs, as quinine, copaiba, cubebs, salicylic acid, etc., are prone to produce the affection.

The treatment consists in the use of emetics, laxatives, and enemas to expel the offending substances. Intestinal antiseptics should then be administered. Salol or phenacetin may be given in subacute cases. Lotions containing carbolic acid, menthol, liquor carbonis detergens, benzoic acid, sodium carbonate, etc., may be used to relieve the itching.—(*Pocket Cyclopedia.*)

4. *Urethral stricture* is characterized by difficult and slow micturition, dribbling after micturition, retention of urine, irritability of bladder, and urethral discharge. There is obstruction to the passage of a catheter or sound. *Treatment:* Gradual dilatation, continuous dilatation, excision of the stricture, or urethrotomy.

5. ERYSIPELAS. *Etiology:* The *streptococcus erysipelatis,* which gains admission through a wound or abrasion. *Diagnosis* is made by the very high fever, crimson flush around the wound, the red area is swollen and has a raised edge, great swelling and enlarged glands are observed. *Treatment: Prophylaxis.*—Secure the asepsis of all wounds. All cases should be isolated to prevent the infection of others. *Local.*—In most cases all that is necessary is to apply lead, or lead and opium lotion. This has no curative action, but it relieves the stiffness and burning. Other applications, such as ichthyol, are used, but do not hasten the termination of the process. A form of treatment which aims at getting ready a supply of phagocytes at a distance of 2 inches from the spreading margin is the most promising. The skin is irritated by free scarification, and the tissues then become infiltrated with leucocytes, which are ready to attack the cocci when they spread in this region. The part is kept covered with carbolic fomentations (1 in 40). *General.*—Good food and stimulants. The bowels should be kept acting by magnesium sulphate, and 2 to 4 grains of quinine with 15 minims of the tincture of perchloride of iron are generally given every four hours. Antistreptococcic serum sometimes is very useful, either injected or given by the rectum. The treatment of cellulo-cutaneous erysipelas is that of cellulitis."—(*Aids to Surgery.*)

HYGIENE AND SANITARY SCIENCE.

1. "The clothing and bedding which are to be disinfected by means of steam should be carefully wrapped in cloths saturated with 1 per cent. carbolic acid solution, placed in a wagon, and taken to the disinfecting station. After the bed has been stripped, all refuse matter, paper, and articles of little value are wrapped in cloths saturated with carbolic acid and burned in a stove or furnace. The floor, doors, windows, furniture, and the walls for a distance of 1½ meters from the floor should be washed with 5 per cent. carbolic acid solution. The walls and ceiling of the room should subsequently be sprayed with 1:1000 bichloride of mercury solution. If the walls are papered, it is advisable to remove carefully the paper before beginning the disinfection. The room is then closed as tightly as possible and disinfected by means of formaldehyde."—(Bergey's *Hygiene.*)

2. "The solid parts of the sewage may be partly removed or separated from the liquid mass by mechanical precipitation or sedimentation, and the liquid part may then be drained off into rivers, etc., while the solid part is utilized in one way or another. The precipitation of the solid particles of sewage is accomplished either by gravity in large tanks, at the mouths of sewers, or by means of screens, revolving blades, and other devices. Chemical means may be employed to assist or to cause precipitation; and the iron salts, copper sulphate, lime, alum, etc., have been used for the purpose of forming flocculent precipitates, which, on settling, are supposed to clarify the sewage from most of its solid and harmful parts."—(Price's *Hygiene and Public Health.*)

3. LIFE-CYCLE OF THE COMMON HOUSE-FLY. *Egg:* Dull chalky white; elongate cylindrical oval, rather more

pointed at front end; about 1/25 to 1/20 inch in length; laid in small masses, usually in crevices, in large accumulation of horse manure and house-refuse. Hatches in from eight to twenty-four hours.

Larva: A white footless maggot, of the type known as a "gentle"; when full grown, from 1/4 to 2/5 inch in length; can be distinguished from similar larvæ by examining under a microscope or powerful lens the posterior (broader) end of the body, when the openings there situated, through which the larva breathes, will be seen to be in the form of two pairs of very sinuous clefts, each pair of clefts being surrounded by a thickened plate, with a straight inner and semi-circular outer edge. Under favorable conditions (food-supply, temperature, moisture), duration of larval stage may be as short as four to five days.

Pupa: Dark red; barrel-shaped, regularly cylindrical, but tapering somewhat in front; 1/5 to rather more than 1/4 inch in length. Duration of pupal stage, under favorable conditions, from three to five days.

Perfect insect: Normal length about ¼ inch; mouse gray; thorax marked with four narrow, black, longitudinal stripes, sharply defined—at least, in front; sides of basal half of abdomen in male, and frequently in female, ochraceous buff; end of abdomen with a yellowish shimmer; space between eyes in male scarcely one-fifth, in female nearly one-third, of total width of head; proboscis not visible from above; end of fourth longitudinal vein in wing bent sharply upwards, so as to nearly meet the vein above it. Most numerous in houses from July to September, but still common in October. May live from six weeks to four months. The winter is passed in this stage.—(*Aids to Tropical Hygiene.*)

4. *Hygienic precautions to be taken in case of tuberculosis:* "The patient's quarters should be free from dust, and admit of spending many hours daily in the open air in all weathers, properly sheltered, and, if very ill, lying wrapped in a hammock or reclining chair. His bedroom should be well aired at night, draughts being avoided. The room should be uncarpeted and free from hangings. It should be often cleaned and periodically disinfected. All sputum should be collected in paper spit-cups, which should be burned daily. Smoking should be forbidden. Harm is done by any exercise which results in fatigue, and while fever exists it should not be attempted at all. Patients should be taught the necessity of practising lung gymnastics and breathing only through the nose, which should be kept clear and free from occlusion by secretions, or an hypertrophied catarrhal mucosa. . . . The clothing should be woolen, but not too heavy, or sweating is increased; and a flannel nightgown and loosely knit leggings should be worn at night in cool weather. The skin should be cleansed by daily sponge-baths of lukewarm alcohol and water."—(Thompson's *Practical Medicine.*)

5. The patient is to be kept isolated, and in bed; the room to have as few hangings, etc., as possible; the nurse, physician, and any other in contact with the patient to disinfect their hands, and avoid the spray from the patient's expectoration; the sputum, nasal discharge, linen, utensils, etc., to be disinfected. The nurse should also bathe and use a disinfectant, and change her clothes before going out.

MEDICAL JURISPRUDENCE.

1. B. does not share the responsibility with A.
2. A., the surgeon, is liable.
3. No; you are only expected to use "reasonable care and skill."
4. No.
5. Yes; the physician is liable.

Empyema of the Antrum with Infection of the Nose and Cheeks.—H. J. Davis reports the case of a woman, aged 30, who had redness, infiltration, and edema of the nose and both cheeks of six months' duration. The author mistook the case for one of lupus erythematosis. There were shadows on transillumination, but this might have been accounted for by the extreme thickness of the infiltrated integuments. Pernet who saw the case, disagreed with the author's diagnosis, and suggested an empyema of the antrum and a septic infection of the integuments therefrom. This on intranasal puncture proved to be the case. The condition is one of chronic symmetrical lymphangitis with blocking of the lymphatics from a septic focus in the antrum. —*Proceedings of the Royal Society of Medicine.*

Therapeutic Hints.

Solutions Containing Glucose.—J. Baumel and M. Cathola cite the following formulæ of hypertonic solutions containing glucose, as recommended by Fleig:

℞ Pure crystallized glucose, 300 grams.
Distilled water, ad 1,000 c.c.

℞ Pure crystallized glucose, 150 to 200 grams.
Anhydrous sodium chloride, 3 to 5 grams.
Sodium glycerophosphate, 5 to 7 grams.
Distilled water, ad 1,000 c.c.

℞ Pure crystallized glucose, 100 grams.
Sodium bicarbonate, 30 grams.
Distilled water, ad 1,000 c.c.

℞ Theobromine, 1 gram.
Trisodium phosphate, 4 grams.
Pure crystallized glucose, 120 grams.
Distilled water, ad 500 c.c.

℞ Diuretin, 2 grams.
Pure crystallized glucose, 120 grams.
Distilled water, ad 500 c.c.

℞ Caffeine, 0.50 grams.
Pure crystallized glucose, 120 grams.
Distilled water, ad 500 c.c.

The dose of any of the above is 250 c.c. injected hypodermically or intravenously twice a day, every other day.—*Progrès Médical.*

Calcium Salts in the Treatment of Progressive Deafness.—Gradenigo states that the observation has frequently been made that deafness occurs in some women during or following pregnancy or lactation, apparently the result of lesions of the osseous capsule of the labyrinth similar to those of osteomalacia. Some observers attribute this deafness to functional changes in the glands of internal secretion, especially of the thyroid and parathyroid. Other observers believe that the deafness is the result of an otosclerosis of degenerative origin, and is allied to certain forms of congenital deaf-mutism. Gradenigo inclines to the view that the deafness of pregnancy and lactation is the result of changes in the thyroid and parathyroid and for this reason finds a rational basis for the administration of calcium salts as a therapeutic measure. In a number of cases this method of treatment produced excellent results. He employed daily doses of about 3 grams of the chloride or lactate of calcium. The hypodermic administration is dangerous, frequently leading to abscess formation.—*Presse Otolaryngologique.*

Ultraviolet Rays in the Sterilization of Organic Extracts.—M. J. Lematte calls attention to the difficulty of preparing organic extracts for hypodermic administration in such manner as not to destroy their specific properties. There are valid objections to the use of heat, the addition of chemical antiseptics, etc. The author employs a quartz mercury-vapor lamp of the Cooper-Hewitt type by means of which he is able to sterilize solutions of pepsin, pancreatin, etc., without altering their activity.—*Bulletin Général de Thérapeutique.*

The X-Ray Treatment of Hypertrophy of the Thymus.—A. Weil reports that he obtained a diminution in the size of the thymus in eight infants in whom this method of treatment was employed. The doses of the radiations were relatively quite large. Filters of a thickness of 4 millimeters were used and doses of *x*-rays of 6 or 7 H were given.—*Gazette des Hôpitaux.*

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THYROID DEFICIENCY.*

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MYXEDEMA in the severe form was discovered and first studied in England. It is now a well-known pathological entity all over the world and of it I could say nothing but what you know perfectly well. But I will insist upon the mild forms because they are not so well outlined and very often escape the attention of the medical man. I called it when I described it for the first time 1899[1] mild myxedema, myxedema frustum, or benignant chronic hypothyroidism. The conception of mild myxedema was at first strongly opposed because the symptoms were so numerous, that is to say, because the symptomatological range was so great and extended to every organ of the body. Just lately Dr. Leonard Williams of London has said: "The idea of benignant chronic hypothyroidism is simple enough, but the symptomatology is a perfect maze." This is not the fact, provided we begin with a clear understanding of the lesion caused by thyroid want.

If we knew exactly the function of the thyroid gland we would no doubt be able to deduct immediately the symptom of a diminished or impoverished secretion; but we do not. However, we know something. We know that without the thyroid stimulus no cell, whatever it may be, can attain its morphological perfection—the perfection needed for good work, muscular, nervous, connective, glandular, or bone. The proof thereof is that a child born with congenital want or a child deprived completely by an operation of its thyroid gland does not grow, or grows very little. Give it a few doses of thyroid extract and it will begin to develop; stop the supply and immediately progress is stopped.

We know something more: When a cell has done its duty for some time it decays, it is no longer desirable. It must be taken to pieces and eliminated through various channels—bowels, kidneys, lungs—especially under the form of urea. When thyroid supply is scarce the carrying away of the cellular waste matter is slow and incomplete—mucin, fat, and other principles accumulate on the spot, and there form an infiltration and edema of a special kind—hard, non-depressible—and therefrom comes the name of myxedema.

Infiltration Is the Constant Lesion of Thyroid Deficiency.—It may be obvious or it may be slight, but it is always there. If a patient, swollen with this special edema, takes thyroid extract he immediately eliminates a great quantity of urine and urea. He loses in weight, the cellular waste matter is carried away, and when he has got rid of the whole residual stock you may give him doses ten times stronger and he will lose no more. We may sum up and say, thyroid secretion is necessary to the building up and to the dismantling of our tissues—of all our tissues; and, therefore, the want of it finds an echo in all our organs without any exception.

All the infectious diseases of early age and of later on fall heavily on the vitality of the thyroid gland. Acute rheumatism of the joints has a most nefarious influence and causes even after years the outbreak of severe forms of myxedema. And, what is more, all the great causes of pathological disturbance, tuberculosis, syphilis, paludism, alcoholism, chronic starvation, and consanguinity hit their first blow on the thyroid system, and the theyroid deficiency thus brought on comes down fatally on the offspring.

The child shown in Fig. 1 is a remarkable instance of hereditary syphilis and thyroid weakness. The father married shortly after having contracted syphilis. The result you see here—growth stopped, cretinous appearance; observe also the result of medication.

If we had seen such a patient some ten or fifteen years ago we would have no doubt diagnosed hereditary syphilis, but there would have ended our healing power—neither iodine nor mercury would have restored the child to normal growth and health. But now that we know that the growth has been stopped on account of the syphilitic toxin having dried up the thyroid well, we act in consequence and have a successful medication, that shows the usefulness of the hypothyroid notion.

The litle girl shown in Fig. 2 is a case of thyroid weakness caused by hereditary paludism. The mother while pregnant underwent several attacks of intermittent fever. She herself had a weak thyroid. The paludic poison added to her natural disposition had the result of impairing the thyroid powers of the child, and it was born a cretin. This case looked at as merely paludic was hopeless. Seen in the light of thyroid weakness we get a good result.

The boy shown in Fig. 3 was twenty-one years old. He was a perfect dwarf, absolutely childish, and without any intellectual development. Mother healthy. Father died from pulmonary consumption a few days before the child was born. This may be considered as a case of hypothyroidism and tuberculous heredity.

Let us bear in mind that we are inheritors of a great number of generations. Our blood is a mixture of good and bad qualities that our forefathers have left us while struggling with innumerable causes of diseases of all sorts. From

*A lecture delivered at the New York Polyclinic Medical School and Hospital, April 14, 1914.

all this we may conclude that thyroid weakness is very frequent, at least in a mild form.

Now I must say that thyroid weakness is not synonymous with cretinism. Incomplete forms will go very well with a fairly active and busy life;

a *b* *c*

FIG. 1.—Hereditary syphilis. *a*, Arrest of growth, age 10½, height 3 ft. 2½ in.; *b* and *c*, influence of thyroid feeding after 1 and after 2 years.

some of these patients are indeed very intelligent. I wish to draw your attention to these social forms because they are very common, and because the exact knowledge of them enables us to grasp the cause and decide the successful treatment of a large number of pathological conditions for the occurrence and treatment of which we are otherwise unprepared.

We will now follow up the idea of infiltration which is brought on by thyroid insufficiency, and consider the consequences in various tissues of the body.

Muscles.—The cell loaded with fat and mucin is increased in size so that its contraction is delayed in onset and slow in execution. Muscular action then becomes painful, accompanied by stiffness and dread of movement. The connective tissue sheath which supports the contractile elements and connects the muscles with the tendons, aponeuroses, and articular ligaments is equally infiltrated, and this adds to the difficulty of movement. This applies alike to non-striped and voluntary muscle.

This muscular infiltration shows itself subjectively by rheumatoid pains, which must not be confused with rheumatism, due to causes with which we are not here to be concerned. The statement made by some writers that thyroid extract cures nodular rheumatism, chronic or otherwise, should, therefore, be accepted with reserve. Thyroid extract relieves pain in the muscles, joints, and ligaments only in so far as this depends on thyroid deficiency; that is, it is due to the specific myxedematous infiltration, and it acts only by causing absorption of that infiltration. We must remember that thyroid extract is essentially a specific and can act favorably only where there exists an inactivity or weakness of the thyroid.

Let us take another example. The nerve cell, whatever may be the degree of myxedematous cachexia, is never destroyed as in a hemorrhagic focus or embolic necrosis. Its nutrition and excretion are simply hindered. It is infiltrated and at the same time compressed by the infiltration of its supporting connecting tissues. The transmission of motor, sensory, and voluntary impulses is thereby delayed but not abolished, and the reflexes are sluggish but present.

The discomfort of the nerves shows itself by neuralgias and even by shooting pains of a neuritic character; the distinction between these two kinds of pain being well known to the patient. Cardiac pain is also present with radiations into the brachial plexus simulating attacks of angina.

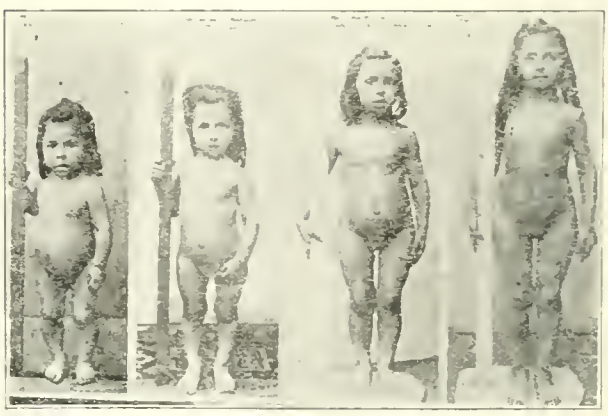
The central nervous system exhibits early evidence of infiltration, however slight it may be. In well-marked myxedema, vertigo, dizziness, noises in the ears, headache, migraine, loss of memory, mental confusion, depression, melancholia, loss of consciousness, loss of balancing power, sudden falls, somnolence, attacks of coma, which may be confused with the serous apoplexy of Bright, with all the more probability that there is usually some albuminuria.

In mild myxedema the list is not so formidable. One should remember the morning headaches and tendency to migraine, vertigo, and noises in the ears.

Even the bone does not escape the consequences of thyroid defect. Every surgeon knows that in certain persons fractures unite imperfectly or not at all, and thyroid extract is given to avoid complication. If one carefully examines such patients, those at least who benefit by it, there will always be found some more symptoms of thyroid deficiency.

Cartilaginous tissue also gives clear evidence of this specific cellular infiltration. On moving the joints which are stiff and painful the application of the hand detects a peculiar sensation resembling the crackling of crushed snow which is almost pathognomonic. This is well felt in the knee joint. Sometimes the patient himself feels and hears a crepitation in the joints of his cervical vertebræ. These joints symptoms were described first by Professor Verriest in connection with a case of myxedema shown to the Royal Academy of Medicine of Belgium in 1886.[2]

These painful affections of the joints improve very slowly and are the last symptoms to disappear. An ecclesiastic, after several months' treatment for very pronounced myxedema, still complained of the stiffness of his knees which rendered ritual genuflection very difficult, but which ultimately completely disappeared. This delay in functional restor-



a *b* *c* *d*

FIG. 2.—Hereditary paludism. *a*, Arrest of growth, age 8 years, height 2 ft. 10 in. instead of 3 ft. 10 in.; *b*, *c*, *d*, influence of thyroid feeding, after 1, 2, 5 years.

ation may perhaps be explained by the slowness of the nutritive exchanges in cartilage.

The glandular tissues which play so important a part in the organism also present infiltration both of their secreting elements and the supporting con-

nective tissue. The secretion of sweat is completely abolished.

There is considerable congestion of the liver, the hepatic cells secrete badly, while the canaliculi are compressed. Bile passes into the circulation,

Fig. 3.—Hereditary tuberculosis, thyroid weakness. Arrest of growth; influence of thyroid feeding, after ½, 1, and 2 years.

causing the characteristic amber color of the skin. Biliary calculi are also common.

The scanty intestinal secretion along with the muscular weakness of the visceral walls causes obstinate constipation, which in turn leads to fermentation with the formation of an abnormal quantity of gas, thus producing meteorism and abdominal distention with noisy eructations from the stomach.

The alterations of epidermic and epithelial coverings deserve special notice. The insufficiently nourished epidermis undergoes early desquamation; the hair falls prematurely. In milder cases the hair is poor, brittle, and becomes early grey, while the beard is thin and straggling. The nails are striated and brittle, and in severe cases split and destroyed. The teeth are almost always in a deplorable condition, exposed, decayed, and covered with a greenish tartar. The gums are red and irritated, forming polypoid projections between the teeth. The eyebrows are thinned, especially in their outer thirds, giving the face a somewhat silly expression. The eyelashes are also shed, leaving the eyelids unprotected against the erosive action of the tears. This blepharitis of thyroid origin is sometimes seen in old persons. In a case which had resisted all other means of treatment, a radical cure was obtained in a few days by the local application of adrenalin and the administration of thyroid extract. The whole skin is thickened, infiltrated, cold, and easily attacked by such affections as eczema, psoriasis, and alopecia. The eczematous condition of the scalp in young infants, known as the "milk crust," which is alike the despair of mothers and doctors, yields rapidly to a few doses of thyroidin combined with arsenic, when this affection is associated with thyroid defect, and the same can be said of psoriasis and of certain forms of alopecia.

The little boy pictured in Fig. 4 had lost all his hair. I should never have suspected thyroid deficiency in this case if the mother had not evidently been under thyroid distress. The result of thyroid treatment on growth and alopecia is well shown.

The mucous membrane of the mouth, lips, tongue, nose, pharynx, larynx, ear and esophagus are also infiltrated.

The vaginal mucous membrane is softened and infiltrated, giving on digital examination a sensation similar to that of the commencement of labor. Similar changes produce disturbances of phonation, deglutition and hearing.

The swelling of the fauces and esophagus may actually prevent swallowing in some cases.

In very severe cases of advanced myxedema, at the approach of death, the enormously swollen tongue tends to fall backward so that the air does not enter the trachea, although the respiratory movements of the thorax continue; the condition being identical with that seen during anesthesia in similar circumstances. After five or six of such false inspirations a spasm of the tongue and pharynx occurs which again allows the entrance of air. Normal respiration is thus reestablished for a time, till again interrupted and restored as before. This condition may be mistaken by an inexperienced observer for a type of Cheyne-Stokes respiration.

Endothelial tissues share in the general feebleness. They are shed prematurely, and such cavities as the gall-bladder and also the urinary bladder are unprotected from the irritating action of their contents. The gall-bladder becomes sensitive, even painful, while the mass of desquamated epithelium may become the nucleus of a calculus. Biliary lithiasis is itself frequent in myxedema, and occurs to a less extent in the milder forms.

The bladder being constantly denuded of its epithelial lining is more than usually sensitive to the irritating action of the urine, and this alone is responsible for many cases of nocturnal enuresis in children. An examination of the urine in these cases shows the presence of a large number of squamous epithelial cells from the bladder. When

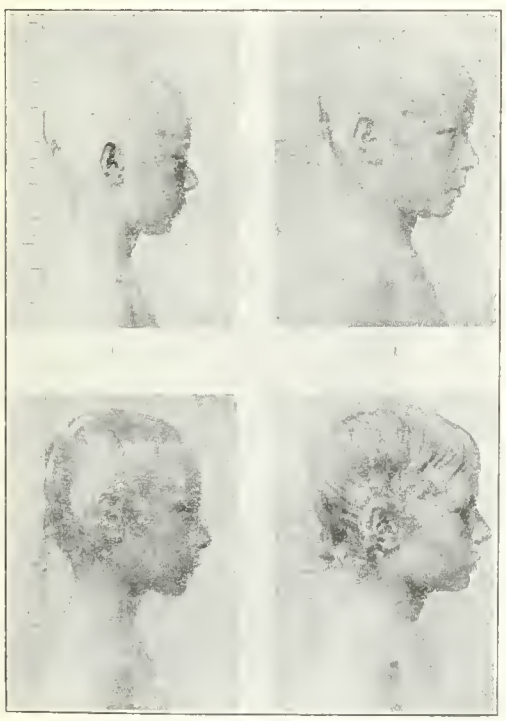


Fig. 4.—Hypothyroidic alopecia; thyroid insufficiency. Influence of thyroid feeding.

closely studied these children present signs of thyroid weakness, and their parents, especially the mother, often exhibit a more or less advanced degree of thyroid defect. As the children grow up the activity of the thyroid gland increases and

these troubles disappear. In girls a trace of them frequently persists as pollakiuria or frequency of micturition.

A most constant symptom of myxedema is a lowering of the temperature. This may be due to

Fig. 5.—Severe myxedema before and after treatment.

the decreased or less active combustion of fats and mucin, or perhaps to the infiltration of the heat-regulating center in the brain. If one suddenly administers large doses of thyroidin to a myxedematous patient, at the time he has a large quantity of infiltration ready to be oxidized, one may observe a considerable elevation of temperature, which may even be mistaken for fever. This is probably due to the ultra-rapid combustion of these accumulated materials.

The lowering of the body temperature is perceived by the patient. It is subject to diurnal variations, being specially noticeable in the afternoon about 4 or 5 o'clock, in the form of violent shivering, starting with the sensation of cold water thrown on the back. These symptoms may be misinterpreted and treated by the useless administration of quinine. In slight myxedema this feeling of cold is present in a lesser degree. The patient is in a state of habitual chilliness, showing itself in women and children by constant coldness of the hands and feet, and the condition known as "dead finger"—pallor, stiffness, and insensibility of one or more digits.

Let us consider the effects of the infiltration on a complex mechanism, such as the cardiorespiratory system, where the different elements we have just studied are associated with one another.

We have to remember the paresis of the cardiac muscle, of the external respiratory muscles, and of the diaphragm; the painful infiltration of the nervous ganglia at the base of the heart, added to the disturbances of its central innervation; the infiltration of the pulmonary tissue, the bronchial mucous membrane of the respiratory tract, and consider the consequences.

The dyspnea presented by some patients suffering from severe myxedema may surpass all description. They can with difficulty climb a short flight of stairs, even with a rest by the way; they arrive in the consulting room absolutely breathless and supporting themselves by the furniture, indicating by signs their inability to speak till they have recovered breath.

In mild cases the oppression is less marked. It may be intermittent and presented only on the occasion of unusual exertion, corresponding to an increased demand on the thyroid gland which is weak already. The condition is then readily mistaken for an attack of asthma, and many so-called asthmatics are certainly suffering from thyroid defect. Certain French writers have reported some unexpected cures of asthma by thyroid extract, and while admitting that the patients presented symptoms of thyroid weakness they persist in describing such cases by the term neuroarthritic. That is not logical; we should rejoice to see the word arthritism, which no one understands and which is so often used as a cloak for ignorance, disappear from the medical vocabulary.

Another example: Consider the gastrointestinal system—the muscular walls are slow and lazy, intestinal secretion scarce, therefrom arises constipation. Microbes find their way to the peritoneum and even kidneys; the peritoneum protects itself by false membranes which in time will grow into bands, bringing on kinks and their consequences. In hypothyroid patients these pericolitic adhesions nearly always exist and are even found in very young children, which is not to be wondered at —hypothyroid disposition being nearly always hereditary.

I would be delighted if my supposition concerning the question of intestinal stasis should prove to be correct. It would perhaps bring into a brighter light still the ideas that Sir Arbuthnot Lane in England and Professor Bainbridge in America have promoted and implanted at the price of a most daring and incessant effort.

Sexual System.—The thyroid gland plays an important part in the development and functional activity of the sexual organs, especially in females. It superintends the growth and general development of the sexual organs. Absolute cretins never come to puberty. In mild forms of thyroid insufficiency the uterus remains infantile and small; menstruation begins late in life. Sometimes the posterior wall of the womb does not grow as quickly as the anterior, and therefrom comes retroflexion. This is by no means a rare condition in very young girls. Profuse menstrual bleeding is often seen in such cases and is attributed to retroflexion. As a matter of fact, the excessive bleeding is caused by the infiltration of the uterine mucous lining, by the defective contractility of uterine muscular cells and by the hemophilic condition of the blood. In thyroid defect hemophilia is quite a classic symptom. Profuse oozing may be brought on by almost a mere scratch.

It is a well-recognized fact that thyroid defi-

Fig. 6.—Severe myxedema before and after treatment.

ciency falls, in nine-tenths of the cases, on females. The reason thereof is easily given: The thyroid has a great influence on menstruation, pregnancy, lactation, and even uterine involution after childbirth. When the thyroid is normally active the

menses are normal; when weak, menorrhagia sets in. The weaker the thyroid the greater the loss of blood. We very often come across these cases of menorrhagia even in very young girls, and we are at a loss to understand the meaning of this

FIG. 7.—Severe myxedema before and after treatment.

distressful condition. We do not know what to do to prevent it. If we can put aside such causes as fibroids and cancer, we will always think of thyroid deficiency.

A large quantity of thyroid stuff is wanted during the menstrual period, and during that time cannot be given to the general keeping up of the body. We often see women who at ordinary times have a decent supply of thyroid secretion run short during the menses, and show then, and then only, the usual signs of thyroid defect. Headaches (migraine) are almost classic symptoms at that time. Many women have muffled voice, which is the result of temporary infiltration of the vocal chords. Extreme lassitude, pains in the back, obstinate constipation, all go along in that line of symptoms.

It is not necessary to dwell on the good effects of thyroid medication under such circumstances. A few doses of thyroid extract will act as a powerful tonic and reduce to a considerable extent the anemic influence of the menses, and reduce considerably the loss of blood.

In pregnancy the thyroid becomes enlarged and throws into the blood an unusually large quantity of secretion, thereby suspending menstruation and protecting the fertilized ovum against the harm which would result from menstrual activity. This action of the thyroid should be remembered in cases where chronic abortion has exhausted all other forms of medication. We may assert that thyroid extract has proved in scores of cases an excellent remedy for otherwise inexplicable sterility. A great many women who have taken thyroid extract with a view to reduce their obesity have been surprised by becoming pregnant in the course of this medication, and this unexpected result is due to the thyroid inhibition of menstruation. After childbirth the maternal system is suddenly relieved; a large amount of thyroid secretion is still in store. Part of it will be given to the muscular and nervous exertion of labor itself and another part goes to the involution of the uterus. The heavy muscular walls of the womb have to degenerate into fat and be oxidized, and this cannot be done without the interference of the thyroid stimulus.

Finally, lactation claims a good deal of thyroid stuff. It has been proven by experiments on animals that thyroid extract works upon the mammary glands and increases the quantity of milk. Women who have a good lactation have also a quick involution of the womb. After weaning, the thyroid gland is now fairly exhausted. Most of mothers grow fat at that time. Menstruation takes advantage of this deficiency and comes back. Thyroid medication may be useful in such cases where lactation is scanty and where menstruation has a tendency to return before the physiological time. This is indeed the only way we have to increase the mammary secretion.

The mucous lining of the vagina is also infiltrated, and under examination gives the impresson of incipient labor. A good many patients have been curetted for hemorrhagic endometritis who were in reality deficient in their thyroid powers.

I acquainted Professor Bainbridge when he was in Antwerp with these facts. Being a gynecologist as well as a surgeon, he said he would make a careful study of hypothyroid menorrhagia. I am glad to say, and he announced it before the Academy, that he is now convinced that this is absolute truth. He has cured a number of cases already with thy-

FIG. 8.—Mild myxedema, showing the loss of hair.

FIG. 9.—The same patient as in Fig. 8 after treatment.

roid feeding, to the astonishment of those who had previously curetted the uterus without relieving the menorrhagia. Much more might be said about thyroid secretion, indeed volumes have been written on the subject. My friend, Dr. Sajous of

Fig. 10.—Mild myxedema—Loss of eyebrows.

Philadelphia, knows about it, and his work on internal secretion has not said all.

The usefulness of thyroid medication is conspicuous in delayed development of the sexual organs, infantile uterus, infantile retroflexion and excessive menstruation. In some cases of sterility and repeated abortion it will prove to be a successful treatment. Slow involution of the uterus after childbirth and wavering lactation will also find here powerful help.

From what we have stated it is evident that the best way to understand mild myxedema is to have a clear conception of the more severe form. The more severe form, when properly treated, gradually progresses through the milder forms to become finally imperceptible even to the most experienced eye. So also, after successful treatment, a myxedematous patient, left to himself, gradually relapses, the milder symptoms being the first

Fig. 11.—Severe myxedema with loss of hair. Before and after treatment.

to return, followed by those of increasing severity, so that the disease reconstructs itself under your eyes. These symptoms of the milder form of the disease are precisely those which should be most clearly impressed upon your memory.

The weakness of the thyroid gland is usually hereditary, and it is rare that one does not find traces of milder defect among the ascending, descending, or collateral relations of a person suffering from well-marked myxedema. One must inquire carefully into the family history; it will be found an inexhaustible source of information regarding symptoms which will render one more familiar with the milder cases of hypothyroidism.

In doubtful cases treatment by thyroidin forms the touchstone whether for mild or severe myxedema. Many persons suffering from the milder forms do not appear stout or swollen, but may even be quite spare in body, the infiltration in such cases predominating in the internal organs. If under small doses of thyroidin such a person loses weight with simultaneous improvement in his general condition, one may assert the existence of insufficient secretion of the gland.

Let us now study some cases of advanced myxedema, and, to facilitate the task, permit me to indicate the course I myself followed at the beginning of my studies on the subject. I confess that when I first found myself in the presence of a case of myxedema I knew nothing about it. I had neglected this part of my medical studies, believing I should never encounter what was then considered a pathological rarity. Myxedema, which meant nothing to me in 1883 when I finished my university course, interested me as little ten years later, when circumstances forced me to concern myself with it, and to recognize it without having suspected its existence.

In 1894, while in attendance at the house of M. X., he confided to me that he was much concerned about the health of his wife. He informed me that she was 64 years of age, had been married at the age of 20, and had had no children. She had been delicate all her life, but recently her condition had been so much worse that he feared a fatal issue was rapidly approaching. In spite of this she absolutely refused to consult a doctor. She was indifferent to all that went on around her, this apathy being combined with an invincible disinclination to all physical exertion. Speech was laborious to her, being slow, faulty, and indistinct, so that usually despairing of making herself understood, she cut short all attempts at conversation. Her only desire was to be left at peace, free from all emotion or anxiety.

Soon after her marriage Mme. X. had a miscarriage. Her menstruation had always been profuse and the intervals between the periods much shortened; the menstrual loss was so great that the blood soaked through the mattress to the floor. She also bled easily after slight injuries, a simple scratch being followed by prolonged oozing. These repeated hemorrhages had produced a state of pronounced anemia shown by the pres-

Fig. 12.—Profile of the patient shown in Fig. 11.

ence of marked pallor and weakness. The hemorrhages were regarded as the original cause of her condition. At the age of 35, while driving in an open carriage Mme. X. was caught in a heavy shower of rain which soaked her to the skin. Following this she took cold and suffered from a well defined attack of acute

articular rheumatism, from which she recovered but had never since been free from pain. From that time her condition was attributed to the rheumatic attack by herself and her friends.

Such was the information given me by the husband, and at his request Mme. X. consented to see me. My

Fig. 13.—Severe myxedema; baldness of the nape

diagnosis was instantaneous—it was evident that Mme. X. was suffering from an attack of Bright's disease in its last stage (Fig. 5). The face was swollen, the eyelids were edematous, leaving only a narrow space between them, the lips were thick, everted, and bluish in color, the speech was slow and drawling, the voice having a strange, deep, croaking tone, while the gait was awkward with slow and indecisive movements. I communicated my opinion to her husband and intimated my fear that a fatal termination was threatening from uremia. M. X. was not surprised and told me that all the doctors previously consulted had been of the same opinion. I then examined the urine and to

Fig. 14.—Same patient as in Fig. 13 after treatment.

my great astonishment it contained only an insignificant quantity of albumin—about 1½ grains to the ounce. There was no renal epithelium present but squamous cells from the bladder were abundant. I was much embarrassed at finding a case of Bright's disease which had reached the stage of threatened uremia practically without change in the urine. Next day I explained to M. X. that the case was somewhat unusual, and asked his permission to keep the patient under observation for ten days in order to make a further examination, to which he willingly agreed.

I could then examine the patient at leisure. The

Fig. 15.—Severe myxedema.

heart presented no appreciable change though the pulse was slow. The kidney region was painless on palpation so far as it was possible to examine it, for Mme. X., while not obese, was short and stout, weighing 204 lb. Her lower limbs did not appear notably swollen and though large were not out of proportion to her body. Her temperature was rather low and she complained of cold although it was the end of May and a large fire made the room uncomfortably warm. The patient told me that she always felt the cold most intensely about 4 o'clock in the afternoon, at which time she felt as if cold water had been poured on her back, causing her actually to shiver. She soon became tired during my examination and even fell asleep while I talked to her, complaining of extreme lassitude and rheumatic pains throughout the whole of her body.

Having discovered all this I had advanced no further than before. That a woman 64 years of age should be sleepy, chilly, easily tired and suffer from rheumatism was neither very extraordinary nor was it pathognomonic. Five days had passed, when chance,—the Providence of doctors,—came to my assistance. M. X.

Fig. 16.—Same patient as in Fig. 15 after treatment.

informed me that he was expecting an early visit from his wife's cousin who suffered from a very troublesome goiter which at times threatened to suffocate her. He also told me that I might be consulted by her and, should alarming symptoms occur, I might even be asked to remove the tumor. Now goiter is a rarity in

Antwerp and for my part I had never seen a single case and was rather worried at the prospect.

My situation was truly awkward, the old lady apparently had Bright's disease but without albuminuria and seemed to be at the point of death without presenting a single positive symptom which I could lay hold

FIG. 17.—Severe myxedeme, before and after treatment.

of;—and then this cousin must needs come from the other end of Austria possessed by the desire to be operated upon for a tumor which she would a hundred times better have had removed in her own country, where they are accustomed to similar exploits.

I returned home in a state of great anxiety and felt a real relief on finding on my table a large parcel containing the treatise on surgery in 8 volumes by Duplay and Reclus which had just been published. I turned to the article on goiter by Broca. Oh, yes! goiter could certainly be removed: it was not easy, but with determination and a score of artery forceps it could be done. Then there were complications—one must not divide the recurrent laryngeal—must guard against hemorrhage and sepsis. And this was not all,—one must beware of removing the whole of the thyroid gland—for this was followed after a short interval by a special cachexia which Kocher had named "Cachexia strumipriva" and Reverdin had called "Post-operative myxedema." This was becoming more and more interesting.

Thus when the patient had escaped from the dangers of the operation, hemorrhage, and sepsis, just when we might expect him to enter upon convalescence, a very strange condition gradually disclosed itself, characterized by the following symptoms:—*lassitude, feebleness, clumsiness, heaviness of the limbs, pain in the arms, legs, neck, and shoulders, swelling of the face and puffiness of the eyelids. The eyes become sunken, the activity of the brain diminished and mental effort dulled.* Then there came an extraordinary

FIG. 18.—Profile view of the same patient shown in Fig. 17.

phase: *"The urine is almost always normal, to the astonishment of the early observers who expected from the appearance of the face to discover albumin.* And again another phrase:—*one of the most remarkable phenomena is a sensation of cold, which is almost constant.*

Truly Mme. X. presented a complete picture of these symptoms. She had the false suggestion of albuminuria without the presence of albumin, and the general swelling of the body. Like the patients operated upon by Kocher, Reverdin, and Bruns, she had the drawling voice, the sluggish attitude of body, the thinned hair

FIG. 19.—Severe myxedema with predominance of rheumatoid pains before treatment.

FIG. 20.—Same patient as shown in Fig. 19, after treatment.

and eyebrows, the swollen mucous membranes, and the difficulty in swallowing. Her tongue appeared too large for her mouth, the floor of which was swollen and raised till it suggested a double ranula. Even her ocular conjunctiva was edematous and prolapsed while her complexion was amber-yellow with patches of red

on the cheeks. She had also the low temperature with subjective sensations of cold—but indeed Mme. X. presented all the symptoms described in post-operative myxedema and if so she must suffer from spontaneous myxedema.

At last my diagnosis was made. On the following day I verified the presence of the hard, nondepressible edema extending over the whole body and some other symptoms which I had not previously recognized. I then informed her husband of what I had discovered and that I was prepared to commence treatment at once. M. X. was too polite to say that he did not believe me, though his face plainly showed his incredulity, but he followed my instructions to the letter.

The result exceeded my hopes. After three weeks treatment the bodily and mental transformation was so complete that she would no longer have been recognized as the same woman (Fig. 5). The edema of the tongue, of the lips, and of the eyelids disappeared as if by enchantment and the face assumed an intelligent expression. The patient then went to the country where the treatment was continued by the local doctor, who gave me valuable assistance. I did not see her again for over two months by which time she had completely recovered, that is to say the absorption of the infiltration had been complete.

Fig. 21.—Severe myxedema, cachectic stage, three days before death.

If you now ask me what we have to learn from this observation as regards mild myxedema, and on what point it helps our knowledge of this condition, I would first direct your attention to the metrorrhagia which is presented by the history of the patient. As a rule thyroid weakness shows itself by the presence of metrorrhagia which is sometimes appalling in its amount. The administration of thyroidin moderates these losses, and if large doses are given one may even completely suppress menstruation, as in the same way complete amenorrhea is not infrequently present in cases of exophthalmic goiter. Women with feeble thyroids conceive readily, but abort as readily in consequence of the onset of profuse bleeding which carries away the fertilized ovum. I do not mean to say that a woman suffering from thyroid weakness cannot go to full term, as from the beginning of pregnancy the thyroid gland undergoes hypertrophy with increase in size and in the amount of its secretion. In fortunate cases this increased activity is maintained throughout pregnancy and forms an effectual protection to the embryo against the menstrual return. Such women tell you that their health is better when pregnant. The increased activity of the gland continues during lactation, and such patients instinctively prolong suckling beyond the physiological period. After weaning, the symptoms of thyroid weakness reappear and certain authors have even discovered in prolonged lactation a cause of myxedema. *Thus when you encounter cases of profuse menstruation in which you can exclude such ordinary causes as fibroids, cancer, or placental remains,* think of possible thyroid defect and search for other symptoms of this condition.

Think of it also in those disheartening cases of repeated abortion, in which the administration of thyroidin will often permit a pregnancy to go to term when all other rational means of treatment have failed.

I would in the second place direct your attention to the rheumatic pains from which this patient suffered. In almost all cases of severe myxedema one finds that the patient at some period of life has passed through an attack of acute articular rheumatism. This affection can itself cause grave disturbances of the thyroid gland, the congestion of which in the course of acute articular rheumatism is a classic symptom. I believe, however, that its influence is usually limited to producing an aggravation of a pre-existing thyroid weakness, thus bringing to light symptoms hitherto unnoticed. The metrorrhagia from which Mme. X. had suffered before the occurrence of her acute rheumatic attack supports this view. The chronic rheumatic or rheumatoid condition is almost always associated with mild myxedema, and its occurrence should be carefully inquired into, especially when metrorrhagia is also present. These pains, which are often complicated by neuralgia, tend to assume a characteristic form and course, to which I will now refer. The most frequent rheumatoid pain experienced in mild myxedema is that affecting the back between the shoulder blades, and is most severe in the morning on rising, after the chilling and inanition of the night. Driven from bed by the pain, these patients rise absolutely worn out, as if they had slept on a hard uneven mattress. The pains subside gradually during the day, owing to the warmth produced by food and exercise, and disappear completely in the evening after a good meal with plenty of wine. Such patients are strongly attracted to the use of alcoholic stimulants.

I have already stated my opinion as to the lowered temperature and the subjective feeling of cold, so I need not insist further on this point. The hard, cold hand of a patient suffering from severe myxedema is very characteristic, and in the milder forms coldness of the extremities is usually present, though to a less degree, as I have already stated.

Among the symptoms presented by Mme. X., one of the more interesting was the special character of the voice and speech. The voice was deep, rough, and croaking, with an indescribable quality which

when once heard could not be forgotten. This symptom is caused by the infiltration of the vocal chords and the pharyngeal mucous membrane, and is present in a less marked degree in milder forms of hypothyroidism. In women with feeble thyroids the voice is slightly hollow or muffled. Sometimes this is only occasionally present, as during menstruation, when a considerable part of the thyroid resources is employed in the inhibition of the menstrual function. We will not consider further the case of Mme. X., though interesting from the standpoint of our subject, but will bear in mind as leading symptoms the *metrorrhagia*, the *recurring abortions*, the *rheumatoid pains*, the *feeling of chilliness*, *and the alteration of the voice.*

After my attendance on Mme. X., I reproached myself for having so long neglected to inform myself as to the diseased conditions of the thyroid gland. During my ten years of practice I must have already met with these cases of apparent Bright's disease; I had treated them, and they had disappeared and been forgotten. Surely I had heard somewhere a voice similar to that of Mme. X., but when? and where? On racking my brains, I remembered that one day I had been summoned as an expert before the Civil Pensions Commission, the administrative body to which the servants of the State apply when on account of infirmity they wish to claim their pension before the retiring age or when it is necessary to retire them. It decides in accordance with the advice of the medical experts.

FIG. 22.—Myxedema, severe form, before and after treatment.

A professor of solfeggio in the Antwerp Conservatoire had appeared before us. His condition was so lamentable, so profoundly cachectic, that my colleague and I requested the President to send some one home with him lest he should fall in the street. The strange, hoarse, croaking voice of this man whose occupation was the teaching of singing to children, was so irresistibly comic that commissioners and doctors alike had great difficulty in keeping their gravity. The medical examination did not take long and the verdict was explicit—Bright's disease in its last stage with uremia, and he was at once retired on pension.

I searched for and found the singing master who was still alive, and whom I now recognized to be suffering from myxedema. I show here his photograph before and after treatment (Fig. 6). I informed the Minister of the error, who sharply rebuked the Commission for a mistake made through no fault of theirs. The board then had the patient examined afresh by other doctors, who discovered nothing wrong with him as he no longer presented the least sign of myxedema. The proposal to retire him was withdrawn, and his voice having now recovered, he was able to resume his class with a brilliancy to which he had been long a stranger. He was at this time 55 years of age. Before treatment was begun his whole face was swollen, especially the eyelids, the space between which was reduced to a mere slit. He also suffered from rheumatic pains, a constant feeling of cold, and continual dyspnea. The skin was dry, thin, and scaly, the epidermis covered with fine lozenge-shaped wrinkles. The whole body was heavy, clumsy, and infiltrated with a firm resistant edema. He complained of invincible somnolence, depression, and weariness of life. The infiltration was rapidly absorbed under treatment, his weight falling from 169 lb. to 136 lb. in two months, at the end of which period the second photograph was taken.

Here for the first time dyspnea appears as a leading symptom of myxedema. The patient had suffered from it for a long time, and in my former notes of his condition I found it occupied an important place. His walk was slow and difficult, and he required to support himself by the furniture, making signs that he could not speak for want of breath. In mild myxedema this breathlessness is constantly present, though to a less degree, only showing itself on walking rapidly or uphill, and is usually accompanied by palpitation. Sometimes the breathlessness is intermittent, like the insufficiency of the thyroid secretion on which it depends, and is then liable to be mistaken for an attack of asthma.

The gratitude of this singing master was all the greater that he had been restored to his duties and escaped the misery of a premature pension. He told me that one of his friends, a police agent, who had been put upon the retired list ten years before, suffered from the same condition as himself. This was rather too much—to have myxedema diagnosed by a patient who had only just recovered from the disease.

I called on the police agent whose appearance before and after treatment is shown in the photographs (Fig. 7). He was suffering from very advanced myxedema and though only 42 he appeared much older. The photograph shows the degree of cachexia at which he had arrived. His whole face was infiltrated, the eyelids being so swollen that the eyes could be opened only with the greatest difficulty, while the thickened lips resembled those of a negro. The complexion was amber yellow with bright red patches on the cheeks. The trophic changes in the hair were striking, the forehead presented a band of brown pigmentation and there were similar marks on each side of the neck. The head was too heavy for the infiltrated muscles and

ligaments of the neck so that it fell forward and the patient could raise it only by throwing the trunk backwards. He complained of rheumatism and a perpetual feeling of cold, huddling himself night and day under thick bedclothes. The breath was offensive, the teeth bad, the gums red and inflamed. Speech was much

FIG. 23.—The patient shown in Fig. 2 after 14 years of treatment.

impaired. On replying to a question he opened his mouth widely, so that the motions of his tongue could be plainly seen although he uttered no sound, and it was only after a lengthy effort that the words were slowly formed. His weight was 152 lb. of which he lost 22 lb. under treatment with the simultaneous improvement of all his symptoms. The loss of weight in this case amounted to 18, 28, and even 35 ounces a day. His hair grew again rapidly, muscular contractility was regained so that he could again raise his head, and he was delighted to find his self-confidence return, complete recovery being attained in about two months.

This case directs our attention to the trophic changes of the hair, teeth, and gums. In the milder type of myxedema the hair may also be shed early, though more frequently it becomes prematurely grey. The destruction of the teeth and the chronic alteration of the gums is also observed, though to a less extent.

Whatever the type of myxedema, the baldness very constantly presents a special distribution, the hair being first shed in the frontal region, then on

FIG. 24.—Mild myxedema in the mother of the patient pictured in Figs. 2 and 23.

the nape of the neck, giving the appearance which is well shown in Figs 8 and 9. The loss of the hair in the eyebrows is early and constant, even in mild myxedema, and has been called the eyebrow sign. It is not so easily concealed as the baldness of the scalp, and it gives to the patient's face an air of perpetual astonishment.

Fig. 10 is the portrait of a woman aged 24 who had suffered from uterine hemorrhage since her confinement, four months previously, for which she had been packed and curetted several times. The absence of the eyebrows is striking, and though the frontal baldness had been artfully concealed, she at once suggested to me a case of insufficient thyroid secretion. She suffered much from migraine and also from occipital headaches; she was always cold, while her menses were always very profuse. Under thyroid treatment the hemorrhage ceased in a fortnight.

A very interesting case of myxedema is shown in figures 11 and 12. There was marked loss of hair which in addition to the usual situations had affected the sagittal line, but the baldness was concealed by the presence of black crusts which covered the whole scalp, the eyebrows were also markedly affected. This patient might be classed as an advanced case of myxedema and the result of treatment was very striking. She had always been tired, constipated, and somnolent. She was never free from rheumatic pains and became breathless on the slighest exertion. Her face was infiltrated, the eyelids and lips being specially swollen. Under thyroid extract she rapidly lost 22 lb. in weight and after four months treatment, was completely changed both morally and physically, having regained courage, strength, and cheerfulness. She even became coquettish and would not believe that her appearance had been as in the first photograph.

The patient shown in Figs. 13 and 14 is a good example of the effects of thyroid weakness on the hair and eyebrows. She was only 39 years of age, but

FIG. 25.—Mild myxedema, before and after treatment.

appeared much older. The face was swollen, amber yellow in color, with patches of red on the cheeks. The trophic changes had chiefly affected the hair and teeth, the nape of the neck being almost bald. She complained of a constant sensation of cold, obstinate constipation, and pains all over the body, which she attributed to rheumatism. She presented also the drawling voice with its characteristic intonation. Her weight was 154 lb., of which she lost 22 lb. in the course of treatment.

The patient presented in Figs. 15 and 16 was 42 years of age. Fourteen years before, as the result of a chill, she suffered from swelling of the hands and feet with albuminuria. She was treated for Bright's disease, but did not recover her health, dragging on in a weak, exhausted, somnolent condition, with pains in all her limbs. Becoming pregnant she suddenly improved considerably, due to the stimulation of the thyroid gland by her condition. This improvement lasted throughout pregnancy and was maintained during lactation, although she nursed her infant for two years. After weaning him she gradually relapsed into her previous condition, again becoming apathetic and depressed while the rheumatic pains returned with increased severity. The eyebrows were very thin, the features swollen, while the pale yellow complexion recalled that usually associated with albuminuria. She suffered from constipation and headache, her teeth were decayed, and she presented attacks of shivering during the evening which were attributed to fever. All these symptoms improved under treatment, her weight at the same time falling from 143 to 138 lb.

The patient shown in Figs. 17 and 18 was only 39 years of age. He was a cigar maker, who had been

unable to work for six years, owing to his fingers having become stiff and clumsy. He had taken to drink and he and his family had fallen into extreme poverty. He was positively ugly, and the boys of the district, who knew him under the name of Ravachol, followed him on the street. I literally picked him out

FIG. 26.—Severe myxedema before treatment.

of the gutter and kept him under observation for a week before commencing treatment. His appearance is well shown in the illustrations. He complained of pain in the spine, a constant feeling of cold and insuperable fatigue, and was melancholic, depressed, and extremely miserable. His hair was unaffected, except in the occipital region, which was bald. During the week before treatment was commenced he excreted on an average 323.4 grains of urea per day, which increased under thyroidin to an average of 477.4 grains per day, during the first week, with a further increase during the second week to 677.6 grains per day. In

FIG. 27.—The same patient as in Fig. 26, after two months' treatment.

consequence of the absorption of the infiltration his weight fell from 167 lb. to 138 lb. His urine contained an extraordinary number of spermatozoa, this symptom persisting for a whole month, when it suddenly ceased. He rapidly recovered as shown by the illustration, and he not only regained his health but also his self-confidence, so that he resumed his work, at which he was expert, and after some months sailed for America in quest of a better situation. He obtained work at once, and is now himself an employer, and has made money. Every two or three years he returns to Europe to express his gratitude to me.

FIG. 28.—Severe myxedema.

Soon after the cure of the singing master and the police agent I remembered that at the beginning of my career I had treated a woman of whose peculiar voice I was reminded by that of these two patients. She had left town, but at last I discovered her. In those days she had suffered from rheumatism involving all the body, the muscles being stiff, hard, and painful. The joints were also swollen, the gait stiff and awkward, while the pains in the back were very severe. I had formerly treated her by every

FIG. 29.—The same patient as in Fig. 28, after treatment.

means I could think of, without benefit. On her reappearance I found that she was really suffering from myxedema—as you will see by the photographs before and after treatment (Figs. 19 and 20). The puffiness of the face, the swelling of the lips, espe-

cially the lower one, the loss of the hair of the scalp and eyebrows, the redness of the cheeks on a yellow skin, the drawling, croaking voice, the dry wrinkled skin, and the desquamation of the scalp left no doubt as to the diagnosis. Under thyroid

Fig. 30.—Mild myxedema with atrophy of the optic nerves.

treatment the infiltration rapidly disappeared. The general pain and stiffness also disappeared steadily, though slowly, along with marked breathlessness, to which she had always been subject, and which I had formerly attributed partly to obesity and partly to pulmonary emphysema. Finally all these symptoms were completely abolished, but on the patient ceasing treatment the pains gradually returned, to cease again on the administration of thyroidin. This woman had suffered from these rheumatic symptoms for so many years that she had become resigned to them, and sought advice only when the pain in the back or the swelling in the wrists or knees became unusually severe. *The pain was then, as later, simply a manifestation of defective thyroid secretion.*

Let me now record a case illustrating the disorders of the liver associated with defect in the thyroid gland. The patient shown in Fig. 21 was a women suffering from myxedema in its last stage. She died three days after admission to my ward without it being possible to begin thyroid treatment. On post-mortem examination the gall-bladder was found much enlarged, distended to the bursting point, with marked thinning at its upper pole. It contained a large gallstone, which permitted the entrance but not the escape of the bile. I was much impressed by this observation, and later in cases of myxedema, whether mild or severe, I examined for tenderness of the liver and especially of the gall-bladder. Very frequently, not to say always, a painful point was found in this region, which disappeared during treatment. Although the presence of a calculus in the gall-bladder is a common occurrence in the post-mortem room, I have dwelt on it and shown this photograph in order to emphasize the frequent presence of disorders of the liver in myxedema, of whatever type. In this affection one should always think of congestion of the liver and the possible presence of calculi or biliary sand in the gall-bladder. The amber yellow coloration of the skin, so characteristic of myxedema, is only an attenuated jaundice and depends on biliary disturbances.

Fig. 22 is that of a woman aged 40 years of age, suffering from well-marked myxedema. Her father, who was dead, had suffered from rheumatism and albuminuria. She had six children; the eldest daughter was subject to metrorrhagia, while two of the sons had suffered very severely from acute articular rheumatism. Her appetite had completely gone, she suffered from menorrhagia, with headaches and frequent attacks of shivering. Her temperature taken in the mouth was only 96.2 F. There was great swelling of the face, but the hair was well preserved and the teeth in good condition. She suffered from melancholia and apathy with difficulty of thought, speech, and action. After six weeks' treatment at the Institute she was discharged so changed in appearance that she would not have been recognized. Since then she had continued her treatment, but only very irregularly. When she neglected it too long the first symptoms of relapse were a feeling of weight at the stomach, difficulty in stooping, tenderness over the liver, and a distaste for meat. After an unusually long period of neglected treatment she sent for me in haste one night and was found suffering from biliary colic. The urgent symptoms yielded to oil and morphine and later under thyroidin she made a complete recovery.

I have said that an excellent means of becoming acquainted with the slighter degrees of myxedema is to study the morbid characteristics of the ascending, descending, or collateral relations of patients suffering from the more severe type, the weakness of the thyroid gland being essentially hereditary. I have shown in Fig. 2 four photographs of a child who suffered from severe myxedema, and presented marked delay in her physical and intellectual development. When first brought to me in November, 1896, she was 8 years of age, and she measured only 2 ft. 10 in. in height, instead of 3 ft. 10 in., the normal average for her age, though she was comparatively heavy, her weight being 33 pounds. The expression of the face was that of well-marked myxedema; the face itself was swollen with the characteristic red cheeks on an amber yellow skin.

Fig. 31.—Same patient as in Fig. 30, after treatment.

The dystrophy had not involved all the tissues to the same extent, those of epidermic origin being relatively intact. The hair was black and thick, the eyebrows were well marked, while the teeth were healthy, an exceptional event in myxedema. The

bones, on the other hand, were severely affected, the femora were curved, the tibiæ and fibulæ showed advanced signs of rickets, and the feet were short and flat. The belly was large—a characteristic of this affection—and presented an umbilical hernia.

Fig. 32.—M. A., severe myxedema; before treatment.

The false ribs had been carried outwards by the distention of the abdomen—a change more apparent in the second photograph, where the belly has been reduced by a year's treatment. Her intelligence was but slightly developed. Her temperature was very low, even in summer, and in winter it became extremely so, there being great difficulty in keeping her warm. She throve badly, and was extremely constipated. There could be no doubt as to the

Fig. 33.—M. A. after two months' treatment

cause of the condition—a congenital weakness of the thyroid gland.

The patient's mother had suffered from several severe attacks of malarial fever in the course of her pregnancy, and had been obliged to leave the low-lying village where she lived and come into town for her confinement. Four years previously, before she lived in this low-lying district, she had borne a son, now 12 years of age, who was slender and delicate. A second child had died of some abdominal condition at the age of five months, the third being

Fig. 34.—M. A. after 14 months' treatment.

the patient with whom we are now concerned.

I have often observed that for the production of a severe case of congenital myxedema the association of at least two grave defects in the parents is necessary, as, for example, the coexistence of syphilis and tuberculosis; gout or diabetes, complicated with tuberculosis or syphilis; or, again, the coincidence of alcoholism and syphilis. The mother was therefore carefully examined to discover the

Fig. 35.—Sister of M. A.—Myxedema.

defect which, joined to malaria, had produced such a complete degeneration in the fetus. She suffered from severe migraine, was very constipated, her liver and gall-bladder were tender, and her menstrual loss was excessive. She also complained of transient rheumatoid pains in her muscles, which

became aggravated during the cold season. She was dull, depressed, almost melancholic, and presented a low temperature, frequent breathlessness and palpitation. Her complexion was pale yellow, like that of the child. Vertigo, tinnitus, and muscæ volitantes were also present.

The clinical picture was that of the simpler forms of thyroid defect. Without being myxedematous she evidently suffered from thyroid weakness. The malarial poison had done the rest, and the mother, unable to furnish the fetus with the necessary amount of thyroid secretion, gave birth to a cretin.

The little patient quickly responded to treatment by thyroidin. After a year her appearance had much improved, as seen in the second photograph (Fig. 2*b*). At the beginning of treatment the thyroid extract appeared to disagree with the patient, causing vomiting in the morning, before breakfast, but in spite of this its administration was continued. During the first year she gained 5½ inches in height, while the rachitic deformities greatly improved but did not entirely disappear. The distended abdomen assumed more natural proportions, the umbilical ring closed, and the neck became more slender. The expression of her face became more inquiring and thoughtful. Her progress during the second year was less satisfactory, as she unfortunately suffered severely from whooping-cough, which lasted five months. The increase in height amounted to only 2¼ in., but all traces of rickets had disappeared from the limbs. The third photograph (*c*) shows her appearance at the end of the second year.

The action of infectious diseases on the activity of the thyroid gland has been well known since the work of Marcel Garnier.[5] He states in connection with a case of whooping-cough which proved fatal by bronchopneumonia: "The thyroid gland was completely transformed. (on post-mortem examination). The coloring matter was almost entirely absent; the vesicles were empty; the thyroid cells, more or less raised towards the interior of the cavity, did not fill it, and there was no cellular proliferation, so that the thyroid tissue appeared like a fine network between the meshes of the connective tissue, which were closer than usual. There was in this case an arrest of the colloid secretion, a state of *athyroidism*." Garnier attributes these lesions to the bronchopneumonia rather than to the whooping-cough, but we may remark that whooping-cough is almost constantly complicated by bronchopneumonia, and it certainly was so in the case of our little patient. One is not then astonished at the slight progress made during the second year, and it is worthy of note that whooping-cough showed itself able to lower the secretory activity, even in this child, apparently destitute of an active thyroid gland. I believe that however degenerate it may be, the thyroid gland, even in the most confirmed cretinism, never loses entirely its secretory power, as the complete absence of thyroid secretion from the blood causes death in a short time.

In the course of the second year the parents became much alarmed at the appearance of a defect in speech, which they attributed to the treatment. I have seen several similar cases in analogous circumstances. The child had great difficulty in articulation, the first syllable being specially hard to utter, so that she panted, gasped, and twisted herself about. Soon, however, this disturbance ceased spontaneously. During the third year the patient gained 2½ inches in height.

The progress in the fourth year was also unsatisfactory, the treatment being irregularly followed and even interrupted for some months. There was, however, a gain of 1½ inches. After a serious admonition the parents became more attentive, and in the course of the fifth year the child's growth showed a distinct improvement, the increase in height amounting to 3½ inches. The fourth photograph (Fig. 2*d*) shows the patient as she appeared after five completed years of thyroid treatment. During that period she had gained 15½ inches in height, her lower limbs were straight and well formed, and the most trained eye could no longer detect the slightest indication of thyroid defect.

This case confirms the ideas which we have long expressed on the etiological unity of several morbid states which have been attributed to very diverse causes. Such conditions as infantile obesity, rickets, the slender type of infantilism, anangioplasia, chondrodystrophy, myxedema, the arrested growth in congenital syphilis, the arrest and delay of growth associated with alcoholism, tobacco poisoning, malaria, and tuberculosis, are all due in their last analysis to the same cause—a lesion of the thyroid gland. Syphilis, tuberculosis, alcoholism, chronic malnutrition, and consanguineous marriages alike deal their first blow at the thyroid gland and alter its secretion in various directions. Does not the perfect recovery from the rachitic changes in our little patient show us that this condition is due to an alteration in the thyroid gland? Thyroid extract is essentially a specific and can benefit only the lesions which come within its sphere of influence.

The different morbid influences which we have just enumerated do not all affect the thyroid secretion in the same manner. This secretion is very complex in its composition, containing nucleins associated with phosphorus, iodine (Baumann), arsenic (A. Gautier), and even bromine. The thyroid gland is liable to injury from several directions, and from this results the great variety of trophic disorders which are the echo of its impairment.

To return to the patient, I may state that she continued to grow till 21 years of age, when she measured 4 feet 9 inches in height. Her appearance at the age of 24 is shown in Fig. 23.

Her mother's portrait is shown in Fig. 24, her hair is silvery white, but she now finds herself healthier than fourteen years ago. Since the menopause, the thyroid secretion, which during her reproductive life was devoted to the inhibition of menstruation is now fully available for the general nutrition of the body. She still suffers, however, from breathlessness and rheumatic pains, and when these symptoms become troublesome she takes thyroidin for a time with beneficial effect.

Let us now take an example of mild myxedema occurring in a descendant of a patient presenting a more severe type of myxedema.

The patient shown in Fig. 25 was the daughter of the singing master whose case I have previously described. The woman was 40 years of age. At all times her menstruation had been profuse and exhausting and she suffered much from migraine and dullness in the head, while her hair had come out freely. When closely examined her face presented a slight degree of swelling, she was tired, worn out, somnolent, with an urgent desire to sleep. At the time she complained of sciatic pains in the left leg. Her hands were large, cold, bluish red in color and were covered with chilblains in winter. Under very small doses of thyroidin the swelling of the face disappeared, and the other

symptoms ceased, including the shooting pains in the left sciatic. This case forms a good example of mild myxedema.

Finally, let me give an example where the study of the collateral relations of the patient has been of great value.

The venerable ecclesiastic shown in Figs. 26 and 27 suffered from well-marked myxedema. He was the priest of a parish in the neighborhood of Antwerp, and having visited his church, which was of archeological interest, I heard him preach. He stood by the steps of the altar painfully supporting himself with both hands on the communion rail. His speech was so defective that I could not understand a word of his discourse. Then he mounted the steps of the altar, very slowly, and with great difficulty, leaning on the shoulder of the server. There was no doubt as to the diagnosis, he was suffering from well-marked myxedema. I had the satisfaction of quickly restoring him to health, as may be seen in the photograph. This patient, as you may imagine, had been previously treated in various ways in the course of a disease which had lasted ten years. He was much troubled by great thickening of the nasal mucous membrane, for which he consulted a specialist, who nimbly removed a portion of his turbinals, at the price of an alarming hemorrhage. Myxedematous patients are very hemophilic. The operation had no beneficial result for the patient.

I inquired into the state of health of his brothers and sisters. One of the latter lived with him, she was very thin and had a pronounced nasal voice with marked hypertrophy of the mucous membrane of the nose. This was in her the only symptom of thyroid defect. Another sister was married and presented the appearance shown in Fig. 28. She was as myxedematous as her brother the abbé. Under treatment she quickly and completely recovered her health. (Fig. 29.) But this was not all.

The abbé had a brother aged 54, who for ten years had suffered from an obscure condition characterized by weakness, anemia, and progressive exhaustion (Fig. 30). Along with the loss of strength his vision had gradually failed which had been attributed by well-known specialists to white atrophy of the optic nerves. Three years before, on his return from an exhausting journey, he suffered severely from headache, then suddenly collapsed and became unconscious with complete loss of motion and sensation. This state of coma lasted three days and on recovery he remembered nothing that had taken place, but presented no loss of functional power. He continued to suffer from weakness and exhaustion and his eyesight became steadily worse, so that when I saw him two years later he was almost blind. White atrophy of the optic nerves has been recorded several times in the course of myxedema, but I believe that this is purely a coincidence, and that there is no causal relation between these two affections. If the alteration of the optic nerves was caused by the specific myxedematous infiltration, vision would return under the influence of thyroid treatment, as we have seen that the most pronounced changes of the nervous system due to this cause are capable of complete restoration. The attack of coma which the patient had presented had placed his medical attendants in a serious difficulty. As there was no history of syphilis, the diagnosis appeared to lie between a tumor, hemorrhage, and embolism of the brain, serous apoplexy being excluded by the absence of albuminuria. I confess, if I had not previously seen the abbé and his sister, I would not have suspected thyroid weakness in this case, but once my attention was directed to this possibility it was easy to confirm the diagnosis. The low temperature, the yellowish pallor and slight swelling of the face, the fine and scanty beard, the breathlessness, and extreme weakness all pointed to this conclusion. Even the attack of coma, hitherto so difficult to explain, fitted in with this opinion in a very simple manner. As the result of an harassing journey there was produced an abnormal exhaustion of the resources of the thyroid gland in a patient in whom they were already very restricted. This had caused a severe and sudden infiltration of the nervous centers, producing an attack of coma. The immobility secured by the unconscious condition of the patient permitted the recovery of the secretory activity of the gland, and the consequent absorption of the infiltration, so that the coma passed off without leaving any paralysis or loss of function. On being submitted to thyroid treatment, this man regained strength, color and self-confidence, his appearance being shown in Fig. 31. The anemia completely disappeared, but his eyesight did not improve nor could it be expected to do so.

A last example showing the utility of an inquiry into the family history is the case of M. A., whose photograph is shown in Figs. 32 to 34. This is the most severe case of myxedema which I have yet met with, and also that which I have most closely studied and the treatment of which I followed from day to day. When I first saw him, the patient was 63 years of age. As you see by his photograph, he was much infiltrated and weighed 221 lb., although he ate very little, having a distaste for all food, especially meat. He suffered much from breathlessness and was incapable of the slightest exertion. Three years previously he had had an attack of epistaxis, which lasted five days and threatened to prove fatal, when the bleeding was arrested by an injection of antidiphtheritic serum. Soon after this he became suddenly comatose for a period of eight hours. As he had long been known to suffer from albuminuria, and had been treated for Bright's disease, the coma and epistaxis were naturally attributed to the renal affection and regarded as signs of uremia, while the dyspnea, intellectual dullness, headaches, vertigo, and noises in the ears were believed to be due to the same cause. This interpretation must be admitted to be both scientific and logical. He also suffered from nocturnal incontinence of urine which caused him great distress. He rapidly improved under treatment, his appearance after two months being shown in Fig. 34. At this stage he was still weak and his features were somewhat haggard, but the fierce expression they had assumed was quite misleading as the man was amiability itself. His appearance after fourteen months' treatment is shown in Fig. 34. He has become a little stouter, but is in complete possession of all his faculties and his face well reflects his character as he shows extraordinary energy in the management of his affairs. His recovery was absolutely complete. Some idea of the extent of the myxedematous infiltration may be obtained by a study of the loss of weight presented by this patient. His original weight was 221 lb., which was reduced in the course of two months' treatment to 163 lb. He thus lost 48 lb., or about 23 per cent. of his total weight in sixty days, being at the average rate of nearly 13 ounces a day.

I naturally inquired into the family history and found that about ten years previously the patient's sister had died in a state of coma following great fatigue on the occasion of a removal. She had formerly had an attack of coma and had for some years presented albuminuria and been treated for Bright's disease. A photograph of this sister is reproduced in Fig. 35. You will observe that it has been carefully retouched in order to supply the absence of the eyebrows and that the photographer has unsuccessfully endeavored to reduce the swelling of the face and neck. It is certain that this woman suffered from myxedema and that the apparent Bright's disease, including the fatal attack of coma was due to myxedematous infiltration. Suitable treatment might have saved her as it saved her brother.

I need not further multiply examples, but may sum up by saying:

When you encounter the association of one or more of the following symptoms: Trophic changes in hair, eyebrows, eyelashes, teeth, or gums; an habitual chilliness, biliary disturbances with lithiasis, dyspnea with asthmatic attacks; menorrhagia, recurring abortion, hemophilia; melancholia, depression, weariness of life, migraine, vertigo, sudden loss of consciousness, noises in the ears; somnolence, rheumatoid changes in the muscles, ligaments, or aponeuroses; nocturnal incontinence of urine, pollakiuria, loss of appetite and obstinate constipation—think of a possible deficiency of the thyroid secretion.

Treatment.—I will conclude with some practical indications as to treatment. The theory of thyroid defect which I have submitted to you is based on the undoubted existence of an infiltration, the amount of which varies with the degree of deficiency, but which is always present. This theory agrees with all the known facts and is strongly supported by the complete restoration of the body as the result of treatment. There is no destruction of even the most delicate tissues, since all of them are capable of resuming their functions after the administration of thyroidin. This theory also assists us in judging the progress of the patient and explains the various incidents which may be produced in the course of treatment. *Thus, the too rapid absorption of the infiltration from the muscular, nervous, connective, or osseous tissue causes painful phenomena exactly similar to, but more acute than, those experienced during the primary distention.* These pains are easily explained by the too sudden shrinking of the walls of the cells, and perhaps also by the increased oxidation of their contents. Too intensive a treatment produces violent headaches, neuralgia, anginiform cardiac symptoms which are apt to alarm both the patient and the doctor. Very acute rheumatoid pains also develop in the muscles, tendons, and joints, especially affecting the anterior muscles of the leg, the extensor tendons of the foot, and the joints of the toes. I have already spoken of the rise in temperature which occurs in the course of too rapid treatment.

In the treatment of myxedema, whether mild or severe, let us have the courage to be patient and proceed slowly, as it is unnecessary to cause the absorption of more than 3½ to 5 ounces of infiltration per day.

In adults a dose of 5 grains of thyroidin, corresponding to an English tabloid of thyroid extract, is quite sufficient, and even this small dose often provokes disagreeable symptoms in connection with the heart, muscles, and joints. Absorption of infiltration should be controlled by daily weighing of the patient. It is found that children tolerate thyroidin better than adults.

This fundamental treatment should be assisted by the observation of certain dietetic rules. Wine, beer, alcohol in every form, and also tobacco, should be prohibited, because these toxic agents diminish the activity of the thyroid gland, and it is important to spare that of the patient, however much degenerated it may be.

Complete rest in bed is also useful during the first period of treatment, because when in bed the thyroid secretion of the patient is not expended in useless muscular action. Certain forms of mild thyroid defect derive benefit from the administration of small doses of arsenic, iodine, or bromine, because these substances form part of the thyroid secretion. Arsenic is of value in the forms associated with migraine, while a combination of iodine and bromine benefits the cases of incontinence of urine. A few doses of an active purgative may be required to clear the viscera when loaded after long-continued constipation.

I need hardly say that I absolutely forbid all cold bathing, but hot baths on the contrary are both useful and pleasant to the patient.

When the infiltration has been absorbed, that is to say, when the patient no longer loses weight, one must endeavor to fix the dose of thyroidin necessary to maintain him in health. This varies from 1 to 6 tabloids a week, the amount being slightly increased in winter and decreased in summer. When once the patient is cured one should not be alarmed to see him increase slightly in weight, as with the better assimilation an increase of stoutness is to be expected.

Finally, it may happen that a case of myxedema comes under observation so late that treatment seems hopeless, the patient having sunk into a state of complete coma, and death seems imminent. I recently saw a woman in whom at times false respiratory movements occurred, giving the impression of Cheyne-Stokes breathing in a dying person. For several days two nurses took turns at her bedside in order to support her chin. A metal tube was inserted between her teeth and connected with a supply of ogygen, and at the same time thyroidin was administered by hypodermic injection. The symptoms rapidly improved, the periods of suspended respiration became less frequent, the somnolence disappeared, and the temperature rose considerably—an evident sign of the oxidation of the infiltration. I consider this patient was saved by the hypodermic injections of thyroidin.

In a case of prolonged coma one would be justified in performing lumbar puncture for the relief of the nervous centers.

I have now sketched the leading features of thyroid defect in its various degrees. I have not been able even to enter on a number of interesting points, but I have said enough to enable you to observe around you facts which you have perhaps hitherto not suspected. It is for your to complete these notions, and in order to do so it suffices to think of them. Trousseau has well said that the life of a physician should be a long meditation.

Just as we search all our patients for tuberculosis, syphilis, alcoholism, a day will come when a systematic examination will also be made to ascertain their thyroid powers and defects. The question of the internal secretions is coming more and more to the foreground. Innumerable possibilities may arise from it. I must now conclude and thank you for the attention and time you have so liberally given me.

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INTRATRACHEAL INSUFFLATION.*

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As early as the middle of the sixteenth century Vesalius I. recognized the possibility of aerating the blood, after the chest had been opened, by passing a continuous current of air through the lungs; while in 1667 Hook read before the Royal Society a paper entitled, "An Account of an Experiment Made by Mr. Hook by Preserving Animals Alive by Blowing Through Their Lungs with Bellows."

*A lecture delivered at the New York Polyclinic Medical School and Hospital, April 16, 1914.

In his experiment, Hook, having laid open the entire thorax of a dog and removed the pericardium, sustained the animal's life, first by reciprocal inflation and deflation of the lungs, in imitation of normal respiration, and then by means of a constant current of fresh air under such pressure that all respiratory movements of the lungs themselves were suspended. Both methods were successful in continuing animation and the pulmonary circulation.

While mechanical respiration remained a valuable adjunct of laboratory experiment for almost 250 years, its failure as a human resuscitative measure in the practice of such surgeons as LeRoy of France, and Monroe and Dalrymple of England, forced the scientist, John Erichson, in 1845 to conclude that, "In spite of all the improvement and modifications of the technique and the methods of inflation by bellows, mechanical respiration never again came into favor and was speedily forgotten when the postural methods came into use."

Marshall Hall was especially severe in his condemnation of forced mechanical respiration by means of bellows, and until 1887 the postural resuscitative methods of Hall, Sylvester, Schäfer, and Howard were extensively employed.

On July 23, 1887, Dr. George Edward Fell of Buffalo, N. Y., after all the postural methods of resuscitation had been tried and failed, by means of forced respiration saved the life of a patient who had taken twenty grains of morphine and some chloral hydrate, even after the pupils had dilated in the last stage of asphyxia. Within about three months following, Prof. Dr. Boehm of the Allgemeines Krankenhaus in Vienna saved the life of Dr. Langer by the same method.

Other successful cases of a similar character followed, and established a new epoch of artificial respiration. In practice Dr. Fell used an especially devised face mask and a trachectomy tube, and lated an intubation tube, the invention of Dr. O'Dwyer, connected to a single bellows and provided with a coronet piston exit valve, by the manipulation of which inflation and deflation of the lungs could be made to duplicate normal breathing. In one instance, the case of Dr. Williams, reciprocal respiration was continued intermittently during four days, with recovery of the patient, and without any untoward pulmonary laryngeal or systemic complications.

It was through the incentive given to artificial respiration by the introduction of Fell's method of "forced respiration," and his adaptation of etherization to the technique, that the surgery of the thorax, through its utilization became a possibility. F. W. Parham of New Orleans was the first to successfully remove a sarcomatous growth from the walls of the thorax, using "forced respiration anesthesia" by the Fell-O'Dwyer method, for purposes of the narcosis and combating pneumothorax. The operation was performed under reciprocal breathing, and the chest walls were closed with the lungs fully inflated. Complete recovery of the patient ensued.

About 1896 the French surgeon, Tuffier, in association with Hallion, after exhaustive intrathoracic experimentation under continuous insufflation, concluded that, "the success of this method on animals justified its use in man." In 1902 Matas turned his attention to a solution of the surgical problems involved in pneumothorax.

Kuhn of Cassel, who had made intubation a specialty since 1895, in 1905 came out with a positive differential method for compensating pneumothorax, based on insufflation by intubation. He at first closed the mouth tight, but in 1908 improved his previous technique by introducing two tubes in one, a narrow tube for inbound compressed air and a wider one for the exhaust. After many experiments on the human being, Kuhn found it advisable to keep the tube out of the trachea, and to stop it just below the larynx. While Kuhn demonstrated the pulmonary application of anesthesia by intubation to Czerny of Heidelberg, Trendelenburg of Leipsic, Angerer of Munich, and Lotsch of Berlin visiting each of these surgeons personally, nevertheless the method was not favorably received for use in intrathoracic surgery on the human subject.

In 1908 Robinson of Boston intubated through the mouth to the bifurcation of the trachea, sending in air under pressure through a cannula, and letting the exhaust escape by way of the remaining lumen of the trachea. Later Robinson investigated the Volhard-Sollman method of oxygen insufflation, by means of which, during animal experimentation, life could be sustained without distention of the lungs; but he was distracted from perfecting this or the air-insufflation technique by becoming interested in progressive improvements which he made in both the Brauer and Sauerbruch methods.

Mikulicz, however, must be credited with the first systematic investigation of the physiological problems besetting intrathoracic surgery. At his suggestion in 1903 Sauerbruch began a series of experimental researches, and in 1904 completed cabinets for intrathoracic surgery, using respectively positive or negative pressure.

While Sauerbruch soon discarded his hyperatmospheric apparatus in favor of his negative-pressure cabinet, Brauer, working independently, developed the first positive-pressure chamber to come into general use. The apparatus devised by Karewski resembled closely that of Bauer, as did also the initial cabinets of Janeway and Green. The devices of Tiegel and Brat-Schmieden were essentially of the emergency or laboratory type, although an effort was made to adapt them to the more exacting requirements of intrathoracic surgery on the human subject.

What Carrel has termed the "classical type" (cabinet) of apparatus has found its apotheosis in the new intrathoracic surgical pavilion of Willy Meyer at the German Hospital, New York, in which it is possible to operate differential, positive, or negative pressure at will.

Until the present popularization of intratracheal insufflation by the Meltzer-Auer technique, whatever real progress has been made in intrathoracic surgery on the human subject must be credited to the "classical style" of apparatus.

In 1908 Meltzer saw Sauerbruck doing intrathoracic surgery, and later witnessed some of Willy Meyer's operations at the Rockefeller Institute, and seeing both pleural cavities wide open and the animals continuing to breathe, but not trusting the evidence of his own eyes he went into his laboratory to verify the experiments. A year later, in association with Dr. Auer, he published an article on "Continuous Respiration without Respiratory Movements." After Meltzer had perfected the technique of intratracheal insufflation in his laboratory, Elsberg, with the assistance of Yankauer, developed an apparatus for its use on the human subject, and personally administered anesthesia by

this method for a successful thoracotomy performed by Dr. Lilienthal at Mt. Sinai Hospital in 1910.

Meanwhile, Morriston Davies, after a thorough investigation of all the intrathoracic apparatus and methods in vogue, perfected and used a hyperatmosheric device, combining both the advantages of the cabinet and intratracheal insufflation techniques, and to Elsberg, and Peck (New York) and Davies (London) belong the credit, not only of adapting intratracheal insufflation to the requirements of intrathoracic surgery, but also of demonstrating its value as a technique of narcosis in the surgery of the head and neck.

While the "classical type" of the cabinet and intratracheal style of apparatus are in apparent competition for supremacy, still each has its possibilities and its limitations, and further clinical experience alone will determine their respective utility in certain definite intrathoracic surgical procedures.

Physiological Considerations.—Progress in intrathoracic surgery has depended absolutely on the mechanical control of pneumothorax during the operative procedure. This mechanical control has varied in different methods, from that of Hook, now represented by the Meltzer-Auer technique, in which the lungs for certain periods have been so distended by a constant current of air as to preclude more or less any respiratory movements, to that of Volhard-Sollman, in which the lungs have been allowed to collapse, while a current of oxygen sustained life.

However, for all practical purposes, reciprocal breathing, under manometrically controlled positive, negative, or differental pressure, has proven the only safe method of compensating pneumothorax during intrathoracic operations upon the human subject.

Any consideration of pneumothorax involves an understanding of some elementary facts of the respiratory mechanism. Respiration is made possible in the thorax of the human subjects by a partial vacuum existing in the pleural space after the contraction of the lungs during expiration. This vacuum is represented by a varying negative pressure of from 4 to 10 mm. of mercury. Consequently thoractomy requires either positive-pressure insufflation, with or without respiratory movements, or autorespiration in the negative or differential pressure cabinet, to prevent the collapse of the lung resulting in dyspnea, displacement of the thoracic viscera, shock, and death.

With the body of the patient within the cabinet in which the air has been rarefied to approximately the negative pressure in the pleural cavity (4 to 10 mm.) and the head of the patient is outside the chamber, permitting the respiring of normal pressure atmosphere, Sauerbruch, by varying the negative pressure as required, has been able to conduct intrathoracic operations with almost the same confidence as in abdominal surgery. In the Meyer cabinet differential pressure allows the surgeon to use positive, negative, or combinations of both pressures as needed. The great distinction between the cabinet control of pneumothorax and intratracheal insufflation is that in the former autorespiration is denpended on to conserve life, and already overtaxed and weakened nerve centers are called upon to formulate respiratory impulses, while during intratracheal insufflation these centers can be made to remain passive, thereby adding a determining factor between success and failure. Moreover, in some operative procedures those muscles which participate in respiration or are rendered inactive, thereby making the use of intratracheal insufflation all the more imperative. This demand is accentuated whenever during the course of any intrathoracic procedure dislocation of the posterior lobes of the lungs inhibits the usual respiratory movements.

Respiratory movements are not only concerned in the aeration of the lungs, but also contribute a factor essential to the normal maintenance of the pulmonary circulation and of considerable importance to that of the systemic. Thus the pulmonary circulation may be regarded as of double function, the ventricular, impelling the blood onward with rapid pulsations of the cardiac rhythm, while the lungs contribute the slower but more voluminous impulses of the respiratory cycle. (Davies.)

Hence it is that during intracheal insufflation Meltzer has found it inadvisable to use a pressure which altogether suspends respiratory movements, resulting in apnea and CO_2 asphyxia, and suggests that, in so far as it is possible or necessary, the lungs be periodically deflated five or six times to secure not only a more satisfactory diffusion of the air and anesthetic in the smaller bronchi and alveoli, but also to eliminate CO_2 accumulation, and further to preserve the stimulus of respiratory movements upon the pulmonary and systemic circulations. In cases of open pneumothorax in which the respiratory mechanism is not paralyzed, spontaneous respirations offer the required aid to continuous intratracheal insufflation.

However, it is always advisable to arrange for occasional interruptions of the continuous insufflation, especially in operations in which the thorax has to be laid wide open and the posterior and inferior portions of the lungs have to be dislocated, in which condition spontaneous respirations are of no avail. The occasional deflation of the lungs insures the continuance and efficiency of the pulmonary ventilation under all circumstances. It is essential, however, that this deflation be not allowed to result in a complete collapse of the lung, for reinflation under the circumstances may leave portions of the lung atelectatio.

Moreover, such deflation is valuable as a diagnostic factor in differentiating healthy from pathological lung tissue by the change of color and the presence or absence of proper distention. Again partial deflation is useful in left-sided pneumothorax, particularly in suturing the wounds of the heart, under which circumstances hemorrhage from the heart wound, according to Friedrich, diminishes in proportion as the lungs are allowed to collapse.

The partial pneumothorax thus becomes the regulator of the hemorrhage and is allowed to persist until suture of the heart wound has been completed, after which the pericardium and pleura are closed with the lungs properly reinflated.

Extensive laboratory experiments, which have been verified by post-operative results in the human subject, prove conclusively that so far as respiratory complications are concerned intratracheal insufflation is an innocuous procedure even in the presence of the lobar pneumonia. Also it has been found in practice that the recurrent air-stream through the trachea precludes the possibility of aspirating vomited material or hemorrhage from the pharynx.

Physiologically, the intrinsic value of intratracheal insufflation is exemplified not only in the original work of Fell, but also in the laboratory

experiments of Shaklee and Githens on the treatment of strychnine poisoning, in which, although the very centers of respiration were paralyzed, intratracheal insufflation reached the climax of its usefulness as a measure of resuscitation and the conservation of life.

Meltzer has also found that anesthesia by intratracheal insufflation is far superior in many respects to the usual methods of administering ether. The anesthesia is much safer, far more readily controlled; less of the anesthetic agent is used, patients go under and come out more rapidly, and an efficient method of artificial respiration is immediately at hand to take care of untoward complications.

In recent studies on the influence of intratracheal insufflation on blood pressure and respiration, Meltzer and Githens found that a manometric pressure of from 30 to 40 mm. and a percentage of ether just sufficient to complete anesthesia, from 50 to 75 per cent. were innocuous, but that an increase of pressure and the percentage of ether for any appreciable length of time would result in an undulating fall of blood pressure, a slowly and diminished excursion of respiratory movements, with final cessation of breathing, although the heart continued to beat.

Resuscitation was possible in animals within 20 minutes by the insufflation of pure air. From the experiments it appeared that an overdose of ether first paralyzed the functions of the medulla and then much later the functions of the heart. Hence the caution in administering intratracheal insufflation to reduce the ethery percentage in ratio to the shallowness and diminished rate of respiration.

Untoward respiratory and associated cardiac complications may also result from operative manipulation of the vagi and their branches, and the resulting false apnea may be controlled by the hypodermic use of atropin.

An increase of pressure, accomplished either by means of the air current or indirectly by momentary pressure on the larynx, is valuable not only in gauging the proper distention of the lung, but also in obviating cyanosis and in overcoming the resistance of neurotic individuals to the anesthetic effects of the ether. All investigators have found it expediennt to add a tank of oxygen to their armamentarium for intratracheal insufflation. Under certain circumstances a persistent cyanosis will develop, which nothing short of oxygenation will control.

While Brauer uses the Roth-Drager, and Davies the Alcock regulating chloroform apparatus in conjunction with mechanical respiration for purposes of pulmonary anesthesia, ether seems to be a far safer agent for routine narcosis by this method.

As early as 1827 Portal produced an artificial pneumothorax without thoractomy by the injection of sulphureted hydrogen gas into the thoracic cavity to place the lung at rest when affected with tuberculosis. Holmgren pursued the same principle of treatment for unilateral pulmonary tuberculosis even in cases in which adhesions between the visceral and parietal pleuræ contraindicated its use. Hamman of Johns Hopkins is now utilizing a similar technique with nitrogen gas. In the presence of adhesions, the preliminary injection of saline solution to collapse the lung is advisable before injecting the gas to produce the therapeutic pneumothorax.

Perforation of the thoracic wall does not always result in pneumothorax, unless the opening is larger in diameter than that of the glottis, or is valve-like in character as in oblique puncture of wounds. As a rule, pneumothorax will disappear when the opening in the chest wall has been closed by the adjacent integumentary structures. These two facts have enabled surgeons, by means of tubes under water and the use of rubber tissue dressings, to allow for post-operative drainage of the thorax without artificial control of pneumothorax.

Technique of Intratracheal Insufflation Anesthesia.—Apparatus for intratracheal insufflation anesthesia has multiplied rapidly since the popularization of the method by Elsberg. However, all apparatus is similar in certain essentials. The source of air current may be provided by foot bellows, hand-driven or electrically-driven pumps, and tanks of compressed air. The air-current may pass directly into the ether container, or as is more advisable, is stored in a low-pressure tank or gasometer from which it passes into a Wolf bottle, to be heated and moistened, and thence by regulating valve, either directly into, or only partially through the ether container, thereby providing for aeration pure and simple or insufflation with varying percentages of ether.

Also a source of oxygenation is an expedient adjunct. The tube from the apparatus connects with a mercury manometer and thence to the intubation tube.

Davies, adopting Kuhn's idea of a double intubation tube, uses a manometer to gauge the inlet and outlet air pressures.

All experimenters have concluded that for the Meltzer-Auer technique a silk-woven catheter 30 cm. long and of a diameter one-half that of the glottis, usually from 22 to 26 of the French scale, serves as the best intubation tube. It should have an opening similar to the rectal tube at the tracheal end, should be absolutely smooth and semi-rigid to prevent it from being expelled by coughing or from being compressed while in position.

Its introduction is best accomplished after the preliminary introduction of narcosis by ethyl chloride-ether or nitrous oxide-oxygen-ether anesthesia.

Intubation is greatly facilitated by means of either the Jackson direct laryngoscope, Fischer's modification of Hayes's instrument, or the introducer devised by Cotton. After the patient has been deeply narcotized the mouth is opened wide and so held by a gag. The head is well brought forward and the tongue pulled forward by an assistant until the opening of the larynx is brought into view. The metal guide is introduced into the opening and the intubation tube is gently pushed onward until it is seen to pass over the epiglottis into the larynx, after which the metal guide is withdrawn and the tube is pushed further into the trachea until it meets an obstruction, which is either the wall of the right bronchus or the bifurcation of the trachea. It is then withdrawn an inch and is anchored in position to special mouth gags provided for the purpose.

The distance from the incisors to the bifurcation of the trachea is from 9 to 10 inches in the infant, 12 in a child, and about 17 inches in the adult. The glottis in the adult is one-half the distance between the incisors and the bifurcation of the trachea, and Elsberg suggests making the intubation catheter accordingly to insure greater accuracy in adjusting its location.

One-eighth to ¼ gr. of morphine hypodermically

ten minutes before the administration of ether to reduce the irritability of the larynx; or from twenty minutes to half an hour previously when preliminary anesthesia by ether is not resorted to. The induction of narcosis by intratracheal insufflation produces spasmodic coughing while the patient remains conscious.

With the intubation tube introduced to the correct position, air may be heard rushing through the catheter. Spasm of the larynx may now occur for a few moments, but is of no consequence. At this juncture the tube from the apparatus is connected to the catheter with the pressure gauge of the manometer controlling the air supply at 20 mm. and the ether percentage at 50. If the lungs are not kept properly distended by a pressure of from 10 to 20 mm. Hg, the intratracheal tube is either out of position in the right bronchus or is too small and is allowing too much air to escape by way of the trachea. In the first instance the tube must be retracted and in the second either a larger sized tube must be introduced or else slight compression of the trachea around the tube at the jugulum must be intermittently utilized. Too large a tube causes CO_2 accumulation and cyanosis.

Complete muscular relaxation is usually obtained with from 50 to 75 per cent. of ether, and during the course of narcosis the breathing is quiet, respirations are reduced by one-third, the face remains pink, while the veins of the forehead become prominent; the pulse usually remains full, bounding, and regular, the pupils do not dilate, and frequently the corneal reflex is active, so much so that the condition of the patient is rather one of analgesia than anesthesia. Reaction from the anesthesia is so rapid that care must be exercised to keep up etherization throughout the entire operation. The depth of narcosis is controlled by increasing the air pressure and the percentage of ether while at the same time avoiding a condition of apnea, which supervenens at pressures of from 30 to 40 mm. Cyanosis and the accumulation of CO_2 during the operative procedure are controlled by periodic deflation and occasional oxygenation with air. Pure oxygen is dangerous on account of its toxicity when its tension becomes too great, and it is too freely absorbed by the circulation.

At the close of anesthesia, ether is turned off, and pure air, or a combination of air and oxygen, is insufflated under slightly increased pressure to blow out the other from the trachea and alveoli. Patients come out from under the influence of pulmonary anesthesia by this method almost as soon as the insufflation is discontinued and the tracheal tube removed. Apnea is present for a few moments after the removal of the intubation tube, but regular breathing is then rapidly re-established. Post-anesthetic vomiting, headache, dyspnea, and cardiac complications are of rare occurence. Postoperative pneumonia, interstitial emphysema and pleural effusions have followed intrathoracic operations done under both cabinet and intratracheal insufflation methods and the determining etiological factor in the complication has not been readily determined. However, caution must be directed to a technical mishap which may occur, and that is an accidental injection of fluid ether into the lungs. Fischer quotes a case in his own experience in which death resulted from this contretemps and the mishap has occurred in laboratory experiments. Only apparatus should be used which mechanically precludes the possibility of such an occurrence.

Again, post-operatively, it may become necessary to resume insufflation without anesthesia to control shock, to aid flagging respiration and circulation, and to prevent serious effusions. Under such circumstances the success of Fell in saving life under the most disheartening conditions must be remembered, and the method pursued to its limits.

Aside from its value purely as a resuscitative measure in asphyxia, drowning, poisoning from drugs and anesthetics, the convulsive stage of rabies and tetanus, impaired respiratory function in certain diseases, it must also be remembered that intratracheal insufflation as a method of anesthesia is a very desirable adjunct to the surgery of the head and neck, and especially for operations on the spine when the patient must be placed flat on the stomach during the course of operative procedure.

While etherization in association with intracheal insufflation appears to be the safest form of anesthesia for intrathoracic operations, Boothby, after using the nitrous oxide-oxygen-ether technique, has been favorably impressed with the latter method, and Willy Meyer also suggests that the innocuousness of nitrous oxide may play an important rôle in conserving patients under thoractomy the additional shock of a poisonous anesthetic agent.

Fourth Street and Broadway.

AN EPIDEMIC OF TYPHUS FEVER IN VAN, TURKEY.

By C. D. USSHER, M.D.,

VAN, TURKEY.

During the past two years a very fatal disease has been making terrible ravages among the soldiers of the Van, Bitlis, and Erzeroum vilayets. Many thousands have died, and the disease has not been confined to the military, though its spread among the populace has been surprisingly limited, and the mortality much less than among the soldiers.

During the winter and spring of 1912-1913 we heard reports of an epidemic in Mush which had carried off more than a thousand soldiers and four doctors. The military physicians of Van were sent there to investigate and reported that it was typhoid fever. The medical inspector of Bitlis went to Mush to investigate, returned to Bitlis, sickened and died in a hotel there. Two German teachers from Aleppo were traveling across the country for their summer vacation and stopped at the hotel. As they had no traveling bedsteads with them one of them used the bed on which the Turkish doctor had died, though of course he had no knowledge of the fact, it was ascertained by later investigations. They occupied the room from Monday till Thursday, when they left for Van. The following Wednesday one of them was taken with chill, aching, and severe fever, and died on the thirteenth day of a disease which the Turkish and quarantine doctors failed to diagnose. I spent the summer in a trip to the meeting of the Medical Missionary Association in Jerusalem. On my return I found an epidemic among the forty-five hundred soldiers in Van. There was much secrecy about it and I could get no more information at first than that it was typhoid; then I was told that it was dengue (a disease absolutely unknown in this altitude and latitude), then it was diagnosed as influenza. At this time I saw a case thickly broken out on the chest and trunk with a dark exanthem resembling very closely the appearance of measles.

The man happened to be a Protestant soldier so I called at the military physician's club and asked permission to see the patient who was in their hospital. The doctors insisted on bringing him out to me on a stretcher, the hospital being so foul that the doctors entered it with handkerchiefs to their noses, and the patients lying on the floor were packed three or four in a bed without room to step between them. While I waited groups of sick soldiers were brought from distant barracks, some of them too sick to sit alone on horseback—they were held in their saddles by comrades. As the hospitals were already taxed to their limit, these poor fellows, riding wooden pack-saddles, were sent back to their barracks. The man I was seeking to visit as a friend, not as a physician, having been brought, I was informed that he had influenza, and that the eruption was the eruption of influenza. I thought to myself that I had never heard of this eruption accompanying influenza, but not wishing to expose my ignorance. I went home and looked up the subject. On the way home I called on the general in command of the army corps and offered to put thirty beds in our hospital at the service of the sick soldiers. This and other offers of help were refused, but a few days later, money having come to pay off some whose term of service had long since expired, about a thousand men were discharged, many of them from the military hospitals, and some of them in a dying condition. Many others were sickening with the disease, and soon our hospital was filling up. It did not take long observation to determine that the disease was typhus exanthematosus.

In an epidemic some eight years ago we found calcium sulphide a valuable remedy, apparently aborting the disease very promptly. This time we had a supply of pills and tabloids on hand. They were over a year old, however, as it takes from five to twelve months to import our supplies, and we could not get the full physiological effect, even giving 24 grains in 24 hours, half a grain every half hour. To this we attributed the failure to get the same results obtained in the previous epidemic. Nevertheless our mortality in private practice and in the hospital was less than 3 per cent. while the mortality among the soldiers was about 75 per cent. I tried to induce the military and quarantine doctors to try the calcium sulphide in the military hospitals and barracks, but they refused on the ground that it was not in their books and their books said that there was no remedy which modified the disease. Then they were themselves attacked by the disease, came to our hospital, and recovered. In the hospital we lost two patients. One of them had a complication of mumps, and the other had chronic bronchitis and asthma and died badly cyanosed. Outside the hospital the only case lost was a man sixty-six years of age who had worn himself out nursing three or four other cases. In some cases with very violent delirium, neosalvarsan was administered intravenously in 0.60 gm. doses and seemed to help materially and to stop the delirium.

My object in writing this, however, is not so much to speak of the treatment as to corroborate what has already been published as to the means of transmission. As I write we have a typhus patient occupying the only available bed in the surgical ward, with a hernia case on one side of him and a popliteal abscess on the other, and we are sure neither of them will contract the disease. The epidemic has been spread by soldiers all over the country, and we hear that the American Hospital in Harpoot which has had twenty-five cases has been closed for disinfection by order of the Government. The native physicians, with few exceptions, seem afraid to go near a typhus patient, and want phenol solution and alcohol to wash their hands with if they have been in the room with one. We consider that we have proved conclusively in our hospital that the only means of transmission is vermin. Our nurses have been exposed to every other form of contagion from the breath, desquamation, discharges, constant association day and night, and all this in an over-tired condition, and not one of them has contracted the disease. The typhus patients have been put in the same ward with surgical, pneumonia, dysentery, and even confinement cases, and not a single patient has become infected in the hospital. One of the male nurses subjected himself to infected body lice, and promptly contracted the disease (incubation five days, I think). I personally removed the lice from his body. We have become so sure of the mode of infection that, being compelled by lack of bedding, we put patients with other troubles in the beds which had been occupied by typhus patients. We made no further change than clean sheets and pillow covers, and though in several cases the limit of incubation has passed three times over, there has not been a single instance of infection.

During the epidemic I had the misfortune to be laid up with a subluxation of the spine which recurred when I climbed the fifty-nine steps between our house and the hospital. This prevented my getting around as I desired for three weeks, but I was favored with the visits of a number of physicians, civil and military. Our conversations resulted in the cleaning up of the barracks and hospitals and the boiling of all of the clothing and bedding of the soldiers, which promptly put an end to the epidemic that had already carried off more than twenty-five hundred of the soldiers in Van. Nineteen officers also succumbed.

Later experiences with calcium sulphide have not confirmed our former happy results. Though there has been distinct benefit from it, we have not found it act as specifically as reported in our article on the "Therapeutics of Calcium Sulphide," published in the MEDICAL RECORD, September 25, 1909.

DIABETES MELLITUS FOLLOWING INTERVAL OPERATIONS OF BILATERAL MASTOIDECTOMY AND UNILATERAL EXENTERATION OF ETHMOID, SPHENOID AND MAXILARY SINUSES.

BY VIRGINIUS DABNEY, M.D., F.A.C.S.,

WASHINGTON, D. C.

ON December 27, 1913, Dr. Howard Fletcher, Fairfax, Virgnia, referred to me a farmer's wife, for examination of a discharging ear, which he had not seen himself. The history of this case is as follows:

Mrs. C. H. P.—No lues, no tuberculosis in family of herself or husband; no serious disease herself; never sick in bed (till two months ago, when she had influenza) save at delivery, twice; children healthy. Earache December 24 in night; drum ruptured next day; very deaf ever since. December 27: temperature normal; septic color; left nostril blocked with polyps; right middle meatus filled with thick yellow pus (chronic bilateral suppurative ethmoiditis; acute suppurative otitis media, unilateral); reports difficulty in nasal respiration for only two months; teeth carious and irregular; roots exposed; gums spongy and bleeding (Riggs' disease); discharge from left ear profuse. December 28: temperature 100° F.; snared and divulsed

eight polyps, chiefly from hiatus semilunaris, left; pus showed streptococci in abundance and a few *Staphylococci aurei*, from ear and both nostrils. December 31: snared two more polyps from middle turbinate; removed middle turbinate, which was followed by gush of pus from ethmoid labyrinth; increased flow of pus from both nostrils; temperature 98° F.; leucocytes, 8,000; mastoid very sensitive; ear discharge more watery and profuse (streptococci). January 1: morning temperature 103.2° F.; leucocytes, 15,000; mastoidectomy, left; bone thoroughly disintegrated; 25 millions stock streptococcus vaccine injected at operation; temperature dropped from 103° to 98° F. from 2 P. M. to 9 P. M., and rose again to 104° F. by midnight; no sugar in urine before operation or next day; urine scanty; no thirst other than usual after anesthetic (*i.e.* ether); right drum ruptured as patient was leaving room for operation. January 3: temperature 100.4° F.; right ear discharging freely; culture from both ears, mastoid wound and nasal chambers all showed streptococci alone; 30 millions stock vaccine at 2 P. M., temperature falling a degree and a half by 8 P. M. January 5: temperature 99° F.; discharge from right ear less. January 7: 35 millions autogenous vaccine; temperature normal. January 12: patient's condition excellent for five days; to-day temperature rose to 99.2° F.; 40 millions vaccine. January 16: temperature normal; 45 millions vaccine. January 22: right ear discharge suddenly increased; ethmoid suppuration thought original cause, along with empyema of antrum; so exenteration of ethmoid, sphenoid, and antrum done; polypoid degeneration and caries extensive in all sinuses; no sugar or albumin in urine. January 27: right mastoid painful; temperature 103° F.; mastoidectomy; extensive disease. February 3: left hospital; wounds all healing as rapidly as usual; patient benefited more than usual; gain in weight, improvement in color, and general physique very marked.

From February 5 to May 1, the mastoid wounds did not fill with the usual speed, nor did the canine fossa wound, which was the only suggestive element in the convalescence. Both middle ears began to discharge profusely May 1, and loss of weight began to be noticed by patient, who occasionally spoke of her thirst, and, once, of her eyesight being not so good as usual. May 15, she mentioned all her symptoms to Dr. Fletcher, who at once had an examination of her urine made, which showed nearly 4 per cent. of sugar. Upon the institution of proper dietetic treatment all her symptoms disappeared, one mastoid wound closed at once; the other has practically done so, and her weight has returned to within five pounds of normal. The following points are interesting: (1) no sugar despite frequent tests till three months after third operation; (2) none of the classical symptoms, such as thirst and retinitis, before this time; (3) remarkable effect of vaccine on the temperature, but none on the progress of the disease.

1633 Connecticut Ave.

A MODIFICATION OF THE CRILE CANNULA.

By ALFRED KAHN, M.D.,

NEW YORK.

To my mind, the Crile cannula is the most simple cannula that we have; but its use has presented difficulties which have caused many suggestions to modify it in certain respects. To me, its most conspicuous defects are its fragility, ease in breaking; and owing to its smallness, the difficulty in handling, and thereby controlling it. Having these two defects in mind, I have endeavored to improve it and have done so in the following way: I have had an instrument made of a hard, bronze, non-tarnishing metal such as is used in the manufacture of many operating knives. This metal is hard to nick or scratch, will not rust, and will stand rough usage. The Crile cannula very often breaks at the junction of its handle portion with the cannula piece. In difficult transfusions where an artery is placed under much tension, in drawing it toward the vein for connection, I have broken many of these cannulæ. I have, therefore, modified the instrument by separating the handle and cannula parts entirely, and this presents many advantages, most important of which is a larger, longer, more solid and firm handle, which allows easy manipulation. The illustration will make the instrument understandable.

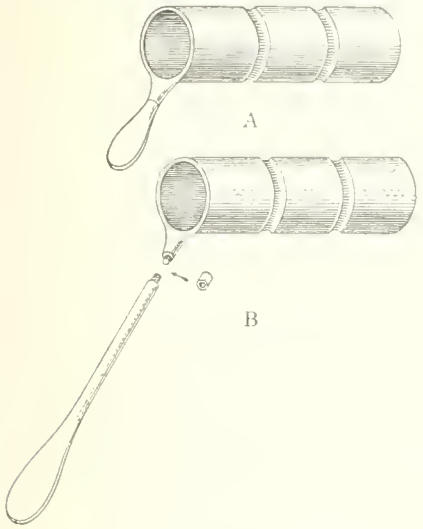

Fig. 1.—A, the Crile cannula with short handle; B, the author's modification, with handle unscrewed showing the lock-nut.

After the artery and vein are connected, the rod is unscrewed from the cannula. There is no handle dangling between the vessels; only the little cannula tube. This makes the operation much more clever. There is a small lock-screw between the rod and cannula pieces.

34 East Fortieth Street.

Medicolegal Notes.

Malpractice—Evidence.—In an action for malpractice it appeared that the plaintiff consulted the defendant for catarrh, from which he had for years been a sufferer. He testified that he had a cold, and so informed the defendant. The defendant performed two operations on the nose, removing the anterior ends of the lower turbinals. After the second operation, a mastoid abscess appeared, and there was another operation for this. The mastoid operation left a depression in the head back of the left ear, which some months afterwards was filled with paraffin injected under the skin. The paraffin was injected three times, but each time sloughed out. After a verdict for the plaintiff a new trial was granted. On appeal it was held that there was evidence sufficient to take the case to the jury, but not to warrant the direction of a verdict for the defendant. It was held competent for the plaintiff, though not an expert witness, to testify that he had a severe cold at the time, and that he so informed the defendant.—Swadner v. Schefcik, Minnesota Supreme Court, 144 N. W. 958.

Claim Agent's Authority to Employ Doctor.—In an action by a physician to recover for medical attendance upon an injured employee of the defendant street railway, on the ground that it had been authorized by the defendant's claim agent, evidence that the plaintiff had been paid by the defendant for the treatment of other injured employees brought to him by a former claim agent was held to be admissible, as showing the extent to which the defendant held out the authority of its claim agents, and as showing how far the plaintiff was justified in assuming that they had such authority.—Pritchard vs. Old Colony St. Ry. Co., Massachusetts Supreme Court, 103 N. E., 692.

Liability of Husband for Unrequested Operation on Wife.—It is held that a husband is not liable to a surgeon who operated upon his wife during the husband's temporary absence from the city, where the wife did not request the operation, but merely passively acquiesced in it, and no person having any power of agency for the husband requested or authorized it.—Kennedy vs. Benson, New York Appellate Division, 144 N. Y. Supp., 787.

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THE DUMDUM MYTH.

THE German Emperor recently sent a note to President Wilson complaining that the French and English were using dumdum bullets, a practice condemned by all civilized nations as inhuman. President Poincairé and Sir Edward Grey have officially and categorically denied the charge, and there can be no doubt whatever that the Emperor was mistaken. The Allies have made the same accusation against the Germans, and, of course, are equally mistaken. The explanation of the error on both sides is not far to seek. In an editorial comment on Colonel La Garde's recent work on "Gunshot Injuries" in the MEDICAL RECORD of May 2, we prophesied that there would be a return to inhumanity in the next war because of the use of the spitz bullet recently introduced by Germany and adopted by several other armies, that of Great Britain and the United States among them. This bullet is quite short, of conical shape, and tapers so gradually that the center of gravity is thrown back near the base; consequently, in spite of its great initial velocity and flat projectory, it has a tendency to turn sideways upon meeting any obstacle, although it will go through the soft parts making a small clean-cut channel, and do little or no injury unless it hits a vital organ. In the article on "Gunshot Wounds" in the fourth volume of the "Reference Handbook of the Medical Sciences" Colonel La Garde says of this bullet: "The least resistance upsets it and in turning at great velocity the wounds it inflicts are very much lacerated and otherwise attended with destructive effects which are not unlike the wounds inflicted by dumdum bullets. For this reason, the new pointed bullet is a great disappointment to military surgeons. In experiments which we conducted two years ago, we found the resistance encountered in the hip-joint, chest, and abdomen of cadavers sufficient to cause the bullet to turn and the resulting wounds were like those of an expanding or metal-patch bullet. Colonel Roosevelt, in his 'African Game Trails,' refers to the wounds of the pointed bullet as having a slashing effect against large game. At 280 and again at 180 yards he brought down two bulls each with one shot, the bullet making 'a terrific rending compared with the heavier ordinary shaped bullet of the same composition.'"

In all probability these spitz-bullet wounds have been mistaken for the explosive lesions of the dumdum bullets, and the accusation of the German Emperor was therefore made in good faith, but in curious ignorance of the effects of the missiles used by his own army. Nevertheless the dumdum or a similar bullet has been occasionally used in this war, but by civilians. East Prussia, for instance, is a game country and the hunters there use the dumdum type of bullet in the chase. The Russian invaders of that country have been frequently attacked by "snipers" who used their hunting rifles loaded with dumdums. It is possible that the civilian hunters in eastern France did the same, and so an occasional dumdum may have been found in the bodies of the German wounded, but that the armies of any of the nations now at war are using this bullet is altogether improbable. They have no occasion to use it, for the spitz bullet is almost as destructive and its employment is just as brutal.

THE PERIODIC ASTHENIAS.

A DISTINCT clinical entity characterized by the occurrence, at definite intervals, of crises of fatigue, is described by J. Dejerine and E. Gauckler in the *Presse Médicale*, June 17, 1914. They point out that in the domain of psychiatry almost all the constitutional psychoses are dominated by the notion of periodicity. For instance, paranoia, the periodic psychosis, manic-depressive psychosis, circular insanity, and more particularly psychasthenia and cyclothymia are all characterized by their periodicity. In many cases of cyclothymia, associated with the attacks of psychical depression there is also a pronounced physical fatigue. There are some cases, however, in which there occur periodically attacks of physical depression which are not accompanied by any mental disturbance. These cases are regarded by the authors as of common occurrence clinically and are designated by them under the name "periodic asthenias." Similar crises in a minor form occur as a normal phenomenon in almost every individual. Extremely rare are those beings who possess a perpetual physical equilibrium, just as rare as those who display an even tenor of mind and character. Devoid of any psychological element, the mild asthenic crisis constitutes a simple and slight crisis of physical weakness. The individual affected gives evidence of a normal intellectual and moral activity. He manifests, however, repugnance for every physical effort; in fact, the slightest exertion causes extreme fatigue. There is at the same time a more or less pronounced loss of sexual desire. Some of the patients attribute their condition to atmospheric and possibly to transitory arthritic changes. The periodic asthenias occur equally in men and in women, usually in early life, and sometimes after infectious diseases such as typhoid fever or severe influenza. The attacks rarely exceed one week in duration and may last only one or two days. In some cases they recur three or four times a year, and in other instances they may be repeated every fifteen days.

Apart from their periodicity the chief character-

istics of these attacks are their sudden appearance and disappearance and the absence of any apparent cause. There is a type of these cases in which the crises of fatigue are particularly severe. Physical effort is almost impossible. There may or may not be certain associated modifications in the pulse and arterial tension, changes in the sebaceous glands and hair follicles, digestive disturbances, etc. Attacks of migraine are frequently observed. Sleep is normal and the appetite is usually good. Frequently a loss of weight accompanies the crises. This loss may be considerable, amounting in rare instances to from ten to forty pounds. On the other hand, in some cases there may be a gain in weight. The duration of the major attacks is on an average two months, but there are cases which last much longer, in this respect resembling an attack of melancholia. The termination of the crisis is remarkably sudden. No etiological clue is furnished from the viewpoints of sex, temperament, constitution, heredity, and pathological antecedents.

In the diagnosis of this condition, the clue to which resides chiefly in the periodicity of the attacks, a number of other conditions must be ruled out, such as ordinary physiological fatigue; the subjective fatigue occasionally observed in neuropaths; the asthenia associated with organic disease, such as tuberculosis, and disturbances of the ductless glands; constitutional neurasthenia, particularly in young people; syphilis, either inherited or acquired; and finally, paresis, which may be manifested in the beginning by attacks of marked asthenia. Frequently the diagnosis is made difficult by the presence of a secondary neurasthenia.

In seeking the cause of the periodic asthenias, the attention is firmly riveted on the ductless glands. The asthenia of suprarenal origin is well known. Similarly, asthenia is a marked symptom of myxedema and of exophthalmic goiter. Experimental and therapeutic tests have shown that the pituitary gland stimulates both striated and smooth muscle fibers. It would appear as if the physiological efficiency of the muscular system is dependent upon an equilibrium of the endocrinous organs. The interconnection of all the glands of internal secretion is a fact that has been demonstrated in many ways. The functional or organic impairment of any one of them leads to an impairment of the entire group. One fact stands out in the study of the functions of the ductless glands, namely, the periodicity of these functions and of their disturbances. This is particularly the case with the ovary and the thyroid. The periodicity of the phenomena of exophthalmic goiter is fully recognized. On the basis of the above facts, Dejerine and Gauckler believe that the periodic asthenias represent a rupture of the endocrinous equilibrium, which disturbance impairs the sthenic function of the ductless system. The rupture may be spontaneous or it may be synchronous with biliary or arthritic manifestations.

The therapeutic test, however, throws the strongest light on the etiology of this condition. It has been found that the attack subsides upon the administration of thyroid extract in conjunction with the total extract of the pituitary gland. The dosage is from 0.10 to 0.15 gram of the former and 0.25 to 0.50 gram of the latter. With this medication the attack is brought under control in three or four days. The doses are then diminished to 0.05 to 0.02 gram and to 0.10 gram, respectively. Other elements in the treatment are the enforcement of complete rest during the attacks, and careful supervision of the general hygiene during the intercalated periods.

One of the important points brought home in the consideration of this condition is the conception of physical crises of fatigue entirely distinct from but comparable with the crises of mental depression, and having possibly a similar pathogenesis. Related to neurasthenia solely by virtue of their similar symptomatology, the periodic asthenias may be conceived as a melancholia of the body just as there is a melancholia of the mind.

THE PUMPKIN AS A DIURETIC.

THAT common articles of food may possess in addition to a high dietetic value certain medicinal virtues is indicated in the use of oatmeal as a diabetic cure, in the employment of buttermilk in gastrointestinal disorders, in the administration of acid fruits as antiscorbutic remedies, etc. A. Kakowski in the *Zeitschrift für physikalische und diätetische Therapie*, June and July, 1914, extols the value of the pumpkin when administered in large quantities in the treatment of nephritic edema. He finds that it fulfills the following requirements of the ideal diuretic food: it should contain considerable water and natural salts, but should be relatively free from sodium chloride; it should be well borne by the alimentary tract and should act as a mild laxative; it should have nutritive value and should be palatable; it should not irritate the kidneys and should not give rise to harmful metabolic products; and it should be easily obtainable, cheap, and easily preserved.

The edible portion of the pumpkin is prepared by Kakowski in the form of a porridge, by being cut into small pieces, covered with water, and boiled over a slow fire for two hours. It is administered to the patient with butter, milk, or cream, or preferably mixed with a rice soup. The preparation most agreeable to the patient is one in which the pumpkin is boiled with milk or with cream.

The pumpkin cure was employed in severe cases of chronic nephritis in which an edema had been rebellious to the entire range of medicinal diuretics. Long standing and massive edemas disappeared within a short time under this method of treatment. Diuresis occurred after the use only of enormous quantities of pumpkin, varying from three to six pounds per day, and in most cases directly proportional to the amount of this food that was eaten. The diuresis occurred only during the period of administration. The number of casts rapidly diminished, and the reaction of the urine became alkaline. There was no evidence of any irritating effect upon the kidneys nor of any otherwise harmful influence upon the body. In one of the author's cases as much as 252 pounds of pumpkin were administered

in the course of 80 days without giving rise to any untoward effects apart from large fluid stools. In addition to its diuretic action the pumpkin is said by Kakowski to have a high nutritive value, which fact is of particular importance in the case of chronic nephritics in whom the diet is usually greatly restricted.

A Final (?) Word on the Benzoate of Sodium Controversy.

Three years ago, when Dr. Wiley's partisans were still inveighing against the findings of the Referee Board regarding the alleged poisonous action of sodium benzoate when used as a preservative of jams and meats, they claimed to derive much comfort from the results of a German investigation of the subject. The German Government, having become interested in the American dispute, had requested a board of experts to give an opinion on the use of benzoic acid and its salts in the preservation of food. This commission criticised the findings of the Referee Board on the ground that its experiments with large doses of benzoates were of too short duration, and conjectured that ill results might follow the long-continued administration of the preservative in very large doses. It also advised against the use of benzoates in food on the theoretical ground that, though they were evidently innocuous in small doses, one might eat and drink in the course of the day so many things containing them that a sufficient quantity might be taken to be injurious. The commission stated, however, that one-half gram (7½ grains) of benzoic acid or its salts consumed in divided doses throughout the day, must be regarded as harmless to the human body. This was sufficiently corroborative of the findings of the American Referee Board to convince any unprejudiced observer that the United States Government was justified, on the strength of this Board's report, in permitting the use of benzoates as a preservative, provided the fact of such use was stated on the package. Some more recent experiments made by Drs. Rost, Franz, and Weitzel of the German Imperial Board of Health (Arbeiten aus dem Kaiserlichen Gesundheitsamte, xlv, 425) have confirmed the previous findings as to the innocuousness of small doses continued throughout a long period and have shown that the fears expressed by the previous experimenters were groundless. They found that dogs could take daily doses of one gram per kilogram of weight of the animal for weeks and months without showing any toxic effects. This is the equivalent of over an ounce and a half per day for a man of 110 pounds, or 50 kilos, weight —a dose which could not possibly be taken in any amount of jam or other preserves that could be eaten in twenty-four hours. Rabbits could take even larger doses, from 1.5 to 2.4 grams per kilo of animal weight, the equivalent of about two to four ounces for a small man. This ought to dispose of the question finally, but probably will not, for those who were misled by the spectacular but not altogether scientific experiments of Dr. Wiley with his "poison squad" will never acknowledge themselves convicted of error by the German Imperial Board of Health after they have rejected the testimony of such men as Remsen, Chittenden, Herter, and Long, who composed the American Referee Board.

Solubility of Gallstones.

The discovery that human gallstones vanish when placed in the aseptic gall-bladder of the dog has encouraged physicians to search for solvents for these bodies *in vivo*. Thus far we know little of their relative solubility, which must depend largely upon their chemical composition. Although they consist so overwhelmingly of cholesterin, there is more or less calcium to be reckoned with. We know nothing of the differences between bile which forms stones and bile which does not. This subject was discussed by the Niederrheinische Gesellschaft fur Natur und Heilkunde of Bonn at their last meeting (*Deutsche medizinische Wochenschrift*, July 30). After Leo had related the results of his research on the dog and had expressed his belief that Carlsbad salts could dissolve gallstones, Prym announced that cholesterin is simply absorbed by the wall of the gall-bladder. Grube added that the disappearance of these transplanted stones could not be attributed to the Carlsbad water given the animals. Leo in closing the discussion showed that his researches were rigidly carried out, with controls. While not denying the spontaneous absorption of almost pure cholesterin calculi he insisted that the Carlsbad water hastened the process.

News of the Week.

The Red Cross.—The American Red Cross ship sailed from New York on Sunday of this week, having been detained several days by the necessity of having only American citizens in the crew. The Red Cross unit for Servia, consisting of Drs. Edward W. Ryan, J. C. Fonovan, and W. T. Ahearn, with Miss Mary E. Gladwin as supervising nurse, sailed earlier in the week on the Greek ship *Ioannina*.

The Illinois Health Department is to be remodeled if the report of the State Efficiency and Economy Commission appointed to consider a plan of reunion is adopted by the Legislature. It is proposed that the State health department should consist of a State board of health of five appointed unpaid members and a salaried health commissioner. The health commissioner is to be the executive head of the department and the board of health will act in an advisory capacity. In the department are to be included bureaus of vital statistics, of foods, of drugs, and of sanitary inspection. The scheme also contemplates boards to examine and license physicians, pharmacists, dentists and nurses, with power to revoke such licenses for just cause.

The Straus Milk Stations.—A report compiled by Miss Annie Nason, superintendent of the Nathan Straus Laboratories, which was recently issued, shows that the output of milk from eighteen stations amounted to 2,148,119 bottles in the past year. Besides this, during the three summer months, 1,747,984 glasses of pasteurized milk were sold at the stations in the parks and on the recreation piers. This completes the twenty-third year of the work of distributing pasteurized milk for babies.

A Safety Congress of Mayors has been called to meet in New York City on December 14 and 15, in connection with the second international exposition on safety and sanitation. The American Museum of Safety has sent out special invitatione to the mayors of all cities with a population of over

25,000, urging them to attend Congress together with the officials of their various municipal departments which have to do with public health, safety and welfare.

The Death Rate in New York.—The mortality during the week ending September 5 was considerably above that of the week previous, the death rate jumping over one-half a point per 1000 of the population. Compared with the corresponding week of last year the most notable feature of the week's mortality was the large increase in deaths from tuberculosis, violence, and from causes other than those generally styled prominent. The increased mortality from pulmonary tuberculosis was distributed among all the boroughs, each borough showing a considerable increase over that of last year. The cause of this increase was probably due to the high temperature on several days during the week hastening the deaths of many of the sufferers from this dreaded disease. There were twenty-five more deaths from violence, each borough showing an increase, the greatest increase being in the Borough of Brooklyn. Typhoid fever showed an increase of thirteen deaths over the figures for the corresponding week of 1913. The mortality for the first thirty-six weeks of this year was 14.05 per 1,000 of the population as against a rate of 14.33 for the corresponding period in 1913, a decrease of 0.28 of a point. The continuance of this rate would mean a saving of 1,563 lives in the year.

Septic Sore Throat a Notifiable Disease.—The New York City Department of Health has included septic sore throat among the infectious diseases all cases of which must be reported by the attending physician.

The Rhode Island State Medical Society held its regular quarterly meeting on September 3 at the State Sanatorium at Wallum Lake. The members entertained themselves in the forenoon with baseball and tennis matches and fishing on the lake. Dinner was then served in the main dining-room of the Sanatorium and after that the meeting was held with Dr. Chesboro, Vice-President, in the chair. Dr. H. L. Barnes, superintendent of the Sanatorium, read a paper entitled "Hints on the Recognition and Care of Consumptives for Busy Practitioners."

Economy in Tooth Filling.—In a recent number of the *Zahntechnische Wochenschrift* dentists are urged not to use any gold in teeth filling as long as the war continues. The paper estimates that the gold ordinarily consumed in dental work in Germany amounts to at least one million marks ($250,000) within seven months.

Personals.—Major Joseph Ford, Medical Corps U. S. Army, has been appointed military observer with the Austrian Army.

Dr. D. A. K. Steele has been appointed Senior Dean and Head of the Department of Surgery in the College of Medicine of the University of Illinois. It was largely through Dr. Steele's efforts that the College of Physicians and Surgeons became an integral part of the University of Illinois as its permanent Medical Department.

Dr. Otto Kiliani of this city, is serving as chief surgeon of a military hospital in Munich.

Dr. C. B. Murray has removed to 1143 Lexington avenue, New York.

Resigning British Honors.—Following the example of the emperor who is reported to have resigned his commission in the British and Russian military and naval services and sold the various stars and crosses given him by the rulers of these countries, the professors in the German universities have declared their intention to renounce all honorary membership and other distinctions bestowed upon them by British universities and scientific societies. Professor Roentgen also has given to the German Red Cross the medal presented to him by the Royal Society of Great Britain in recognition of his discovery of the *x*-ray. The medal, which is of gold to the value of $250, will be melted down. All of which, to the neutral mind, seems puerile and peevish rather than really patriotic.

The Travel Study Club of American Physicians, which made a successful study tour of Europe last year, has completed the plans for its 1915 study tour to the A. M. A. meeting in San Francisco, Honolulu, Japan, the Philippines, and China, with optional return via Siberia and Europe (war permitting) or via Canada. All those interested are invited to communicate with the Secretary, Dr. Richard Kovacs, 236 East Sixty-ninth street, New York.

American Hospital Association.—The sixteenth annual session of this association was held in St. Paul, Minn., during the last week in August. The meeting was very largely attended, over one thousand hospitals of the country being represented. The officers elected to serve for the coming year were: *President*, Dr. William O. Mann of the Massachusetts Homeopathic Hospital, Boston; *Vice-Presidents*, Dr. A. B. Ancker of the St. Paul City Hospital, Dr. W. W. Kenny of the Victoria General Hospital, Halifax, N. S., and Miss Ida M. Barrett of the Grand Rapids, Mich., Hospital; *Secretary*, Dr. H. A. Boyce of the Kingston, Ontario, General Hospital; *Treasurer*, Dr. Asa Bacon of the Presbyterian Hospital, Chicago. The report of the Committee on Legislation commended the trained nurses in Oklahoma for their efforts in securing registration laws; declared that Iowa has the best State laws governing hospitals and nurses; that Chicago leads municipalities in this direction, and scored the California eight-hour-day law, which, in the opinion of the committee, is playing havoc with hospital routine and efficiency in that State. Announcement was made that the national hospital bureau will open in New York on May 4, 1915. The institution among other activities will make emergency purchases of supplies in this city for small hospitals which do not have ready access to large markets.

The National Medical Association, a society of physicians, dentists, and pharmacists of the colored race, met in sixteenth annual session at Raleigh, N. C., during the last week in August. The following officers were elected: *President*, Dr. F. S. Hargraves, Wilson, N. C.; *Vice-Presidents*, R. C. Brown, D.D.S., Richmond, Va.; W. A. Jones, Ph.G., Winston-Salem, N. C. *General Secretary*, Dr. W. G. Alexander, Orange, N. J.; *Assistant Secretary*, Dr. G. R. Ferguson, Charleston, S. C.; *Treasurer*, Dr. J. R. Levy, Florence, S. C.; *Pharmaceutical Secretary*, H. B. Marable, Ph.G.; *Dental Secretary*, S. L. Edwards, D.D.S. The association will meet next year in Chicago.

Medical Society of the Missouri Valley.—The twenty-seventh annual meeting of this society will be held in Colfax, Ia., Thursday and Friday, September 17 and 18, 1914, under the presidency of Dr. Flavel B. Tiffany of Kansas City. The scientific program will comprise twenty-five papers and two orations by prominent men in the profession.

On Saturday, September 19, the society will be entertained in Des Moines; clinics, both medical and surgical, will be held during the day to which all those in attendance at the meeting are invited. The secretary of the society is Dr. Charles Wood Fassett of St. Joseph, Mo.

Obituary Notes.—Dr. WILLIAM L. DUDLEY, formerly dean of the medical department of Vanderbilt University, died suddenly on September 8. He was born in Covington, Ky., April 16, 1859, and was graduated from the University of Cincinnati in 1880. He was a chemist by profession, his degree of M.D. being an honorary one bestowed by the Miami Medical College in 1885. He was demonstrator of chemistry in 1879 and 1880, and professor of chemistry and toxicology from 1880 to 1886 at the Miami Medical College. In 1886 he was appointed professor of chemistry at Vanderbilt University and was dean of the medical department from 1895 to 1913.

Dr. JOHN C. HALLAM of St. Louis, Mo., a graduate of the Marion-Sims College of Medicine, St. Louis, in 1899, and a member of the American Medical Association, the Missouri State Medical Association, and the St. Louis City Medical Society, died at the home of his mother in Centralia, Ill., on August 15, aged 37 years.

Dr. DUDLEY LEAVITT of West Stockbridge, Mass., a graduate of the College of Physicians and Surgeons, New York, in 1890, died at the House of Mercy Hospital, Pittsfield, after a long illness, on August 23, aged 50 years.

Dr. JOSEPH A. UTTER of Crawfordsville, Ind., a graduate of the Pulte Medical College, Cincinnati, O., in 1880, died at his home suddenly on August 21, aged 67 years.

Dr. THOMAS B. OWINGS of Ellicott City, Md., a graduate of the University of Maryland, School of Medicine, Baltimore, in 1852, and the oldest practising physician of Howard County, died at his home, after a short illness, on August 28, aged 84 years.

Dr. JAMES B. GARVEY of Dunmore, Pa., a graduate of the College of Physicians and Surgeons, Baltimore, in 1884, and a member of the American Medical Association, the Medical Society of the State of Pennsylvania, and the Lackawanna County Medical Society, died suddenly, from acute indigestion, at his home on August 23, aged 71 years.

Obituary.

H. SEYMOUR HOUGHTON, M.D.

NEW YORK.

Dr. H. SEYMOUR HOUGHTON, an ex-president of the Medical Society of the County of New York, died suddenly of heart failure on Friday of last week. He was born in this city in 1862 and was graduated in arts from Amherst College in 1883. He studied medicine at the Bellevue Hospital Medical College and received the degree of M.D. in 1886. After a term of service as intern at Bellevue Hospital he spent a year in foreign study and then began practice in this city. He was a member of the Medical Societies of the County and State of New York, of the Academy of Medicine, of the American Medical Association, of the Society of the Alumni of Bellevue Hospital, of the Hospital Graduates' Club, and of the West End Medical Society. In addition to serving a term as president he was one of the board of censors of the County Society from 1906 to 1913.

Correspondence.

LONDON IN WAR TIME.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—It is now a month since war began, and there is little surface indication of what is going on. The streets for weeks have been filled with marching troops, but not until yesterday were any wounded men brought from the Continent. No one knows more than the bare fact that there is a loss of six thousand men which appeared in the newspapers yesterday, but I learn from a good source that there was up to the end of the great battle which ended on August 28, nearly four times that number among the English soldiers. No one knows the great loss sustained by the Germans, and we have no figures disclosing the Belgian and French casualties, but they so far probably nearly appraise one-half of those reported for the entire Civil War in the United States.

It is needless to say that most efficient medical and surgical provision has been made in this systematic and thorough-going little island. I saw Sir Arthur Slogget, the General Director of the Medical Corps, a few days ago, who told me there was provision for half a million wounded. Of course the old hospitals, such as Netley, on Southampton Water, with a prebellum capacity of 1,080 beds, the Cambridge Hospital at Woolwich with 650, the hospitals at Greenwich, Hounslow, York, Fleetwood, Milton at Gravesend, and Milbank, are likely to be filled, but there are naval hospitals at Harwich, Portsmouth, and elsewhere that have already received many wounded sailors. All the London general hospitals are prepared for patients, and the care of Territorial troops will be their chief work. The London Hospital has been the first to receive its quota, and Sir James Fowler, with his associates are up to their ears at work. A special board, which includes Sir Bland-Sutton, Sir Arbuthnot Lane and Dr. H. D. Rolleston, with others, are controlling matters locally, and excellent results are expected. Not much is said about the so-called base hospitals, but it is to be hoped that some means will be adopted to avoid tedious transportation from the various ports of debarkation, thus saving the badly wounded and those suffering from shock additional exposure. It would be well if pavilion hospitals, like that of the Lincoln Hospital at Washington, D. C., during the War of the Rebellion, to house one thousand or more soldiers, could be erected at various points at the seashore. Of course at such a time everyone vies with everyone else to offer his home for hospital purposes and some of the greatest homes in England have been accepted, but, unfortunately, many of them have been found to be defective, so far as sewage and drainage are concerned. The big house of the Duke of Devonshire, in Piccadilly, is already occupied by the Red Cross Society, and a party of American Duchesses, headed by the Duchess of Westminster, have established a large hospital in a private house in the interior. Sir Alfred Fripp is the consulting surgeon, and much money has been raised for maintenance. Some people think it a mistake.

The reception of soldiers by families seems to be popular, but practical men shake their heads at the prospect of prolonged convalescence, especially if there is a pretty nurse or a sympathetic and eligible daughter of the house. Some of these homes are far away from railroads or medical aid,

and it is felt that the patient will not be as well as in a regular hospital.

A very extensive system of military sub-hospitals has been established in England so that now there are 150 organized in groups with a central hospital for each. In addition there are sixty civic hospitals. Other buildings are being converted, among them the Yarrow Convalescent Home at Broadstairs and the Royal Orphan Asylum. The Royal Victoria Hospital at Netley receives the most serious cases, all sick and wounded being landed near there at Southampton Docks.

The cases are, of course, of all kinds, but a very large number are wounds of the feet and legs and this is explained by the fact that the Germans do not as a rule take aim, but fire point blank while the piece is held at the hip. Most of the gunshot wounds are of the circular, clean-cut kind made by Mauser bullets, but there are a goodly number made by shrapnel or shell fire. This was found to be the case after the naval engagement of last week. Men from this were landed at Harwich with such grave injuries as the loss of arms or legs or other major injuries. The transport has also brought home many men suffering from acute rheumatism incident to exposure.

The neurological field is covered, and it is probable that Dr. Farquhar Buzzard and some of his colleagues of the Queen Square Hospital will be ready to give advice as to the necessity for laminectomy and craniectomy. Wise counsel of this kind will doubtless save many a life, or avert subsequent crippling and uselessness.

The Director General of the Medical Corps is an ideal officer. He is an alert, thin, wiry man, with a close cropped mustache and nervous manner. A keen executive, with plenty of knowledge and experience, he is exactly the man for the place at this time. Those who know him love him, especially the young men of the service, for he is tactful and kind and has little or no "side." It is unnecessary to speak of the medical corps, who are a scholarly and efficient lot of doctors—we shall hear from them later.

Many women are taking lessons in nursing, and the other day nearly 2000 presented themselves at the Polytechnic room to receive instruction and to offer their services for the field or elsewhere. It was necessary to divide this large number into classes of 500. Already volunteer nurses and physicians are going to the Continent. One hundred and thirty-five fully trained surgeons and nurses have been sent by the order of St. John of Jerusalem. Fifty hospital orderlies have gone to Havre; sixty-eight have been supplied to London hospitals.

ALLAN MCLANE HAMILTON.

LONDON, September 5, 1914.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

WAR NOTES—ANTITYPHOID INOCULATION—APPEAL OF CHIEF ARMY MEDICAL AUTHORITIES—OTHER DISEASES EPIDEMIC IN ARMIES—HOSPITAL PROVISION FOR WOUNDED IN LONDON AND COUNTRY.

LONDON, September 4, 1914.

THE war overshadows all our life and conversation. No one will talk of anything else except for a few sentences and then some subject connected with it is sure to come up. With brother professionals the danger of epidemics is ever present for they know that in most campaigns disease is more fatal than the sword. In the South African war the deaths from typhoid alone exceeded the number of men who fell in action. And yet the medical staff of the army is so satisfied of the efficiency of antityphoid inoculation as to wish it were made compulsory, as I understand it is with you and that your army is free from the disease. The Royal Army Medical College is thoroughly convinced of the protective value of inoculation and maintains a large stock of the vaccine from which it has supplied immense numbers of doses since the mobilization. It still continues the preparation of the vaccine under Major D. Harvey who has the kindly help of Sir A. Wright and the Lister Institute as far as he may desire it. There will therefore be at the disposal of the army medical staff ample supplies and the demand for compulsion is growing. Moreover it is being urged that the territorial forces should be inoculated and Col. Sir W. B. Leishman has appealed to the surgeons of this force to join in the efforts made to secure protection. He tells them that the pronounced benefits and harmlessness of the procedure are admitted by everyone who has any experience of it. It would certainly, he holds, be most rash to assume that the forces serving at home will not be exposed to the danger of epidemic typhoid and the value of inoculation is so well recognized in the regular forces that in foreign stations the surgeons have no difficulty in finding volunteers for the protective; thus he states that about 93 per cent. of the British garrison of India have undergone inoculation, and typhoid, which formerly caused from 300 to 600 deaths per annum, was last year responsible for less than 20.

The appeal of Sir W. B. Leishman has been endorsed by Professors Dreyer and Walker of the Pathological Department of the University of Oxford, who assert that the facts as to inoculation are indisputable and within the comprehension of every intelligent person. It is therefore high time that the Army Medical Department be empowered to insist on compulsory inoculation—that they should have to persuade officers and men in a time of war they pronounce well-nigh incomprehensible. Then they go on to direct attention to the fact that there is evidence that in some other diseases it seems probable that a degree of protection may be obtained from suitable vaccines.

They mention as examples cholera and dysentery, though as to the latter they recognize that the question is open to some uncertainty. They seem to be regarding the diseases from their epidemic tendency. From another point of view it might be suggested that sepsis would be a much more likely condition to be influenced by this method of treatment.

Many of the hospitals in London and large cities have placed at the disposal of the government a large number of beds for the reception and treatment of the wounded and sick invalided from the front.

The London Hospital was asked on Sunday if they could arrange to convey the first arrivals from the railway station to their institution. The secretary telephoned to the member of the committee he thought most likely, who replied—yes, and in half an hour he was able to send a van to the hospital for a supply of mattresses, pillows, etc., for the comfort of the wounded to be met at the station with a dozen other vans as well as this. This was

certainly a feat for the hospital and the member of the committee, Mr. Alfred Salmon.

On Wednesday another ambulance train brought up 127 wounded to the same station (Waterloo) but more time had been allowed and plenty of vehicles were in readiness to transfer them to their several destinations. The same day Bristol welcomed 130 wounded from Southampton which they reached by water and were sent on by ambulance train and conveyed to the Royal Infirmary. At Leicester 127 who had been wounded at Mons arrived in an ambulance train and were taken to the North Midland Hospital. These are only given you as samples of the provision being made by hospitals throughout the kingdom and in all cases the men are received with the heartiest welcome by crowds of citizens.

The report of the Select Committee on Patent and Proprietary Medicines which I briefly noticed the day after its publication last week is rather an important document extending to twenty-eight pages. It recommends that the administration of the law governing the advertisement and sale of these secret medicines and appliances be coordinated and combined under the authority of one Department of State. Further that this should be part of the work of a ministry of public health as soon as such a department is created. Until then it might be undertaken by the Local Government Board. A register of manufacturers, proprietors, and importers of these secret remedies it recommends should be kept by the department concerned and every one applying for registration should be required to make an exact and complete statement of all the ingredients and the proportions of them (other than wine and alcoholic strength of medicated wine), together with a statement of the therapeutic claims made or to be made for the article and a specimen of it to be furnished. This information will not be disclosed unless in exceptional cases, but the statements are to be controlled by analyses made confidentially by a government chemist. It is advised that a special court or commission be constituted with power to permit or prohibit the sale in the public interest and it is suggested that this might be such a judicial authority as a metropolitan magistrate sitting with two assessors, and that the president of the Local Government Board, or the Minister of Health, if such should come into existence, might have power to institute proceedings to enforce the law. In case of prohibition an appeal to the high court would be allowed. The authority would have power to require the name of a poisonous or potent ingredient to be shown upon the label. There are other recommendations as to the inspectors for the authority, the examination of advertisements, and the prohibition of some and of false trade descriptions, amendments of the stamp act, fees for registration, and so on.

A good deal has been said about the scarcity of some drugs and some have declared it amounted to a famine of the numerous chemicals usually obtained from Germany. A considerable rise in prices has been made on the strength of the shortage but it is hardly likely to last long for there are large stocks in the country and surely before these are consumed our own chemists or yours should be able to supply the demand. German chemists no doubt have excelled in the production of some drugs but as to a great number of compounds they have foisted upon us these have been accepted as useful by many who would have been better without them.

FIFTH ANNUAL SESSION OF CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA.

(From Our Regular Correspondent.)

In addition to the meetings held in the Grand Hall of the Hotel Cecil, on the evenings of July 28-31, sessions were held in the ballroom of the Hotel Savoy which were devoted to the discussion of certain surgical specialties. These meetings were exceedingly well attended, and the papers read and discussions thereon dealt with subjects of great interest presented by men of world-wide reputation.

On the evening of Tuesday, July 28, Dr. Charles W. Richardson of Washington, D. C., read a paper on congenital obstruction of the post-nasal orifice in which he said that the occurrence of this condition was described by many writers as a very infrequent form of nasal deformity, but that when the number of cases reported were considered one could but be impressed with the relative frequency of this type of nasal obstruction. He pointed out that it was possible that many cases of this kind of deformity had been in the past and even at the present time were unrecognized at birth as such, and when speedily dying, as a result of the obstruction to respiration, were placed under the general class of asphyxia neonatorum. The number of observed cases in children and adults had increased greatly during the past 20 years, but the number of cases observed in the newly born had not increased in the same proportion as the cases observed later in life. He believed this to be due to the fact that the general practitioner, and the obstetrician under whose observation the children were first brought, had not been sufficiently taken into our confidence and taught to be on the lookout for choanal obstruction when the new born infant manifested evidences of impaired or deficient respiration. This form of deformity apparently affected the female sex more frequently than the male. The relative frequency of the bilateral to the unilateral was in the proportion of 3 to 1.

Richardson considered the condition from all standpoints, and especially dealt with the pathogenesis of the congenital occlusion of the posterior nares at considerable length, drawing attention to the fact that several views had been brought forward, none of which could be unconditionally accepted. He was of the opinion that the diagnosis of this condition was not attended with any difficulty if one only had the thought of the disturbance in mind. The prognosis of the new born child was distinctly a problem of life or death. The important problem which presented itself was as to whether it was better to attempt expectant treatment or resort to an immediate operation, but expectant treatment should never be attempted unless the parents were intelligent, willing to make the sacrifice of time, effort, and want of rest, and had a sufficient number of intelligent painstaking assistants. The best form of operation was then minutely described.

Dr. Dundas Grant in discussing the paper said that the condition when bilateral was rare. Possibly it passed unobserved, and the cases were included among those of asphyxia neonatorum. During ten years of considerable experience of midwifery he was convinced that he had never met with a case, but it was so serious when overlooked that the characteristics could not be too well known. He then read an account of a case given by Dr. Ronaldson, and published in *Edinburgh Medical Journal* in 1881, one of Lord Lister's earliest house

surgeons in Edinburgh. Grant described various operations for the condition, and particularly commended that devised by von Eicken. Regarding the asymmetry of the face which ought to follow congenital occlusion of the choanal referred to by Richardson, he could only say that when the late Mr. Cresswell Baker and he looked for the atrophy in their two cases they found that any trace of it which existed was on the wrong side.

Professor E. Schmiegelow of Copenhagen, Denmark, read a paper on the results of operation (laryngofissure) for intrinsic cancer of the larynx, and said, in part, that surgical treatment of intralaryngeal cancer gave exceedingly good results, especially when compared with those obtainable by surgical treatment of cancer in other internal organs. In his opinion the whole of our present knowledge of the diagnosis and treatment of this disease was founded on the work of Semon and Battin, who, towards the end of last century, entirely revolutionized our views with regard to the malignancy of intralaryngeal cancer. Before their day the surgical treatment of this disease had always been regarded as almost hopeless, but Semon showed us that the chief reason of this was that the disease was always diagnosed too late, so that it was too far advanced to give any good operative result. Having further learned that intralaryngeal cancer in the great majority of cases appeared as a primary cancer of the vocal cord, and therefore soon caused hoarseness, we had thus the means of recognizing the disease at an early stage of its development while still limited to the vocal cord, and so of a probable radical cure by removing the diseased vocal cord through a laryngofissure.

Having made the diagnosis by means of laryngoscopic inspection, supported by microscopic examination of a portion removed through the mouth, one had to remove the growth as soon as possible by means of a laryngofissure. This operation should be performed as indicated by Bullin and Semon, who, about 1890, inaugurated this treatment and proved that this comparatively safe operation was sufficient if only performed early enough. The operation should always be performed under general anesthesia.

Thyrotomy could only be performed in 33 of his cases treated up to 1913. The result of these 33 thyrotomies was that 28 patients survived the operation, while 5 died from pneumonia, due chiefly to postoperative hemorrhage. Among the 28 patients recurrence took place in 10 cases, while 18 patients were alive and well. The functional result was exceedingly good in all cases. The voice was strong, generally sonorous, but in a few cases hoarse.

Sir St. Clair Thomson in discussing this paper related his experience of the operation of laryngofissure, and pointed out that it was obvious that both the public and the medical profession in Denmark were more alert in discerning the conditions which could be relieved by operation than they were in England, as shown by the large number of opportunities afforded to Professor Schmiegelow. It was frequently the case in England that a patient would suffer from hoarseness, perhaps for a year before seeking the aid of a throat specialist. He was in favor of Professor Schmiegelow's teaching and technique *in toto*, preferring general anesthesia and preliminary tracheotomy. He removed the tracheotomy before the patient left the table, and got the patient out of bed as soon as possible. He remarked that in a series of seventeen operations for intrinsic cancer of the larynx he had had no unsuccessful cases, although one developed malignant disease of the parotid gland on the opposite side after seven years' immunity, clearly a new infection. As a rule, after the operation the voices were quite good, gradually becoming sonorous.

In none of his cases did thyrotomy reveal any error of diagnosis, although a preliminary microscopic examination of a removed portion was available in only six instances.

Dr. J. M. West of Baltimore read a paper on the intranasal surgery of the lacrymal apparatus after an experience of more than 225 operations. He described his technique for draining the lacrymal sac by establishing a permanent intranasal opening.

Dr. D. R. Paterson of Cardiff gave his experiences extending over nine months with cases of lacrymal stenosis, but refused to speak dogmatically of the permanency of the relief obtained, as all his cases were comparatively recent.

On Wednesday evening, July 29, Dr. Logan Turner of Edinburgh read a paper on the application of skiagraphy to the mastoid region and its use in the detection of disease which was discussed by Mr. Sidney Scott, London. Mr. Hugh E. Jones, Liverpool, read a paper on some considerations which determine the extent of an operation in septic invasion of the lateral sinus, which was discussed by Mr. Hunter Tod, London.

One of the most important and interesting sessions of the Congress was the symposium on the surgery of cleft palate held in the ballroom of the Savoy Hotel. On Thursday evening, July 30, the subject was introduced by Dr. George I. U. Brown, Milwaukee, who, after enumerating the operative procedures employed for the correction of cleft palate, stated that all operations should be directed to the attainment of these three objects: (1) To covering the gap; (2) to obtaining of speech, and (3) to improving general health. Therefore, the cautions to surgeons should be (1) to do no correcting methods where natural physiological development would obviate its need; (2) to destroy nothing that might be wanted in such development, and (3) to do no more than was wanted at each step. Consequently he condemned destruction of the premaxilla, and was critical of compression of the maxilla. He was of the opinion that the operation should begin with closure of the lip as early as the first day, to be followed by closure of the hard palate, and lastly of the soft palate, completing the case in one and a half to two years. He favored lateral incision to relieve tension when necessary.

Dr. Joseph Rilas Eastman of Galesburg, Ill., read a paper entitled "Factors of Safety in Cleft Palate Surgery." He described the Langenbeck and similar flap operations, and went on to say that general anesthesia was never of much value in cleft palate surgery, and with the present development of local anesthesia might be said to answer no valuable purpose. Elimination of the general anesthetic, and employment of local anesthesia removed many of the dangers of palate surgery, and added greatly to its simplicity. He pointed out that in extensive operations the swallowing of more or less blood was almost unavoidable. No matter what position was used or what precautions were taken, some blood was usually drawn into the stomach during the repair of cleft palate. After all extensive palate operation, the blood was sometimes discharged in vomitus, but more often it was passed off by the

bowel. The presence of this blood in the stomach of an infant or small child was not infrequently productive of serious disturbance of metabolism. The symptoms arose usually very soon after the deglutition of blood, sometimes within a few hours. The absorption of the pyrogenic constituents of a large quantity of blood quickly induced a high fever.

Observing infants after a cleft palate operation it had occurred to him that the degree of fever varied directly according to the severity and duration of the operation, that is, the more blood swallowed the greater the pyrexia. It was, of course, possible that the presence of the blood simply led to fermentation of other intestinal contents with consequent disturbance of metabolism, but, however, this might be, the fact seemed established that the blood in the stomach of an infant was either directly or indirectly thermogenic, and was therefore a serious menace because of the high fever which it might induce.

Referring to the mode and time of operation Eastman remarked that it was an old and quite generally accepted view that to operate for cleft palate on a child under the age of three months was unwise. This as Sir Arbuthnot Lane had stated was a matter of tradition. Eastman thought that there was little doubt but that surgeons who made it a rule to operate in the second or third year would have a lower mortality rate than those who operated early. The reason for this was not far to seek. Only the strongest survived the two or three years without early operation. The late operations therefore were good surgical risks. How large a percentage of those which were not operated upon early perished from disturbances of nutrition before the third year it would be difficult to estimate. It might be safely conjectured that the percentage was high. Many of such could be saved by early operation.

Dr. Truman W. Brophy, Chicago, insisted that the gap at birth was only potential; the normal amount of tissue was there and should be used immediately to close what is in effect a wound. By lead plate compression and tension wiring perfect speech was produced, and Dr. Brophy showed three patients on whom he had operated for different conditions and at different ages, the results being demonstrated by their delivery of recitations.

Sir W. Arbuthnot Lane said that he only claimed for his operative procedure for the correction of cleft palate perfect simplicity. He had convinced himself that the generally accepted practice of putting off operation for four years was dangerous, and he had therefore decided to close the cleff in the lips and hard palate at the earliest moment possible. He closed the cleft in the soft palate a month or so after the first operation. His mode of operation was based on the principle of restoring to the infant as quickly as possible opportunities for development of the bones of the face. Mr. James Berry of London held the view that operation by median suture was the only one which restored the palate to its normal condition. When done properly it gave the patient the best prospect of subsequent good speech. He preferred to operate at the earliest time at which the cleft could be satisfactorily closed by median suture. The time hinged largely on the nature of the cleft. Narrow clefts, especially if limited to the soft palate, could be operated upon within the first few months of life. The common, single or double, complete cleft associated with harelip should be treated by closure of the harelip in earliest infancy, the operation on the palate being postponed until the second or sometimes the third year. At and soon after birth the cleft was usually very wide and the palatine arch low. If any median operation were attempted at this period it would usually fail unless preceded by the wiring operation of Brophy, which he thought too dangerous to be generally employed. As for the turnover flap operation he entirely agreed with Sir Arbuthnot Lane with regard to its simplicity, as also with his statement that most mothers of cleft palate babies were exceedingly anxious that operation should be performed as early as possible. Berry criticised Lane for never having brought forward any proof that the ultimate results of such turnover operations were really good. Referring to lateral incisions, he employed them much less than formerly, as he found that the wide mattress stitch in the soft palate, similar to that used by Brophy for this part, often rendered them unnecessary.

Mr. Percy Legg of London closed the discussion, and particularly insisted upon the necessity for remembering that while the securing of good speech was the main object of all operative methods, speech could only become good by careful education.

On Friday evening, July 31, in the ballroom of the Savoy Hotel, a paper was read by Lt. Col. R. H. Elliott, I.M.S., Madras, India, on the sclerocorneal trephining operation for glaucoma. This paper was discussed by Mr. Treacher Collins of London. Mr. F. Richardson Cross of Bristol read a paper on operative procedure for strabismus which was discussed by Mr. N. Bishop Harman of London. Mr. J. B. Story of Dublin read a paper on operation for senile cataract, discussed by Mr. Holmes Spicer of London.

Progress of Medical Science.

Boston Medical and Surgical Journal.

September 3, 1914.

1. An Example of Dissociated Personality. E. G. Grey and W. R. Sisson.
2. Some Observations upon Pyogenic Infections of the Upper Urinary Tract. A. L. Chute.
3. Treatment of Movable Kidney with or without Infection by Posture. H. Cabot and L. T. Brown.
4. The Roentgen Determination of Certain Renal and Ureteric Variations and Disorders. P. Brown.
5. The Early Diagnosis and Treatment of Manic Depression. A. H. Ring.
6. A Scheme for Promoting Efficiency in State Sanatoria. W. C. Bailey and C. C. MacCorison.

2. Pyogenic Infections of the Upper Urinary Tract.—A. L. Chute states that the diagnosis of the pyogenic infections of the upper urinary tract often presents much that is confusing. In the acute stage, if the swelling of the kidney tissue is enough to cause pressure on the capsule, there are pain and tenderness as well as temperature—usually the temperature is rather out of proportion to the apparent illness of the patient. Often, if the invasion is not very acute, there is little to localize the process and exceptionally it may be recognized only by the condition of the urine. This is especially likely to happen with young children when the question of an acute renal infection must always be considered in a patient presenting an indefinite illness with temperature. In the chronic renal suppurations—not alone the cases of pyelonephritis—but where there are abscess cavities, or even pyonephrotic sacs, provided the pus is not under tension, there are often no symptoms that point to the renal origin of the process. What subjective symptoms there are may, in fact, point more to the bladder than to the kidney. The sure way of diagnosis is the catheterization of the ureters. It allows not alone the localization of the suppuration, but the differentiation between kidneys showing foci of suppuration and kidneys that have

been turned into pyonephrosis so advanced that there is little secretion of water. In the same way collecting a urine from the ureter (not the kidney pelvis) of a suppurating kidney will give a very fair idea of the secretion and consequently of the extent to which the suppuration has destroyed its function. The application of the phenolsulphonaphthalein, and the indigo-carmine tests accomplishes the same results. The underlying principle for the treatment of the chronic infections is the securing of adequate drainage, in the cases where conservative treatment is possible. This consists in the simplest instances in freeing abnormally tied-down organs or in fastening in place abnormally mobile ones. In other instances it consists in doing plastics of various sorts. The object is to secure perfect drainage of the infected kidney. The result gotten in some of these cases of renal suppuration is gratifying even in cases that were unpromising; on the whole, however, the author's experience with conservative operations on kidneys that have shown definite foci of chronic suppuration, has not been very encouraging. The removal of a suppurating kidney in the presence of a well fellow is attended with such brilliant results that the author thinks one tends toward the radical operation. It is fair to expect, however, that one's increasing knowledge of the subject will lead in the future to more satisfactory results from conservative operations upon suppurating kidneys.

3. **Treatment of Movable Kidney, with or without Infection, by Posture.**—H. Cabot and L. T. Brown call attention to a certain type of individual having a body type with which ptosis in its various forms is commonly associated. Of this ptosis mobility of the kidney is a part. Obstruction of the ureter is at least a very important cause of renal infection. Many of these patients come to the surgeon on account of symptoms chiefly referable to the kidney and many of them have a pyelitis with more or less tendency to relapse. The fixing of these kidneys by surgical measures is sometimes a most effective measure but should it be possible to limit the mobility of the kidney by other means it is obviously desirable. The work done by Goldthwait and his colleagues suggests that considerable benefit may be obtained by alterations in posture and the authors' work has been in the determination of the effect upon these kidneys of alteration of posture similar to that suggested by Goldthwait. One of their patients was a woman in whom the symptoms were that she had much weakness in the abdomen with the result that it was impossible for her to sit up for long. There was much backache low down and at the back of neck and much abdominal pain. Four years ago the right kidney was hitched up and the appendix removed. These operations were performed for pain in the right side of abdomen. After this she was better for two years when she developed neuralgia in the left chest and then shingles on the left side. Since then the abdominal pain has returned and increased. The nights were bad. Digestion was poor. Vomiting occurred at times with much gas. The treatment was planned to change the shape of the body from the very cramped and poorly functioning condition. The hope was that as the body changed its shape there would come a readjustment of the abdominal organs which would allow them to functionate better.

4. **X-Ray Determination of Renal and Ureteric Variations.**—P. Brown divides the renal and ureteric abnormalities, in which the *x*-rays have proven to be a diagnostic factor into enlargements of the renal viscus, with but secondary reference to its pelvis; dilatations of the renal pelvis, with no especial reference to the general interstitial tissue; and a combination of renal enlargement and pelvic dilatation. The specific causes of such abnormal phenomena as usually seen by the roentgenologist as: hypertrophies from compensatory change; hypertrophies and dilatations from hydronephrotic change; hypertrophies and dilatations from change due to malignancy, such as the hypernephromata, etc.; and hypertrophies, with or without degeneration, from changes pyonephrotic or cystic.

5. **The Early Diagnosis and Treatment of Manic Depression.**—A. H. Ring notes that there are two somewhat typical ways in which the acute condition may come on: the first sudden, the second gradual. In cases of sudden onset the doctor is frequently not called until mental symptoms predominate; but it is not uncommon to learn that these patients have been treated for a week or more for acute indigestion, and have been known not to be well for two or three months. After memory has been prodded the family will say that they now realize that for a year or more the patient has not been himself but they never suspected anything of this sort. In the second type, *i. e.* those of gradual onset, the mental symptoms do not become marked for some time, the physical symptoms predominating. Most commonly the patients come under treatment for digestive disorders, liver trouble, and the like. There is, perhaps, no single psychosis which occurs with such frequency. Diefendorf says it constitutes from 12 to 20 per cent. of admissions to insane hospitals. In its early state there is no psychosis which so commonly goes unrecognized; it is tagged "just nervousness," "the blues," neurasthenia, or even as hysteria, and it frequently does not get beyond this mild form. Because of the mildness of its early symptoms and the slight degree to which the intellect is involved at first, its victims form by far the larger part of the so-called borderline psychoses. In the more severe forms with persistent insomnia, great elation or depression, and anomalies of nervous (volitional) control (excessive rapidity or retardation), it is easy enough to recognize manic depression, especially if accompanied by hallucinations or delusions. The preponderance of symptoms of manic depression are somatic. Whether of the depressive, manic, or the mixed phase it manifests itself mentally as a disturbance of the feeling, psychologically expressed as an exaggeration of the sense of pleasantness and unpleasantness. These patients frequently realize the mental disturbance before it is objectively evident. To this extent the personality is disturbed; but the patient can, if he exerts himself, in the early stage tell one that he knows the change is in himself, thus distinguishing his condition from dementia præcox, in which the patient insists that he is all right, but is abused by people or things outside him. This is not so true of the more advanced stage.

6. **Efficiency in State Sanatoria.**—W. C. Bailey and C. C. MacCorison point out that in one State sanatorium studied by them particularly not only was there almost no coöperation on the part of the patients, but an actual systematized antagonism against the efforts of the physician was found to exist. To put an end to this condition of affairs a fundamental working scheme was evolved. The patients were to divide themselves into two voluntary classes. The first was to be called the "sanatorium class," and here would group themselves those patients who really wished to get well, who would coöperate with and aid the senatorium management in every way, who would help others in the institution and who, when they left, would still keep up the fight and would get their societies and unions to study the problem and help to solve it. In the other class, to be called the "hospital class," were those who did not care particularly about their own health or that of others, who did not care to obey rules,

who did not want to coöperate, but simply used the sanatorium as a boarding-house. They were told that the regime for the sanatorium class was to be a strict one; but that the results would prove that it was for their benefit, and that from time to time the gain of those in the sanatorium class over those in the hospital class would be tabulated and furnished to the patients. The immediate results noted following the inauguration of this plan were a decrease in hemorrhages, pleurisies, and fevers, with an attendant falling off in orders for medicine special diets, and raw eggs. There was also a marked decrease in the number of needless complaints and fault-findings; in short there was established an esprit de corps. There followed week by week a marked increase in amount of weight gained, until the record for all the years has been surpassed by many hundred pounds.

New York Medical Journal.

September 5, 1914.

1. Carbolic Instillation in the Treatment of Bladder Tuberculosis. E. L. Keyes, Jr.
2. Compulsion Neurosis. A. Stern.
3. Abdominal Incisions. M. J. Horan.
4. Diagnostic Aids in Diseases of the Bones and Joints. H. Keller.
5. A New Instrument for Intravenous Injections. J. Frankel.
6. Autolactotherapy. C. H. Duncan.
7. The Tonsil from a Surgical Point of View. M. Lubman.
8. Congenital Absence of Uterus and Annexa. B. K. Chowdry.
9. A Second Infection with *Spirocheta pallida*. B. C. Corbus.

1. Carbolic Instillation in the Treatment of Bladder Tuberculosis.—E. L. Keyes, Jr., states that local treatment is occasionally and brilliantly effective in relieving the painful symptoms of bladder tuberculosis. Three principles that must be recognized in the treatment of such cases are: (1) The instrument must not enter the bladder. There are cases of isolated ulceration about the ureter orifice or fundus that may be treated successfully by fulguration for example but such cases are extremely rare. Usually the tuberculosis involves the trigonum up to the bladder neck, and the sensitiveness of this must be respected. (2) The bladder must not be distended. Here there are no exceptions. (3) The injection must give relief in proportion to the pain it inflicts. The following drugs have been used by the author for the relief of the symptoms of bladder tuberculosis: Thalline, gomenol, bichloride of mercury, and carbolic acid. Thalline sulphate is not very irritating. A saturated solution in water contains twenty per cent. of the drug and is much less irritating than a one to 1,000 solution of silver nitrate. The author has used it in strengths varying from three to twenty per cent. It usually gives no relief whatever; yet occasionally it is efficacious. Gomenol, though greatly praised by some, has in the author's hands achieved no more brilliant results than those obtained from thalline. As a rule it has not seemed peculiarly efficacious. Bichloride of mercury, on the other hand, has been of great service to the author in the treatment of these patients. It must of course be employed, as an instillation, not as an irrigation. The initial dose should not exceed a strength of one to 20,000 parts of water. Repeating the installation daily and increasing the strength rapidly, so long as the patient does not complain of any grave irritation one soon reaches the strength of one part bichloride to five or ten thousand of water. Carbolic acid acts when the foregoing fail. Rovsing suggested the use of this acid for the treatment of bladder tuberculosis, but no one has been able to achieve with Rovsing's method the success announced for it by its distinguished sponsor. He employs an irrigation of carbolic acid in five per cent. solution. He states that this solution should be injected into the bladder and permitted to flow out again, again reinjected, and so on, until the solution no longer returns smoky. The amount injected approximates the bladder capacity. One may safely begin with a solution of one to 200 of water and rapidly increase this to one per cent. before the patient complains of an increase in pain.

3. Abdominal Incisions.—M. J. Horan, as the result of experiments on the cadaver concludes that in some of the abdominal incisions, especially those of the right rectus, there is no apparent injury to the incision with a pressure of 120 pounds. In the incisions of the median line above the umbilicus, no apparent damage is done by high intraabdominal pressure. Median line incisions below the umbilicus give way under pressure of 20 pounds in one case, and forty pounds in another. Incisions over McBurney's point yields to less than twenty pounds pressure in some cases, especially those in which the air is introduced in the rectum. The deduction is that intraabdominal pressure is not alone the cause of hernia following any abdominal operation, as some of the abdomens were more tense with sixty pounds pressure than any seen by the writer after any operation.

4. Diagnostic Aids in Diseases of Bones and Joints.—H. Keller states that in order to make a proper diagnosis in disease of bones and joints, it is necessary to ransack every accessible part of the body in order to locate the cause of the infection; tonsils, teeth, and gums should be thoroughly inspected, the urine and feces should be analyzed carefully, and the organs of generation should be thoroughly examined. After one has found germs which look suspicious, one should do his utmost to ascertain by scientific means whether or not this germ is the sole cause of the trouble or a contributing factor only. Radiography is at once the best means at one's disposal for verifying clinical findings, provided the surgeon bears in mind the following facts: (1) If the *x*-ray is negative and the clinical signs are definite, one should depend upon clinical signs; (2) if the clinical signs are indefinite while the *x*-ray findings are definite, one should bear these findings in mind, but make sure that the plate has been taken by an expert on *x*-ray pictures, that the part has received the proper exposure, and that the plate has been properly developed; (3) no surgeon should depend solely upon the radiologist for the interpretation of findings in the plate; (4) it is always advisable to take anteroposterior and lateral views in diseases or injuries of bones and joints, in order to bring out all the features of the disease; (5) in order to recognize an injury or a disease around the joint, especially in young individuals, it is necessary to remember the time of development and ossification of the epiphyses; (6) plaster of Paris is permeable to the rays, while zinc oxide plaster usually mars the clearness of the shadow, and should never be applied to the part to be *x*-rayed; (7) it is always necessary to take a picture of the joint on the opposite side in order to be able to detect the slightest deviations from the normal; (8) there are times when cracks are seen and are interpreted by some as fractures, but they are no more than defects in the plate due to some unexplainable cause. The blood examination includes the complement deviation tests. In tuberculous disease of bone the coagulation time of the blood is usually prolonged (between six and seven minutes), also in those cases of arthritis in which coagulation time of the blood was below three minutes, the injection of pituitary extract hypodermically seems to have a beneficial effect. Tuberculin injections for diagnostic purposes are condemned; the focal reaction following injection of tuberculin is such as to be contraindicated in joint diseases. The author has investigated the power of absorption in joints in a

healthy state and has compared their absorptive power with that of other parts of the body and with that of diseased joints. Injecting one cubic centimeter of phenolsulphonaphthalein into the normal joint, and noting the time of its appearance in the urine by the addition of sodium hydrate solution, and then a day later giving an intramuscular injection of the same drug, and also noting the time of appearance of the drug in the urine, the absorptive power of the normal joint could be compared with the systemic absorption. By injecting one cubic centmeter of the same drug into the diseased joint and noting the time of the appearance of the phenosulphonephthalein in the urine after injecting the drug into the diseased joint and into the healthy one, one can tell the difference of the absorptive function of the two joints. The experiments showed that the normal joints have the same absorption time as the muscular region; that in long standing synovial disease, the absorption time may be prolonged even up to double the normal time; and that in early cases of diseases of the joint, one may find that the absorption time in the diseased joint is hastened compared to the normal one.

7. **The Tonsil from a Surgical Viewpoint.**—M. Lubman concludes that the tonsil has not participated to any great extent in the progress of surgery during the twentieth century. Whether it is a disease carrier and is sacrificed to human welfare, or whether it is a functionating organ and is enucleated as a martyr to ignorance, one can be certain that the average handling of the tonsils is reckless, unscientific, and inhuman. Upon examining the many evil effects which result from our operation at present, one is tempted to ask if the game is really worth the candle. Indeed, the tonsil occupies an open position, easy of access; and the operation is still further simplified by the instruments now at one's command; but this does not justify the crude and inhuman attitude toward patients, even to the extent of sparing an anesthetic. It is time for the medical profession to include the tonsil operation in the field of major surgery; by doing so one may hope that the tonsil operations will be considered more seriously, and invite all due caution; and this may eventually lead to a universal agreement as to the function of the tonsil and may produce excellent surgical methods.

Journal of the American Medical Association.

September 5, 1914.

1. A Few Points of Practical Importance in Obstetrics, Gynecology, and Abdominal Surgery. E. G. Zinke.
2. Newer Points of View Regarding the Part Played by Different Food Substances in Nutrition. L. B. Mendel.
3. Intermediary Protein Metabolism. O. Folin.
4. The Specific Dynamic Action of the Foodstuffs. G. Lusk.
5. The Total Energy Requirement in Disease as Determined by Calorimetric Observations. E. F. DuBois.
6. Common Errors in Gall-Tract Surgery. C. E. Ruth.
7. Trefoil or Stellate Keratectomy for Anterior Staphyloma. S. L. Ziegler.
8. Immunity in Measles. C. S. Woods.
9. Retroperitoneal Hernia Due to an Aberrant Middle Colic Artery. A. Primrose.
10. Further Observations on the Hemiopic Pupillary Reaction Obtained with a New Clinical Instrument. C. B. Walker.
11. Safe and Speed Extraction of the Immature Cataractous Lens Following Preliminary Capsulotomy. H. E. Smith.
12. Active Immunization in Diphtheria and Treatment by Toxin-Antitoxin. W. H. Park and A. Zingher, assisted by M. H. Serota.
13. The Use of Antitoxin in Diphtheria. S. S. Woody.
14. Treatment of Unlocalized Intracranial Injuries by Drainage through a Subtemporal Approach. V. P. Blair.
15. Treatment of Tabetic Optic Atrophy with Intraspinal Injections of Salvarsanized Serum. G. T. Johnson, L. Z. Breaks, and A. F. Knoefel.
16. Appendiceal Inflation. C. C. Waller.

1. **Points in Obstetrics, Gynecology, and Abdominal Surgery.**—By E. Gustav Zinke. (See MEDICAL RECORD, June 27, 1914, page 1190.)

2. **Different Food Substances in Nutrition.**—By L. B. Mendel. (See MEDICAL RECORD, June 27, 1914, page 1188.)

3. **Intermediary Protein Metabolism.**—By O. Folin. (See MEDICAL RECORD, June 27, 1914, page 1189.)

4. **A Specific Dynamic Action of the Foodstuffs.** By G. Lusk. (See MEDICAL RECORD, June 27, 1914, page 1189.)

5. **Total Energy Requirement in Disease.**—By E. F. DuBois. (See MEDICAL RECORD, June 27, 1914, page 1189.)

6. **Common Errors in Gall-Tract Surgery.**—By C. E. Ruth. (See MEDICAL RECORD, July 4, 1914, page 38.)

8. **Immunity in Measles.**—C. S. Woods calls attention to the apparent result of Hektoen's success in producing experimental measles as indicating beyond a doubt that measles may be transmitted by injecting the blood of a person having measles into another person in normal health. He relates an instance in which a woman in the eighth month of pregnancy contracted measles. The child, while in utero, must have had an ideal opportunity to acquire immunity against this disease. The child, however, now seven years old, had an attack of measles this spring. This emphasises the great difficulty of securing immunity and the power of the virus of measles to invade the human organism.

9. **Retroperitoneal Hernia.**—A. Primrose reports a case of retroperitoneal hernia which he regards as possibly unique, occurring as it does in connection with an extremely rare abnormality, namely, the existence of an aberrant origin and course of the middle colic artery which rose from the right iliac artery and passed upward to its destination to the transverse colon, forming a peritoneal pouch which contained the whole of the small intestine. The case is also of interest because while apparently all other cases hitherto recorded were either found accidentally post-mortem, or in operations caused by symptoms of the hernia, in this case the operation was done for gastric symptoms and the retroperitoneal hernia had given rise to no symptoms except a slight ileostenosis as revealed by the *x*-rays. The author notes that most cases of retroperitoneal hernia have a very intimate relation to the course of some particular blood vessel which becomes somewhat abnormally developed during fetal life and produces folds of peritonium and certain fossæ connected with these folds. It is important to note the relation of these blood vessels to the neck of the sac, as in operating for strangulation they might become severed and imperil the nutrition of a large section of intestine.

10. **The Hemiopic Pupillary Reaction.**—C. B. Walker draws the following conclusions: A weak hemiopic pupillary reaction may be masked by the pupillometer light when observed consensually. Light and dark adaptive phenomena, in addition to dispersion light, seriously complicate the hemiopic pupillary reaction. The hemiopic pupillary reaction is definitely present in anterior lesions, when examined by the rotary shutter method. The hemiopic pupillary reaction is also present in cases having every clinical evidence of being purely posterior cases, although necropsy examination is necessary to prove absolutely that there is no involvement of the optic tract or primary ganglion centers. Although it may be concluded from the examination of these cases that the peripheral retina does possess a weak pupilomotor sensitiveness, there is no evidence that the hemiopic pupillary reaction has any topical diagnostic value.

12. **Active Immunization in Diphtheria and Treatment by Toxin-Antitoxin.**—W. H. Park and A. Zingher, assisted by M. H. Serota, conclude that those who are definitely exposed to infection should be passively im-

munized even if the toxin-antitoxin injections have been given. The use of the Schick test eliminates the necessity of immunizing about two-thirds of those subjected to exposure, as, judging from a year's experience, those not reacting are immune. Those found to be naturally immune probably continue immune for a considerable period of time, possibly indefinitely. Active immunization is indicated when there is no immediate danger of infection and when it is desirable to lessen the number of susceptible persons. It is too early to decide whether active immunization should be attempted on a large scale. The lack of a sufficient response in at least 50 per cent. of those susceptible to diphtheria and the fact that the immunity lasts for but one or two years are drawbacks that will probably limit to some degree the usefulness of this procedure.

14. **Treatment of Unlocalized Intracranial Injuries.** By V. P. Blair. (See MEDICAL RECORD, June 27, 1914, page 1192.)

The Lancet.

August 15, 1914.

1. Heredity. W. Bateson.
2. Congenital Atresia of the Postnasal Orifice. C. W. Richardson.
3. Pregnancy Complicated by Severe Morbus Cordis: Two Cases treated by Hysterotomy under Spinal Anesthesia. J. B. Banister.
4. Gun Deafness and its Prevention. J. Horne.

1. Heredity.—W. Bateson presents an account of the discoveries made by Mendelian or analytical methods of study and the deductions which these physiological facts suggest in application both to evolutionary theory at large and to the special case of the natural history of human society. The recognition of the significance of heredity is modern. The term itself in its scientific sense is no older than Herbert Spencer. Historians debate the past of the human species and statesmen order its present or profess to guide its future as if the animal man, the unit of their calculations, with his vast diversity of powers, were a homogeneous material which can be multiplied like shot. The reason for this neglect lies in ignorance and misunderstanding of the nature of variation; for not until the fact of congenital diversity is grasped with all that it imports, does knowledge of the system of hereditary transmission stand out as a primary necessity in the construction of any theory of evolution, or any scheme of human polity. Darwin was the first to provide a body of fact demonstrating the variability of living things, whatever be its causation. Formerly it was hoped that by the simple inspection of embryological processes the modes of heredity might be ascertained. For the old methods of attack there has been substituted the breaking up of the main problem into its parts, such analytical study being called Mendelian because Mendel was the first to apply it. The allotment of characteristics among offspring is not accomplished by the exudation of drops of a tincture representing the sum of the characteristics of the parent organism, but by a process of cell-division, in which numbers of these characters or rather the elements upon which they depend, are sorted out among the resulting germ cells in an orderly fashion. Analytical breeding proves that it is according to the distribution of these genetic factors, to use a non-committal term, that the characters of the offspring are decided. The great differences which characterize distinct species are due generally to such independent factors, the essential principle being that an organism cannot pass on to its offspring a factor which it has not itself received in fertilization. Parents who are both destitute of a given factor can only produce offspring equally destitute of it, and parents both pure-bred for the presence of a factor produce offspring equally pure-bred for its presence. Whereas the germ cells of the pure-bred are all alike, those of the cross-bred, owing to the union of dissimilar germ cells are mixed in character. Each positive factor segregrates from its negative opposite, so that some germ cells carry the factor and some do not. Once the factors have been identified by their effects the average composition of the several kinds of families formed from the various matings can be predicted. In face of what one now knows of the distribution of variability in Nature the scope claimed for natural selection in determining the fixity of species must be greatly reduced. The doctrine of the survival of the fittest is undeniable as long as it is applied to the organism as a whole, but to attempt by this principle to find value in all definiteness of parts and functions, and in the name of science to see fitness everywhere is mere eighteenth century optimism. The appearance of contemporary variability proves to be an illusion. Variation from step to step in the series must occur either by the addition or by the loss of a factor. Of the origin of new forms by loss there seems to the author to be fairly clear evidence, but of the contemporary acquisition of any new factor there is no satisfactory proof. Variation now stands out as a definite physiological event. The notion has been abandoned that large differences can arise by the accumulation of small differences. Such small differences are often mere ephemeral effects of conditions of life, and as such are not transmissible; but even small differences, when truly genetic, are factorial like the larger ones, and there is not the slightest reason for supposing that they are capable of summation. There is evidence for disbelieving in the common theory that domestic animals have been developed from a few wild types. It is hopeless to reconstruct the steps in evolution of various forms of fowls from the Indian jungle fowl, while most of the new varieties of cultivated plants are the outcome of deliberate crossing. One cannot often actually prove variation by loss of factor to be a real phenomenon. Though one may have to forego a plan of variations by addition of factors, variation both by loss of factors and fractionation of factors is a genuine phenomenon of contemporary nature. That primordial life may have been of small dimensions need not disturb one. Quantity is of no account in these considerations. Shakespeare once existed as a speck of protoplasm not so big as a small pin's head. To this nothing was added that would not equally well have served to build up a babboon or a rat. The artistic gifts of mankind will prove to be due, not to something added to the make-up of an ordinary man, but to the absence of factors which in the normal person inhibit the development of these gifts. They are almost beyond doubt to be looked upon as releases of powers normally suppressed. The instrument is there, but it is "stopped down." The scents of flowers or fruits, the finely repeated divisions that give its quality to the wool of the merino, or in an analogous case the multiplicity of quills to the tail of the fantail pigeon, are in all probability other examples of such releases. In spite of seeming perversity, therefore, one has to admit that there is no evolutionary change which in the present state of one's knowledge one can positively declare to be not due to loss. Modern research lends not the smallest encouragement or sanction to the view that gradual evolution occurs by the transformation of masses of individuals, though that fancy has fixed itself on popular imagination. The isolated events to which variation is due are evidently changes in the germinal tissues, probably in the manner in which they divide. It is likely that the occurrence of these variations is wholly irregular, and as to their causation one

is absolutely without surmise or even plausible speculation. Distinct types once arisen, no doubt a profusion of the forms called species have been derived from them by simple crossing and subsequent recombination.

2. **Congenital Atresia of the Postnasal Orifice.**—C. W. Richardson states that congenital atresia is that form of obstruction of the postnasal orific that takes place in utero, the result of a misplacement or other malformation in the embryo, not in any way due to inflammatory reaction or pressure, and usually characterized by a more or less complete partition, obstructing one or both postnasal orifices. In considering the pathogenesis of the congenital occlusion of the posterior nares there are several views to consider, no one of which can one unconditionally accept. (1) Luschka considers the obstructing plate to be a projection upward and backward of the horizontal plate of the palate bone. (2) The Kundrat theory holds that the obstruction is due to an extension inward of the vertical plates of the palate bones. According to this view the vertical plates of the palate extend inward until they reach the inner wall of the choanal orific, and when occurring bilaterally they unite with their fellow of the opposite side, the vomer being received between the two plates. (3) According to Hopmann, the choanal obstruction is an extreme degree of the occasionally observed choanal asymmetry. The narrow groove which is often seen on the posterior surface of the diaphragm is the remaining evidence of the originally existing postnasal orifice. (4) The opinion advanced by Bitot holds that the plate forming the partition is a separate independent bone, as indicated by the separate sutures evidenced therein. Symptoms of congenital choanal obstruction may be divided into those as manifested in the newborn child and those existing in patients observed first at a later period in life. In the newborn child with bilateral obstruction the all-pervading symptom is the abolition of nasal breathing, with the train of symptoms produced thereby. The infant, not being able to breath through the nose, becomes rapidly cyanosed until the discomfort is so great as to cause it to cry when the air hunger is relieved through the momentarily established mouth breathing, and the thus threatening asphyxia is relieved. As the relief comes through mouth breathing the child ceases to cry, and there are a few seconds of quietude, when the desire for air again becomes rapidly great, the lips are drawn tight and cheeks drawn in, and then a struggle results, as is usually manifested by one who is suffering greatly from the want of air, the face becoming more and more cyanosed, when the child again breaks out with a lusty cry, which again relieves the threatening asphyxia through mouth-inhaling air. In older children and adults with congenital choanal obstruction the absence of nasal respiration is the pronounced symptom. In bilateral obstruction this is complete; in unilateral obstruction it is incomplete and limited to the side affected. The obstructed nasal chamber is always filled with a thick albuminous mucous. Examination reveals usually a widening of the nasal chambers. In unilateral cases the septum is frequently, not always, deflected toward the obstructed side. In infants the tendency to develop marasmus through deficiency or inability to maintain nutrition is very great. The prognosis in the older child who has passed through the suckling period is extremely favorable as to the probable result of operative intervention. The prognosis in the newborn child is distinctly a problem of life or death. The important problem which presents itself here is as to whether it is better to attempt expectant treatment or resort to an immediate operation. Expectant treatment should never be attempted unless the parents are inteligent and the infant is also a well-nourished, strong, and healthy child. The feeding must be resorted to through the medium of a spoon. It is remarkable how quickly the child learns voluntarily to establish mouth-breathing within ten days, and also learns to suck from a bottle within three weeks. The factors in favor of the operation, should it be successful, are the immediate relief to the sufferer, its ability to breathe and take nourishment normally almost immediately thereafter, and the great pleasure to the parents. In the older child and adults, as in the infant, the only procedure that offers any relief is operative intervention. Various operative procedures have been suggested and done for the relief of this deformity. In a general way that procedure is best which is accompanied by the least injury and accomplishes the result most thoroughly. The chisel to penetrate the plate along the line of attachment of the vomer and the various forms of conchotomes to remove the remaining portion of the obstructing plate seem the ideal methods of dealing with the condition under consideration. This procedure should be done with the finger in the nasopharynx as a protector and guide.

3. **Pregnancy Complicated by Severe Morbus Cordis.**—J. Bright Banister reports two cases of pregnancy complicated by severe heart disease with broken compensation in which hysterotomy was performed under spinal anesthesia. The author feels strongly that patients with marked cardiac lesions should not be allowed to incur the risks of repeated pregnancies, as increasing experience has convinced the author that though the immediate danger is not excessive their expectation of life is materially shortened by the strain of repeated pregnancies. In the combination of spinal anesthesia and hysterotomy, vaginal up to the twenty-fourth week, abdominal at a later date, the author feels that there is a method of treatment for these cases which is both rapid and efficient, and at least worthy of consideration.

4. **Gun Deafness and Its Prevention.**—By Jobson Horne. (See page 425.)

Cerebellar Abscess; Operation; Recovery.—W. Milligan reports the case of a male aged 15 years, who was first admitted to the Royal Infirmary, Manchester, April, 1909, with both ears discharging. Radical operation upon right ear; local treatment advised for left ear. Readmitted November 10, 1913. Right ear perfectly well; antrotympanic cavity completely epidermized. For past three weeks had complained of severe headache, mainly frontal. Had felt sick but had not vomited until day before admission. Had been very constipated. Patient quite rational, but cerebration slow. Temperature, 98.2° F., pulse 66, respiration 18. No paralysis. Knee-jerks exaggerated, equal. No Babinski. Marked ataxia. Tendency to fall forward. Dysdiadochokinesis present. Pupils equal and dilated. Optic neuritis (?). Nystagmus on looking to left (affected side). Left auditory meatus full of dense polypoid tissue and pus. It was impossible, therefore, to make a complete labyrinthine examination. Diagnosis: Left cerebellar abscess. Previous to operation 4 drams of cerebrospinal fluid were withdrawn; it was clear and under pressure. Operation: Radical mastoid. Opening made through posterior wall of antrum; cerebellar dura exposed; incised. An abscess containing a little over ½ ounce of pus was evacuated. Drainage by means of rubber tube. Bacteriological examination: Almost a pure streptococcal infection; a few staphylococci present.—*Proceedings of the Royal Society of Medicine.*

Insurance Medicine.

SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

ADVERSE LEGISLATION AFFECTING THE INTERESTS OF LIFE INSURANCE.

A CONSCIENTIOUS, conservative, and efficient regulation of life insurance companies by the State authorities creates a feeling of confidence and security among the policyholders. Unfortunately, the history of life insurance shows that the overzealous lawmakers have not always been content with the making of beneficial provisions, and, losing sight of the fact that these institutions are not great money-making corporations, have been far too anxious and energetic in forcing the passage of measures depriving the policyholders of benefits and privileges to which they are entitled. The medical examiners throughout the entire country are in a position to help largely in molding public opinion and thereby compel office-seeking politicians to give more consideration to the best interests of their constituents. The examiners will find that many members of their respective communities have not given any thought to the subject and that an intelligent explanation of the bearing of burdensome laws affecting their interests as policyholders will be appreciated. It should be made clear to them that the only source of income to their companies for the payment of claims and dividends is the premiums and the interest earned thereon, and that the gains and savings are subsequently returned to the policyholders in the form of so-called "dividends." Every demand for funds from a company, whether fair or unreasonable, means that these dividends will be just so much lower.

Life insurance companies bear too heavy a burden of taxation. One single large company paid $1,333,534 in direct taxes in 1912, of which $233,187 represented the United States corporation tax, and most of the balance went to the various states. It is proper for life insurance companies to contribute their share toward the support of the government under the protection of whose laws they do business, but this is fully carried out by the usual taxation of the properties in which the insurance funds are invested. An additional tax, however, on funds belonging to policyholders or on premiums paid by them, especially in mutual concerns, cannot be defended on economic principles, since it penalizes thrift, foresight and prudence. Referring to taxation on premiums, it has been said: "This is America's great burden on thrift and providence, and is a rapidly increasing evil, directly affecting twenty-five million of our people. America, alone of all governments in the world, so taxes life insurance."

Wise and sensible laws for the regulation of investments by life insurance companies act as additional safeguards and have a salutary effect. On the other hand, noxious and burdensome legislative measures have driven most foreign companies from certain countries and states. These demands were partly incited by a desire to eliminate healthy competition with the home companies. Prussia in 1895, and France in 1906, established laws, the general drift of which was to require the deposit of all reserves of policies written in each country to be invested in the securities of that country and deposited with its government. The American companies transacting business in these countries were earning over 4 per cent. on investments in America, while 3 per cent. was the highest that could be expected on the reserves invested in European securities. In order to continue business, therefore, it would have been necessary to conduct a separate system of book-keeping and a complicated special accounting for the foreign policies, an arrangement which was considered wasteful by some companies, so they withdrew promptly. The wisdom of refusing to submit to these demands in countries where trouble was always brewing, and conditions would be so far beyond control of the American offices, is vindicated at the present time. One large company which remained is reported to have reserves amounting to $85,000,000 invested in European securities which must surely depreciate, and this loss, with the destruction of life in the great war now raging, will surely encroach heavily upon the savings of the company for policyholders at home.

Examples of hasty, ill-considered legislation abound among the acts of some of our own forty-six state governments. One state put a statute on its books which required the investment of 75 per cent. of the reserves of policies written in that state in the securities of that state, and, also, the deposit of this reserve within the state, where it would be subject to a local tax of 3 per cent. Every company must make at least 3 per cent. on its investments to maintain its reserve, so that submission to the demand of this state would mean that the company would have to earn at least 6 per cent. on its investments, an impossibility with first-class securities. Furthermore, if all the companies doing business at the time had remained, the state could not have furnished sufficient high-grade securities to absorb the reserves. An attempt has been made to modify the laws, but it has not been sufficiently successful so far to attract the sound and important companies which withdrew. Another state made it mandatory for all companies transacting business within its boundaries to make an annual accounting to each policyholder in regard to his individual share in the reserve and contingency funds. This requirement could only be accomplished by endless trouble and at great additional expense to policyholders outside as well as inside the said state, and nearly every prominent company, therefore, withdrew. This same state, according to Frick (*American Underwriter*, Nov., 1913), has established a state life fund. The following comparison exhibits the less advantageous terms usually obtained from government enterprises. The premium charged by the state life fund in 1912 for a $1,000 twenty-payment policy, age 29, was $30.57, no tax. For the same policy, issued by a well-known mutual company in the same state, the premium is $32.83, but if the tax and costs amounting to $5.35, imposed upon it by the state, is deducted, a premium of only $27.48 remains. Another state does not allow the suicide clause to stand unless it can be proved that the policyholder, committing suicide, accepted the policy with the deliberate intention of taking his life. To meet such a condition an affidavit would have to be secured from the applicant before the policy is given to him to the effect that he is contemplating suicide, an obviously ridiculous practice in the business of life insurance.

Many other illustrations could be shown to demonstrate why the public should safeguard the interests of life insurance companies for the mere sake of protecting its own interests.

Society Reports.

AMERICAN GASTROENTEROLOGICAL ASSOCIATION.

Seventeenth Annual Meeting, Held at Atlantic City, N. J., June 22-23, 1914.

Lymphocytosis as a Sign of Constitutional Derangement in Chronic Diseases of the Digestive Tract.—Dr. J. KAUFMANN of New York City, after an exhaustive study of the subject, came to the conclusion that the most important lesson to be learned from it was that the constitutional factor so often found at the bottom of gastrointestinal disorders should receive full consideration in the treatment of such cases. He considered the anatomical lesions as merely the end results of these conditions. The avoidance of recurrences would, he thought, depend on the ability of the physician to regulate the patient's mode of living, rather than on the ability of the patient to observe general hygienic and dietetic rules.

Aerophagy.—Dr. CHARLES D. AARON of Detroit, Mich., contended that continued belching of gas for a considerable length of time would indicate aerophagy, and said that the eructated gas consisted, in the main, of atmospheric air swallowed in attempting to belch. Aerophagy accompanied many neuroses, he said, and was a frequent symptom of functional and organic disease of the gastrointestinal tract. He considered the presence of bile in the gastric content, with eructation, as suggestive of aerophagy.

Dr. JOHN C. HEMMETER of Baltimore stated that all the gas eructated was not air, but that a great deal of carbon dioxide was with it, this being obtained from the saliva.

Dr. JOHN P. SAWYER of Cleveland, Ohio, said that the patients could easily be instructed as how to avoid the descent of the diaphragm when belching, and the consequent pumping of air into their stomachs.

Dr. JOHN A. LICHTY of Pittsburg, Pa., asked whether the swallowing of air was the only cause of acute dilatation of the stomach.

Dr. AARON replied that it was not, but that it was one of the factors in its production.

Dr. JOS. C. BLOODGOOD of Baltimore remembered to have had only one such case, in which he had passed the stomach tube and obtained no fluid.

Dr. SAWYER remarked that aerophagy should not be confused with acute dilatation of the stomach.

Dr. KAUFMANN said that gas could get into the stomach in several ways, other than by the swallowing of air and saliva. It could be produced by fermentation in the stomach and could enter the stomach from the blood.

Dr. AARON said, in closing the discussion, that aerophagy was found in almost every disease of the stomach.

Linitis Plastica.—Dr. JOSEPH SAILER of Philadelphia gave an account of an interesting case of this condition, and said that a patulous stomach, like this one, was very unusual. An exploratory operation was performed. It was found that the growth extended from the pylorus to the fundus. As the case had progressed unfavorably after this, the growth involving practically the whole of the fundus, Dr. Sailer expected to have a more radical operation performed later.

Dr. JULIUS FRIEDENWALD of Baltimore mentioned having reported a similar case to the society about fourteen years ago. It had been thought to be cancer in the beginning, but a microscopic examination of the stomach showed that it was not. The patient died a few days after the operation.

Dr. FRANK SMITHIES of Rochester, Minn., asked Dr. Sailer whether the Wassermann or Abderhalden test had been made in his patient's case. The speaker thought that a leather-bottle stomach, produced by interstitial syphilis, might resemble linitis plastica.

Dr. CHARLES G. STOCKTON of Buffalo, N. Y., called attention to the fact that cases of linitis plastica sometimes resembled cardiospasm in their symptomatology.

Dr. BLOODGOOD was of the opinion that linitis plastica was really a diffuse ulceration of the stomach. The mucous membrane was gone, although the surface looked as if it were there because it was of the same color.

Dr. SAILER said that the Wassermann had been made in this case and found negative. He thought that the fact that there was a type of chronic interstitial gastritis was proved by there being cases on record that were apparently in perfect health from three to five years after operation. These could not have been cancer of the stomach.

Some Observations on Achylia Gastrica and Achlorhydria.—Dr. THOMAS R. BROWN of Baltimore, in his paper, discussed certain of the rarer conditions in which achylia gastrica is met. He then took up the estimation of pepsin in achylia gastrica, and was struck with the fact that in all but one case examined pepsin was practically absent, although these cases were taken indiscriminately and included various conditions. The Wolff-Junghans test was also made, and was found valuable in differentiating carcinoma from non-malignant achylia gastrica. The fourth point considered by the author referred to the study of the stools. He made a careful quantitative determination of the diastatic ferment, finding a normal amount, in seven of the eight cases examined.

Dr. SMITHIES said that in cases in which free hydrochloric acid was absent it was common to consider them as cases of achylia gastrica; but that one should endeavor to find what other factor was associated with the achylia, if achylia was present. He had made over seven hundred Wolff-Jughans tests in cases in which achylia was present or a suspicion of carcinoma, and his results had been quite comparable to those of Dr. Brown.

Dr. LICHTY remarked that some of the achylias found in cases of infectious disease were but temporary. He believed that pain and nervous shock might have an effect on the gastric secretion; as in one patient in whom hyperchlorhydria was common he had found achylia present after a nervous shock.

Dr. MAX EINHORN of New York City had noticed that achylia gastrica was frequently present in arthritis deformans. As a rule the total acidity was low in cases of true achylia, he said; while in cases of carcinoma it would never be low. He considered the biuret test as important as some of the newer tests.

Dr. FRIEDENWALD said that although some recent communications had reported high values for trypsin in achylia gastrica, he had, himself, found the values to be low in such cases. He felt that the low values were to be expected, because in achylia gastrica the stimulus to the pancreas by the acid chyme was lacking.

Dr. ALLEN ARTHUR JONES of Buffalo, N. Y., had found an irritable condition of the stomach in gallstone disease, with pyloric spasm and hyperchlorhydria.

Dr. KAUFMANN stated that when he was in doubt as to whether he was dealing with an ulcer or gallstones he made an examination of the stomach content; and if he found normal conditions, he considered that that favored the diagnosis of gallstones. He felt that a diminution of hydrochloric acid in ulcer cases showed the presence of a process leading to the healing of the ulcer. He considered the ferment test unreliable and had given it up, preferring the rennet test to it.

Dr. BROWN had found acidity always in gallstone disease, excepting when the latter was associated with appendicitis.

Direct Examination of the Duodenal Contents in the Diagnosis of Gall-Bladder and Pancreatic Affections.—Dr. MAX EINHORN of New York City stated that the macroscopical appearance of the bile was of great importance in diagnosis. If golden yellow and clear, it indicated a normal gall-bladder; if greenish yellow and turbid it portended a diseased state, frequently gallstones, while in catarrhal jaundice the bile often contained mucus. He said the duodenal contents containing bile and pancreatic secretion permitted a gauging of the pancreatic function.

Dr. HEMMETER said that in a great many analyses of duodenal condition he had never missed the diastatic ferment once; therefore, he had ceased to place any importance upon the rôle played by diastase in duodenal conditions.

Dr. WHITE asked whether the presence of a duodenal tube might not produce irritation and cause a secretion of mucus.

Dr. EINHORN remarked that he had found a number of cases in which amylopsin was absent. In reply to Dr. White he said he could merely give his own experience. In cases of catarrhal jaundice he sometimes had found no bile at first, but later bile and mucus had come through. Not only had he found mucus in catarrhal jaundice, but also in cases of catarrh of the duodenum; but the latter was unusual.

The Value of Colonic Inflation in the Diagnosis of Chronic Appendicitis.—Dr. EDWARD H. GOODMAN of Philadelphia said inflation of the colon was an equivocal means of diagnosing chronic appendicitis, but should not be employed in acute cases, as the risk of injuring the intestine was too great. He advised that inflation be regarded merely as an aid to diagnosis, history and physical examination being more valuable, and stated that the test was in no sense pathognomonic of chronic appendicitis.

Dr. LICHTY said that it was difficult to determine whether an appendix was diseased or not, even after removal, unless a microscopic examination were made. Therefore, he did not believe that the statistics on the subject were reliable.

Dr. HEMMETER asked whether Dr. Lichty meant that there might have been a diseased appendix, even though at operation he could find no evidence of appendicitis.

Dr. LICHTY replied that he meant that there was no evidence that could be distinguished macroscopically.

Dr. JACOB FUHS of Brooklyn, N. Y., had not found the test reliable, and asked Dr. Goodman whether he had used it in cases where adhesions were present.

Dr. GOODMAN stated that he had examined microscopically, all appendices that were removed, and several times, in cases where they were apparently normal, they were found to be the seat of chronic interstitial appendicitis. In seven or eight cases of adhesions, the tests were negative.

Abdominal Aneurysm as a Cause of Left-Sided Abdominal Pain.—Dr. EDWARD H. GOODMAN of Philadelphia said that the diagnosis of abdominal aneurysm might be a matter of great difficulty. In the cases in which the aneurysm sprang from the anterior wall of the aorta, he thought that the diagnosis was materially facilitated by the finding of a pulsating tumor; but that in dilatation of the posterior wall, the customary signs of aneurysm failed. In all cases with obscure left-sided abdominal pain (with, at times, hyperesthesia over the painful area) for which no adequate cause could be found, and which failed to exhibit physical signs of abdominal disease, aneurysm of the abdominal aorta should be considered as a cause. A fluoroscopic examination, with careful *x*-ray photographs, would be of valuable assistance in arriving at a correct diagnosis.

Dr. SMITHIES told of a patient who had a very large and hard abdominal tumor, which reached from the upper epigastrium to the public arch. There was no murmur, no thrill, and no evidence of elastic movement. The diagnosis made was cyst of the pancreas, probable dislocation of one of the solid organs, and abdominal aneurysm. An aneurysm four inches wide at the upper portion and three inches wide below was found at operation.

The Symptomatology of Gastric Cancer; An Analysis of 712 Consecutive Operatively and Pathologically Demonstrated Cases.—Dr. FRANK SMITHIES of Chicago said that in nine per cent. of all cases of gastric cancer there were no symptoms pointing to its existence. In such instances, exploratory operation or post-mortem examination gave the diagnosis. Gastric cancer might be expected at any age, he said. In the majority of instances there had been, he thought, some precancerous stage in which the disease might have been curable. He considered it impossible to say when a chronic ulcer might develop into cancer and when it would not.

Transition of Gastric Cancer into Ulcer and of Gastric Ulcer into Cancer.—Dr. JOHN C. HEMMETER of Baltimore considered it impossible to judge from a piece obtained at operation whether an existing cancer of the stomach had originated on the basis of a preexisting ulcer or not. The combination of ulcer and cancer in the same stomach had been seen. He thought that scars were not necessarily places of predilection for the formation of cancer.

Dr. FRIEDENWALD stated that according to his observation the maximum liability to cancer lay between the 40th and 60th year, the greatest proportion of cases occurring in males. He was convinced that only about 23 per cent. of the cases of gastric ulcer were transformed into malignant growths, and considered the figures of many writers too high. He felt that as the means of early diagnosis of cancer were very insufficient, exploratory incision should be urged upon all persons over 40 years having gastric symptoms which were not relieved with treatment.

Dr. JOHN DUDLEY DUNHAM of Columbus, Ohio, was in favor of operating on persons with epigastric tumor, as he thought that many might be saved years of life by means of a partial gastrectomy.

Dr. EINHORN felt convinced that a cancerous growth might develop on the base of a gastric ulcer, but considered these cases great exceptions. He thought that ulcers need not be treated surgically on account of the possibility of their producing cancers, as he did not consider the ulcer to be a precancerous stage.

Dr. JAMES TAFT PILCHER of Brooklyn, N. Y., stated that Dr. Mayo did not hold, as some seemed to think, that from 50 to 70 per cent. of ulcers developed into carcinoma, but that in the cases of carcinoma resected at the Mayo clinic evidence of preexisting ulceration was found in 50 to 70 per cent.

Dr. KAUFMANN did not think that all cases which the Mayos considered to be cancer were cancer. In his own experience he had found that the majority of cases of ulcer that he had followed out from fifteen to twenty-five years had not developed into cancer. They had either yielded to treatment or the patients had continued to suffer from them.

Dr. BLOODGOOD said that no physician should assume the responsibility of deciding whether an ulcer or lump that could be seen or felt externally was operable or inoperable, or whether it was cancerous or not. It was a pure surgical responsibility, he thought. In cancer of the uterus he felt that the responsibility rested with the gynecologist. In the case of cancer within the abdomen he considered the responsibility purely a medical one.

Dr. LICHTY said that on reviewing his cases of gastric ulcer he had found that there were very few that had become positively malignant. He thought if ulcer were the precancerous stage he should have found among his 500 cases, followed up for from fifteen to eighteen years, more cases of carcinoma.

Dr. SMITHIES stated that his series of cases was not at all comparable with any other series of cases, because he had taken 712 known instances of carcinoma and followed them up to find how many had arisen from gastric ulcer.

Dr. HEMMETER felt he could offer a ray of hope in regard to the diagnosis of cancer in the Abderhalden test.

Radiological Differential Diagnosis between Ulcer and Carcinoma of the Stomach.—Dr. A. F. HOLDING of New York City, after a review of the conflicting theories of the leading roentgenologists, expressed the belief that an ulcerative gastric lesion could not be recognized by any single irregularity of the bismuth shadow, but must be diagnosed by the interpretation of complex roentgenographic manifestations, and that an indurated ulcer could be distinguished from one which was undergoing carcinomatous degeneration only by means of the microscopic examination of a specimen. He stated that physicians and surgeons who had used the Roentgen method of diagnosing gastric lesions were its strongest advocates.

The Actual Demonstration of Duodenal Ulcer by the Roentgen Method.—Dr. A. W. GEORGE of Boston said that most investigators, in the past, had relied almost entirely upon the indirect method of examination, which method depended to a great extent upon so-called "symptom-complexes," *i.e.* hypermotility, exaggerated peristalsis, gastric stasis, and other functional disturbances, being derived chiefly from fluoroscopic study, whereas the direct method had for its foundation five definite propositions. If any of the five propositions could be disproved, then the direct school would not have the positive character that they now felt it was entitled to.

Diagnosis of Incomplete Forms of Pyloric Stenosis by Means of the X-Rays.—Drs. F. H. BAETJER and JULIUS FRIEDENWALD of Baltimore, Md., said in this paper that the *x*-ray was of great assistance in determining partial obstructions, particularly where the symptoms were not complete. Formerly it had been necessary to often wait a considerable length of time before the stenosis was sufficiently marked to warrant a positive diagnosis.

Dr. FRANKLIN W. WHITE of Boston asked whether the *x*-ray examinations of Dr. Holding were serial examinations or the more ordinary sort, and also whether he would feel it safe to rule out an exploratory operation by the results of *x*-ray examination alone. Dr. White did not consider the examination by means of the bismuth meal to give reliable information in regard to the motility of the stomach.

Dr. HEMMETER asked whether Drs. George and Holding believed in the theory of a pyloric reflex dependent on the chemical reaction in the duodenum.

Dr. S. J. MELTZER of New York City agreed with Dr.

White in regard to the effect of bismuth on motility.

Dr. KAUFMANN thought that the *x*-ray examiners were too much inclined to draw conclusions from their pictures without full consideration of all the other clinical factors. He felt that the use of the stomach tube gave them much better opportunities to determine whether there was intermittent pylorospasm than did *x*-ray examinations.

Dr. GEORGE C. JOHNSTON of Pittsburgh said in regard to the diagnosis of pyloric obstruction by means of the administration of a little bismuth mixed in water, that he considered it better to examine the behavior of the stomach when it contained what one was accustomed to put into it. The fact that a stomach refused to pass its contents through the pylorus might merely be an indication of a reluctance of the pylorus to open, which was not necessarily a surgical condition.

Dr. HOLDING said that in making reports of *x*-ray examinations he first stated what had been found and then gave his conclusions from the findings; if the one receiving the report desired to, he could ignore the latter. In answer to Dr. White Dr. Holding said that an exploratory operation was usually an evidence of inadequate *x*-ray examination. Regarding the different behavior of the stomach with bismuth and with food, Dr. Holding said that he had examined enough normal cases with bismuth in order to know what the normal stomach would do with the test meal. The speaker stated that he believed in the theory of a pyloric reflex dependent on the chemical reaction in the duodenum.

Dr. FRIEDENWALD said that their observations were made from many examinations, with the bismuth alone and with bismuth and food combined.

Experience with Boas Chlorophyl Test for Gastric Motility.—Dr. FRANKLIN W. WHITE of Boston, Mass., thought it was important to have a simple, exact test of the motor function of the stomach. He had found the Boas chlorophyl test, in forty cases, simpler and more rapid than other tests of gastric motility, also that appetite and reaction had little effect on it. While careful technique was necessary in aspirating the residue, yet he felt this was made easier by the watery solution used.

Dr. SEYMOUR BASCH of New York City said it was often impossible to know when one had all the water out by means of the colorometric portion of the chlorophyl test, but that the determination of the residue remedied that defect.

Dr. SMITHIES had found the giving of lycopodium spores in a glass of milk a useful comparative test with this general test.

Dr. KAUFMANN thought that no methodical examination for motility would give sufficient information in regard to disorders if those occurred at another time than when the examination was made. He considered the finding of acid in the fasting stomach in cases of gastrosuccorrhea as indicating a severe interference with gastric motility.

Dr. HENRY W. BETTMANN of Cincinnati, Ohio, was of the opinion that the only way to tell the actual muscular power of the stomach and its ability to empty itself was to test it under different conditions and form a composite picture. He considered the *x*-ray of great importance in supplementing one's knowledge regarding gastric motility by giving pictures of the duodenal and pyloric end of the stomach.

Dr. MELTZER asked whether the water used in this test could be absorbed from the stomach.

Dr. WHITE remarked that his test had been of one food only, and that all foods might not behave in the same way. He found that this test had missed no case of considerable motor disturbance. Experiments had proved that water was absorbed from the stomach.

Study of Methods of Lavage; the Treatment of Diabetics, Especially with Lavage.—Dr. JOHN B. SAWYER of Cleveland, Ohio, felt that the question of the efficiency of lavage was of especial interest because of the importance of the use of gastric lavage in diabetic patients. The thoroughness of the cleansing by his method, particularly of the upper portion of the stomach, which was usually missed with the patient in the upright position, had proved a factor in determining the success of the measure. He thought that less than obtainable efficiency in the procedure would probably account for less than satisfactory results from its use, and that stomach lavage by this method was certain to afford relief.

Dr. SMITHIES remarked that the hyperglycemia was not the real test to show why diabetic patients would improve or not under gastric lavage; most of them had benign obstruction of the pylorus, some intestinal intoxication and alterations in the gall bladder. Most of them also had hypercholesterinemia.

Dr. MELTZER said that the glycosuria in diabetics was not only a part of the disease, but also was an effort on the part of the body to get rid of the hyperglycemia and the intoxication of all the tissues that occurred through it.

Dr. AARON inquired concerning the dietetic treatment used in connection with the lavage.

Dr. LICHTY remarked that it would be interesting to know whether the patients treated in this way had increased in weight and in carbohydrate tolerance. He had noticed that patients with hyperchlorhydria seemed to have a peculiar feeling of well-being after an aspiration of the stomach.

Dr. WHITE thought that when a diabetic was treated with a careful diet and became sugar-free, his tolerance for sugar rising, the physician should be on his guard not to lay too much stress on some secondary treatment given at the same time, as the improvement was probably the effect of the skillful dietetic treatment.

Dr. SAWYER said that all diabetics needed to be protected against constipation and similar disturbances. He stated that the carbohydrate tolerance was increased by this treatment and patients treated with lavage could take a larger quantity of starch than patients not so treated. He believed that there was a stimulus exercised by the lavage on the mucous membrane, which changed the chemical activity of the cells. Patients also increased in weight.

Some Clinical Aspects of Gastric Hemorrhage.—Dr. J. A. LICHTY of Pittsburgh stated that unless the acute ulceration were recognized and differentiated from the end results of the ulcer the results would not be very good. He referred to a number of his patients who had had frank hemorrhage from the stomach or bowel, or both, soon after rectal feeding was instituted for the treatment of supposed gastric or duodenal ulcer. He thought that in acute peptic ulcer or acute exacerbation of chronic ulcer, when accompanied by hyperchlorhydria, food should not be withheld from the stomach at once, but that when a hemorrhage occurred food should be withheld until the hemorrhage was controlled. He considered surgical treatment for gastric hemorrhage to have a very limited but definite field, namely, in chronic ulcer. Hemorrhage in acute gastric ulcer should not be treated by operation.

Postoperative Gastric Hemorrhage and Posterior Gastroenterostomy with a Long-Loop Roux Method, Modified.—Dr. J. C. BLOODGOOD of Baltimore had never been able to get enough cases on which to base any conclusion as to the best treatment in cases of hemorrhages from the stomach that threatened life. In deciding which of several methods to choose in order to restore the continuity between the stomach and the intestines the speaker said that the decision might be based on the immediate mortality, the post-operative complications, or the ultimate result. He stated that the ultimate of almost any type of operation upon the stomach would be successful if the case had passed the dangerous rocks of immediate mortality and post-operative complications. As far as he could see the difference in mortality from the various operations in the hands of experienced surgeons was infinitesimal. In Dr. Bloodgood's opinion the two most dangerous post-operative complications were duodenal dilatation and hemorrhage; the former could be avoided by being careful not to close the duodenum. He advised the avoidance of the long loop operation, if possible, owing to the danger of producing peptic ulcer and hemorrhage.

Dr. WILLY MEYER of New York City considered the Einhorn string method of testing for duodenal ulcer most valuable. He advised the using of injections of human blood serum or direct transfusion in cases of profuse hemorrhage. He had also found useful in stomach hemorrhage the injection of bismuth and water into the stomach.

Dr. FRED T. MURPHY of St. Louis felt sure that all cases of vicious circle came back to poor technique, being the fault of the operator and not of the operation. He also thought that with good technique peptic ulcer might be looked upon as a surgical curiosity and need not be considered as a serious risk in cases of stomach operation.

Dr. EINHORN said that when the string test showed a definite stain the surgeon should not ignore such indications. He depended largely on the appearance of the stain for his diagnosis: a localized stain indicating

an ulcer and a spread-out stain being usually due to an inflamed condition of the mucosa, which might be caused by the thread's being pulled up and down. He said there was not a week passed that he did not have patients come to his clinic, having been operated on from six months to a year and a half previously, with definite and severe symptoms in the stomach.

Dr. MELTZER asked Dr. Bloodgood whether he had ever come across an instance in which the hemorrhage had been stopped after a laparotomy had been done and nothing else and the wound closed again.

Dr. HEMMETER said that a peptic ulcer might be produced by a poison called sepsin, from fermenting yeast. Vagotonus also favored the formation of peptic ulcer by producing spasm of the pylorus; therefore it was impossible for the surgeon to remove the cause of gastric ulcer.

Dr. SMITHIES stated that out of 163 cases shown to be ulcer in only seven was the string test of any service.

Dr. JOHNSTON had had a large experience with the Einhorn thread and said that in not a single instance in which the diagnosis of gastric or duodenal ulcer had been made by this means, and operation advised had they failed to find the ulcer in the exact place in which the thread indicated. He thought their aim should be to prevent a return of the mechanical conditions that existed before operation and which had served to produce the ulcer.

Dr. LICHTY claimed that in his case they had used every means to stop the hemorrhage referred to by Dr. Willy Myer as well as many others, but nothing had any effect but a surgical operation. He said he hesitated to turn a patient over to a surgeon when he felt that the pylorus was still reasonably patulous. To him the value of the string test had increased in the last few years because of his being able to interpret it more accurately, its value being confined to open ulcer.

Dr. BLOODGOOD said that if the pylorus were closed and an anastomosis done there would be the risk of duodenal dilatation, which was always fatal. He never did a posterior gastroenterostomy if he could do anything else.

A Further Report on Resection of the Esophagus for Carcinoma.—Dr. WILLY MEYER of New York City gave the history of a series of cases illustrating the progress that had been made in operative surgery, which progress lay in the following two points, the necessity of which he felt had been thoroughly recognized: (1) Removal of the proximal stump of the esophagus from the posterior mediastinum and transposition of the same under the skin of the thorax, and (2) free drainage of the pleural cavity immediately following operation in each and every case.

Intestinal Obstruction.—Dr. FRED T. MURPHY of St. Louis said that the recent experimental work on intestinal obstruction emphasized in the treatment of these cases the need of early operation, the value of local anesthesia, the necessity of relief from dehydration and loss of heat, the avoidance of any trauma that might tend to destroy the mucosa and tend to the absorption of toxins, and the need of removing segments of intestine in which the mucous membrane was so damaged as to permit of the absorption of the toxic gut content. The loss of the normal protective power of the mucosa he considered of greater importance in the production of symptoms than the presence of the toxin in the intestine.

The Diffusion of Bacteria into the Intestinal Wall.—Dr. FENTON B. TURCK of New York City referred especially to the penetration of both motile and nonmotile forms between the cells of the submucosa where they underwent rapid bacteriolysis. He also made some reference to certain new staining methods for the determination of aminoacid reaction of the autolytic products found in that submucous region or, as he preferred to call it, "zona transformans."

Dr. LICHTY asked Dr. Turck whether these experiments went as far as the walls of the stomach or only took in the intestine.

Dr. TURCK replied that they would also pass through the stomach wall.

Officers.—The following officers were elected for the ensuing year: *President*, Dr. J. C. Bloodgood of Baltimore; *First Vice-President*, Dr. Charles G. Stockton of Buffalo; *Second Vice-President*, Dr. William Gerry Morgan of Washington, D. C.; *Secretary and Treasurer*, Dr. Franklin W. White of Boston.

Miscellany.

Overhauling the Automobile.—H. Massac Buist states that motor cars are curious things, in that as far as matters of habit go they seem to be alive. Thus a car may work quite reliably day after day for weeks at a spell, doing a given series of rounds, calling a halt every mile or two, as does the average doctor in the exercise of his profession. But if the same car be asked to go fifty or seventy miles without a halt it is ten to one that some minor part of the mechanism fails in the most annoying manner, leading to a breakdown involving a loss of hours. Reparatory to a lengthy run the machine will want looking over in a more special fashion than is done ordinarily in connection with its daily work in the doctor's service. Under these conditions it does not go long enough at a spell to run any serious risk of damage even should there be insufficient oil in the back axle or gearbox, or lack of grease in the universal joints. In most such cases ample warning would be given by way of gradually increasing squeaking. Before starting out, however, all those points should be specially checked. It is besides as well to unscrew the valve caps and have a look at the condition of the engine's interior in regard to carbon deposit. Assuming, therefore, that the motor is clean and that it will be given a reasonable chance of keeping clean by drawing off the oil from the crankcase; that it has been replenished with new and clean supplies and is not suffering from loss of compression; and that all water connections and all other parts where leaks might occur have been looked over; a start may be made with a fair certainty of having no motor trouble. In regard to the chassis in general, apart from such ordinary attention as the filling of grease cups at regular intervals, one should pay particular heed to the universal joints in connection with the propeller shaft. It is particularly essential that the grease put into the joints at either end of the propeller shaft is adequately secured in the covering to those connections. If these parts are run dry, sooner or later a broken propeller shaft joint will be sustained, than which there is scarcely any form of motor accident more dangerous. If the fore end goes it drops like a pole, which the back axle has to jump. Brakes should be gone over, particularly with a view to ensuring that they are acting in an absolutely compensating fashion, the pull being equal on either back wheel. It is as well to take up any slackness of the steering and particularly to supply all steering joints with lubricant. Next, as the car stands in the garage the wheels should be checked for alignment. If a wheel be ever so little out of true tires wear in extraordinarily quick time. Runs longer than those usual in the execution of the doctor's daily work demand, also, attention to the tires. The medical man will save money by taking off all tires showing any appreciable wear, and replacing them with new shoes before starting out on a run the length of which cannot be foreseen. The old shoes can be brought into use again afterward and worn to the ordinary limits. Attention to all of the above details is necessary from time to time even if no unusually long tour is contemplated. This attention is demanded as a measure of safety as well as of economy.—*British Medical Journal.*

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CHRONIC INTESTINAL STASIS.*

BY ALFRED C. JORDAN, M.D., CAMB., M.R.C.P.

LONDON.

I HAVE the honor to address you on one of the most fascinating and far-reaching branches of medical study; a vast realm that has been opened up by the genius and insight of our great surgeon, Sir Arbuthnot Lane.

Intestinal stasis is a chronic disease due to the absorption of poisonous substances from the alimentary canal. The disease itself may be so insidious as to escape notice, while a complication may produce severe and urgent symptoms, and compel instant attention. In this way we have hitherto lost sight of the fundamental disease—the stasis—and we have fixed our attention on the complication, regarding this as a primary disease.

The general signs and symptoms of intestinal stasis are too well known to require a detailed description. A full and most graphic account is contained in Sir Arbuthnot Lane's recent paper (*Practitioner*, March, 1914).

I am concerned with the radiological demonstration of the changes found in cases of intestinal stasis. When first I took up this work I was handicapped by the belief that the patient must be "prepared" for the bismuth meal by giving him purges and enemata, and that he must take his bismuth

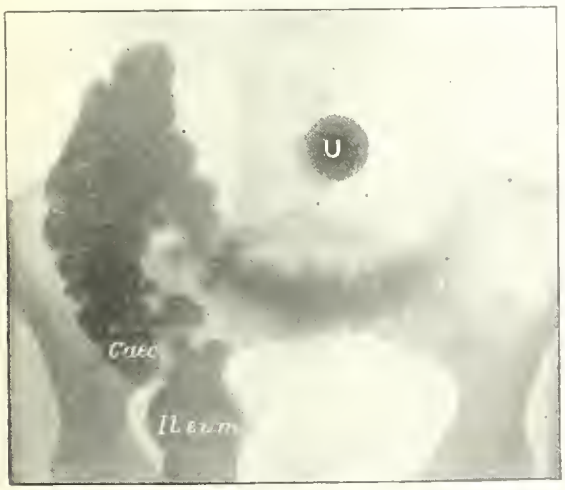

FIG. 1.—Simple ileal stasis, taken on the couch 37 hours after a bismuth meal in a woman aged 40 suffering from advanced cystic disease of the breasts.

in the form of a "meal" while fasting. Many radiologists adhere to this mode of preparation still, but I am perfectly sure that once they have made up their minds to abandon it they will never return to it.

The best way to give the bismuth is in the form of an emulsion to be taken about an hour after an ordinary breakfast. The reasons for this were given

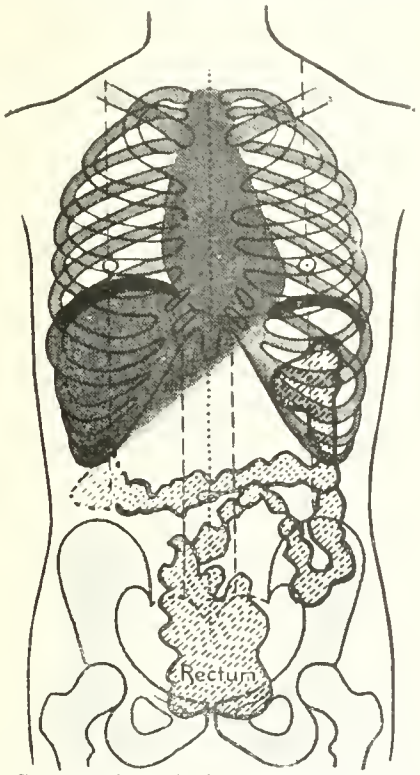

FIG. 2.—Great stasis in the large intestine, with elongation of the pelvic colon, taken on the couch 80 hours after a bismuth meal in a woman aged 46 suffering from advanced cystic disease of the breasts. There was also extreme ileal stasis, and the patient showed all the usual signs and symptoms of chronic intestinal stasis.

fully by me in a recent paper (*Brit. Med. Jour.*, November 22, 1913). In the vertical posture the emulsion is seen to pass through the esophagus rapidly, and to fall at once to the great curvature of the stomach. The patient then lies on the couch on his right side to allow the bismuth to fill the pylorus and duodenum. After a minute or so he lies on his back, and is examined with the fluorescent screen. In the normal case the duodenum is small and short, its vertical portion measuring $2^{3}/_{4}$-$3^{1}/_{4}$ inches; in a few seconds a duodenal peristaltic wave starts near the top of the duodenum, and carries before it the whole contents of the duodenum without delay through its four parts and on to the jejunum. At the end of three or four hours there is no longer any bismuth in the stomach or duodenum; the whole of it is in the lower abdomen, partly in the lower coils of the ileum, partly in the cecum and ascending colon. In perfectly normal cases the lower ileal coils lie above the pelvic brim,

*Lecture delivered at the New York Polyclinic Medical School and Hospital, April 14, 1914.

and there is never a very large collection of bismuth in these coils, the passage through the ileocecal valve being free. One of the very earliest effects of stasis is to cause the lower ileal coils to drop into the pelvis. There is then a long rise from the

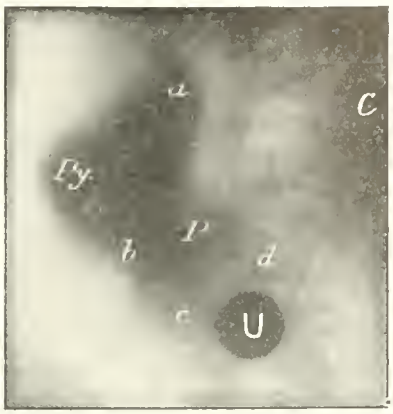

Fig. 3.—Taken on the couch after a bismuth meal in a woman aged 47, showing the duodenum and the pyloric portion of the stomach. The woman suffered from severe glycosuria; at the age of 30 she had exophthalmic goiter for six months. The screen showed active gastric peristalsis with pyloric spasm. The duodenum was dilated, and showed strong "writhing" peristalsis with repeated return of the bismuth from the third to the second part of the duodenum, only traces of bismuth having entered the jejunum at the end of 15 minutes. C, P, cardiac and pyloric portions of the stomach; Py., pylorus a, b, c, d, the four parts of the duodenum; U, the umbilicus. (See also Figs. 4, 5, and 6.)

pelvis to the cecum. Spasm of the ileocecal valve occurs, and adds to the difficulty. The last inches of the ileum become hypertrophied to a thick cord which is easily felt. In many cases the weight of the overloaded cecum and ileum causes a constant pull on the mesentery of the ileum whenever the patient is upright; a thickening then appears in the mesentery at the point where the pull is greatest. The point of greatest strain varies from case to

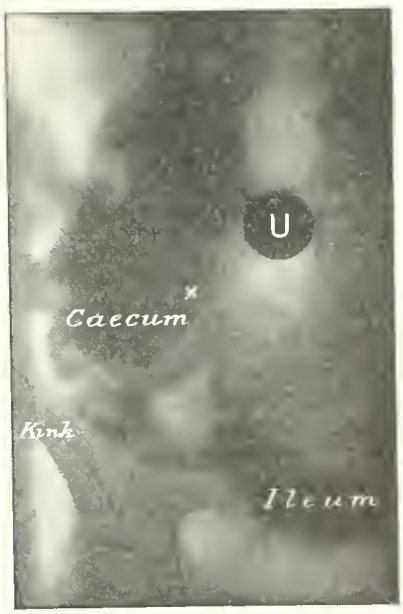

Fig. 4.—Taken on the couch 9 hours after the same bismuth meal. There was still a large amount of bismuth in the stomach—kept back by the pyloric spasm. The terminal coil of the ileum was tortuous and thick-walled; it was firmly fixed in the right iliac fossa (Lane's kink). The appendix, seen beneath the cecum, was freely movable, and appeared healthy.

case; often it is within an inch of the ileocecal valve (Fig. 14); sometimes it is in the right iliac fossa about four inches from the valve (Figs. 4, 5, and 19); in other cases again it is just above, or just below the pelvic brim.

It is clear, then, that the ileal kink is not the primary cause of the ileal stasis, although the kink, when present, aggravates the stasis, at any rate in the upright posture. I find there is still much misunderstanding on this point. It is the ileal stasis

Fig. 5.—Taken 22 hours after the same bismuth meal, showing the ileal kink as before with extreme ileal stasis, the lower ileal coils being still well filled with bismuth.

which produces the kink, by pulling on the mesentery of the ileum. Some of the worst cases of ileal stagnation occur in feeble women, and in them a kink may never appear (Fig. 1). In such cases there is often extreme dropping of the large intestine, the cecum occupying the deepest part of the pelvis. The ileal contents have not then to negotiate a rise to the cecum; the difficulty must be enhanced by the ileocecal valve, which gets into a state of spasm seldom fully relaxed.

With regard to the large intestine I propose to say little, except incidentally to explain its effect on other parts. In normal cases the bismuth begins to enter the cecum in three to four hours; in six to eight hours it has reached the middle of the transverse colon; in eight to ten hours the splenic flexure, and in eighteen to twenty-four hours the rectum. At this stage (twenty-four hours) there is usually bismuth in all parts of the large intestine, fairly evenly distributed. At the end of forty-eight hours

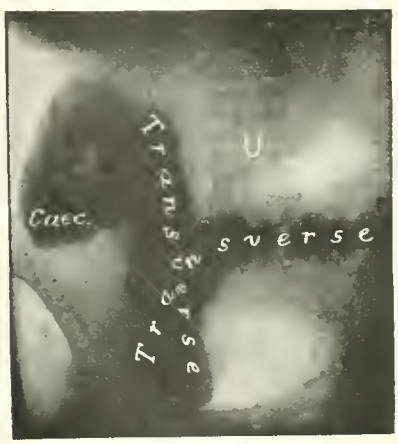

Fig. 6.—Taken on the couch 47 hours after the same bismuth meal; i.e. at a time when all the bismuth would have been evacuated in a normal case; the transverse colon dips vertically into the deepest part of the pelvis, and no bismuth has advanced beyond the middle of the transverse colon. After 95 hours no bismuth had been passed, and very little had got beyond the transverse colon. A few days later diabetic coma supervened, and the patient died.

all the bismuth should have been evacuated. The delay in the large intestine in stasis is often extreme, and after one hundred hours there may be little bismuth beyond the splenic flexure. Undoubtedly a good deal of toxic absorption occurs

from the stagnant contents of the large intestine, but the greatest harm arises from the damming back of the contents of the ileum, these ileal coils becoming infected with microbes from the cecum. The ileum is sterile in health, and is not equipped by

Fig. 7.—Atheromatous elongation and dilatation of the aortic arch, in a "stasis" subject. The dotted line is in the long axis of the heart, more oblique than normal in consequence of the aortic elongation. No tissue escapes the deleterious action of the intestinal toxins.

Nature to deal with microbic invasion, while the large intestine can cope with a considerable amount of bacteria.

The absorption of poisons into the circulation enables these poisons to gain access to every organ and tissue of the body, and no tissue escapes their baneful influence. Thus we get many of the general symptoms of stasis; the headache and depression, the aching muscles and joints, the unhealthy skin, etc. The glands suffer early, one of the first changes due to stasis being in the breasts, which become nodular. The condition of the breasts is a very good index for gauging the progress of a "stasis" patient while under treatment.

Fig. 8.—Stomach and duodenum, taken on the couch after a bismuth meal in a man aged 47, suffering from mucous colitis and a rheumatoid left hip. Both had persisted for a year. There had been no symptoms referable to the stomach or duodenum. The first part of the duodenum is much dilated and tensely filled, ending below in a blunt point beyond which no bismuth was seen to pass. The obstruction was due to spasm set up by a duodenal ulcer (in the position of the arrows). C, P, cardiac and pyloric portions of the stomach; Py., pylorus; a, the first part of the duodenum; U, the umbilicus (see also Figs. 9-12).

In neglected cases chronic cystic disease appears in the breasts, and finally they become cancerous (Figs. 1 and 2). Other glands suffer, and the pancreas is found to be hard and nodular in operations for stasis. Cancer of the head of the pancreas may be the last stage in the history. The suprarenal glands probably suffer a similar change, and many cases of glycosuria result from changes in the pancreas and the suprarenals (Figs. 3-6). The pigmentation of the skin of stasis subjects is probably due to supra-

Fig. 9.—Showing the pyloric end of the stomach and the dilated first part of the duodenum in the subject of Fig. 8.

renal changes. Other ductless glands are affected; the thyroid gland atrophies, or else undergoes changes leading to exophthalmic goiter. The surest proof that these diseases are due to stasis is the fact that they clear up—permanently—on the cure of the stasis, whether by operation or by treatment. Atheromatous elongation, and later dilatation of the aortic arch occurs at an early age in the subjects of intestinal stasis; this change is easily recognized by radiology, and is capable of accurate measurement (Figs. 7 and 15). The walls of the aorta evidently share the deterioration of all the tissues. It is interesting to speculate how far changes in the pituitary gland, leading to raised blood pressure, act as the exciting cause of the dilatation of the aorta.

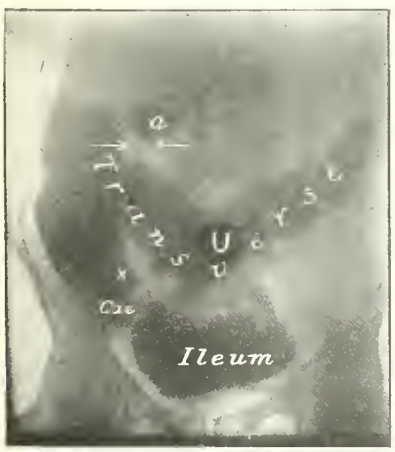

Fig. 10.—Taken on the couch 6 hours after the same bismuth meal, showing ileal stasis. There was still a little bismuth in the stomach, and the dilated first part of the duodenum (a) was again shown well filled with bismuth entrapped above the ulcer (arrows). U, umbilicus; the X marks the ileocecal entrance.

Rheumatoid arthritis is a frequent result of stasis, and is relieved permanently on the abolition of the stasis (Figs. 8 and 24).

The microbes which have entered the stagnant ileum from the cecum ascend to the upper reaches

of the small intestine. Thus the duodenum becomes infected, and the ducts which open into it cannot escape infection. In this way we get the gall-bladder infected; it becomes distended, and gall-stones are formed in it.

FIG. 11.—Taken 9½ hours after the same bismuth meal, showing the same conditions as Fig. 10 (*q.v.*). The appendix appeared healthy.

This brings us to another aspect of stasis—one of the most important of all, and the one which is still most open to doubt by the medical public, although the facts are so clear that there is no room for doubt. I refer to the effects of intestinal stasis upon the duodenum and the stomach. In studying this part of the subject radiology is able to give the greatest assistance, and the changes revealed by a

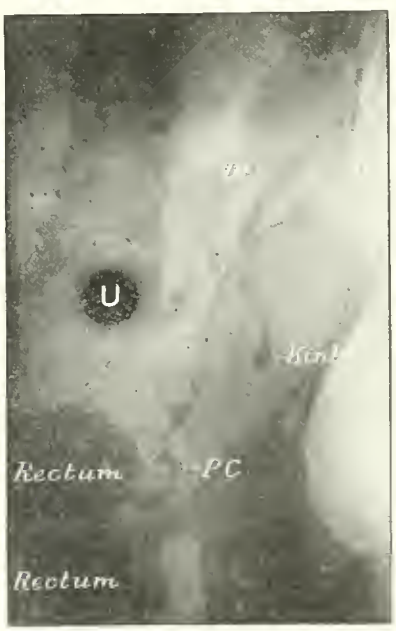

FIG. 12.—Taken 26 hours after the same bismuth meal, showing evidence of mucous colitis, the latter portions of the transverse colon, and the whole of the descending and iliac colon being in a state of tonic contraction, and holding only an irregular thin line of bismuth, mixed with mucus. The iliac colon is firmly fixed in the left iliac fossa at one point, constituting a well-marked "last kink" (Lane).

bismuth meal are most striking and characteristic. I have already described the appearance and behavior of the normal duodenum. In stasis the state of affairs is quite different: the duodenum is much too large; its vertical part measures 4, 5, or even 6 inches in length instead of $2^{3}/_{4}$-$3^{1}/_{4}$ inches, as in healthy subjects. These measurements are taken orthodiagraphically, so they are strictly comparable. The duodenum is also much wider than normal; often it is double the normal width. Its first part in

FIG. 13.—Typical chronic ulcer of the lesser curvature in a woman, aged 58, taken on the couch after a bismuth meal, showing the depressed base of the ulcer, and the tight spasmodic constriction of the circular fibers of the stomach over the ulcer. As usual there was persistent spasm at the pylorus, with dilatation and dropping of the pyloric portion of the stomach. The duodenum was elongated and dilated, especially its first part; it showed marked "writhing" contractions, with repeated regurgitation, only small amounts entering the jejunum in spite of the strong duodenal peristalsis. After 24 hours hours fully one-third of the bismuth was still in the pyloric portion of the stomach. C, P, cardiac and pyloric portions of the stomach; U, umbilicus; Py., pylorus; a,b,c, first, second and third parts of the duodenum. The arrows indicate the persistent pyloric spasm, resembling organic stenosis (see also Fig. 14).

particular is often greatly dilated. The increased size of the duodenum is not the only change, though it is a sufficiently striking one. Far more remarkable is its altered behavior. It fills well with bismuth (provided the conditions be arranged suitably), but it does not empty itself into the jejunum with a single peristaltic wave as in normal cases; the "static" duodenum shows excessively powerful peri-

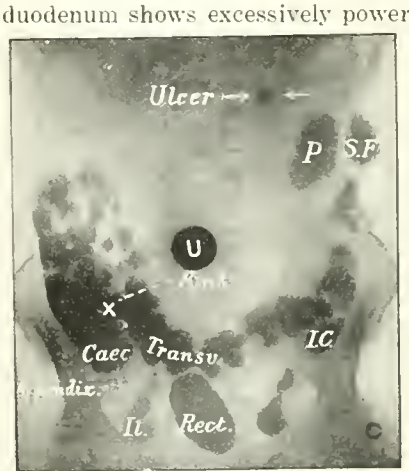

FIG. 14.—Taken on the couch 47 hours after the same bismuth meal, showing bismuth still present in the pyloric portion of the stomach and in the depressed base of the ulcer. There was an ileal kink; the appendix was normal. There was great stasis in the large intestine, and at the end of 72 hours most of the bismuth was still in the cecum, the ascending colon and the dropped transverse colon. (Confirmed by operation by Sir Arbuthnot Lane, and all the symptoms—both general and those due to the gastric ulcer—relieved by "short-circuiting" the ileum into the rectum. The stomach was not touched. Six months later she was at work, feeling quite well.) P, pyloric portion of stomach; Il., ileum; S. F., splenic flexure; I. C., iliac colon. The X marks the ileocecal entrance.

stalsis, wave after wave passing along its four parts; one has only to look at it to realize that it is working against an obstruction; the bismuth is driven down to the lowest part of the duodenum, and often well on into the fourth part, only to re-

turn again, time after time, to the vertical part as each wave passes over. The whole duodenum alters in form continually during the occurrence of this phenomenon, giving the appearance of "writhing." In severe cases this "writhing" peristalsis continues

FIG. 15.—Taken on the couch after a bismuth meal in a woman aged 60, showing a carcinoma of the stomach. The *x*-ray appearances are those of chronic ulcer in caricature. The wire marks the outline of a tumor which was felt. The duodenum was dilated, and showed well-marked "writhing" contractions. The aortic arch showed considerable atheromatous elongation, and slight fusiform dilatation. C, P, cardiac and pyloric portions of the stomach. Py., pylorus. a, b, c, first, second and third parts of the duodenum; U, umbilicus. Undoubtedly the tumor originated in a chronic ulcer of the lesser curvature, though the deviation from the typical form is considerable, the tumor being a large one.

hour after hour, a single spurt of bismuth finding its way through to the jejunum every ten minutes or so. The duodenum seems never to tire. Of course it should be understood that all stages occur between the normal duodenum and the extremely dilated, writhing duodenum of severe stasis.

What proof have we that the static duodenum is due to the downward pull on the commencement of the jejunum caused by overloading of the lower ileal coils? The proof is manifold and complete. In the first place the downward pull on the jejunum can be observed at operation. The top of the jejunum,

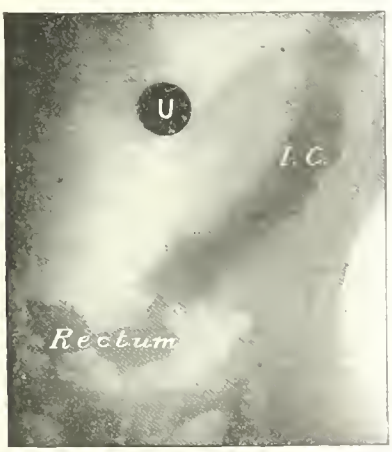

FIG. 16.—Cancer of the pelvic colon, taken on the couch 96 hours after a bismuth meal in a man aged 56. I. C., iliac colon; the arrows show the seat of obstruction in the pelvic colon.

moreover, is found empty, and often it is the subject of torsion, the effect of the duodenojejunal kink being increased greatly by this torsion. The radiologist, while examining the duodenum, can actually see the bismuth forced into the fourth part of the duodenum, almost up to the junction with the jejunum; eventually some bismuth is forced through, and then the radiologist can see that the jejunum passes down vertically at its commencement. A few hours later he is able to con-

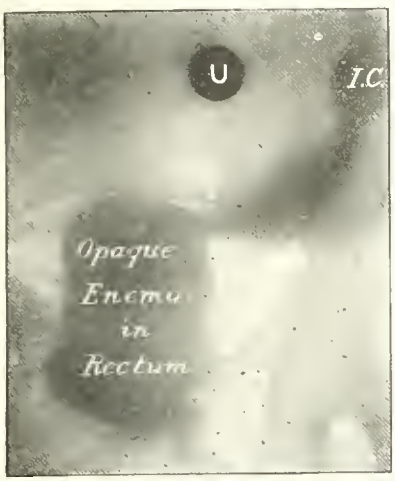

FIG. 17.—Taken after Fig. 16, the rectum having been filled with barium fluid, to show the obstruction in the pelvic colon.

vince himself that there is stasis in the lower coils of the ileum. Few things in medicine are more constant; if we find a distended duodenum we are certain to find ileal stasis, and conversely, if we find a normal duodenum, with free duodenojejunal junction we are most unlikely to find any material amount of stasis in the lower ileum. The proof is more perfect even than this: there is a definite quantitative relation between the amount of ileal stasis and the amount of duodenal distention; thus a high degree of duodenal distention will be found associated with great ileal stasis, while slight duodenal distention goes with slight ileal stasis. Of course the proportion is not mathematically accurate, but it is nearly enough so to furnish clinching proof of the dependence of duodenal distention on ileal stasis.

The distended duodenum causes no subjective symptoms, but if it is congested the patient be-

FIG. 18.—"Diverticulitis" of the pelvic colon in a man aged 54. Severe symptoms, including albuminuria and a high blood pressure, were relieved by the operation of "short-circuiting" carried out by Sir Arbuthnot Lane.

comes aware of its presence at once; he feels pain in this region, and there is tenderness to pressure over it; the tenderness is often attributed to the gall-bladder. If the duodenum has become infected with microbes from the stagnant ileum we shall

probably get ulceration in the duodenum (Figs. 8-12). No normal duodenum gets ulcerated; a chronic duodenal ulcer occurs only in the distended duodenum of chronic intestinal stasis. It follows that one cannot have a duodenal ulcer without ileal

Fig. 19.—Ileal kink in a man aged 57, taken on the couch 10½ hours after a bismuth meal. (See also next Fig.)

stasis, and this accords entirely with my experience.

The distended duodenum has a very definite effect on the pylorus, which closes tight to prevent reflux from the overfull duodenum. The pylorus gets into a state of permanent spasm (Fig. 13), its contents become too acid, and this leads to a further increase of the spasm, for physiological experiments have proved that no acid can enter the duodenum without setting up an immediate tight closure of the pylorus. There is delay in the emptying of the stomach, and this organ is overloaded and dilates. The great curvature drops, and the transverse colon, also heavy with the weight of its stagnating contents, drops with it. Thus we get an abnormally great strain on the lesser curvature, and especially on the two "ligaments" of the stomach—the pylorus and the esophagus. A chronic ulcer is apt to appear at the pylorus, this part being accessible to the microbes which infect the "static" duodenum, or, if the pylorus drops, the point of greatest strain is shifted toward the esophagus, and the ulcer appears at some point along the lesser curvature (Figs. 13 and 14).

Fig. 20.—Taken 47 hours after the same bismuth meal, showing obstruction by bands just beyond the hepatic flexure. (Confirmed by operation.)

With the appearance of an ulcer in the stomach the acidity of the gastric contents increases still more, and the pyloric spasm becomes so severe and constant as to simulate organic stenosis (Figs. 13 and 14), and the radiologist must be very wary in the manner of carrying out his investigations to avoid this pitfall.

Fig. 21.—Cancer of the ascending colon in a man aged 57. There was a movable tumor in the position marked by a wire. A thin streak of bismuth ran along the outer side of the ascending colon, the tumor being attached to the inner wall. The appendix (normal) is shown well filled with bismuth.

The *x*-ray appearances of chronic ulcer of the lesser curvature are quite characteristic, especially on the couch. The depressed base of the ulcer fills with bismuth; the raised margins of the ulcer are shown, and there is a tight hour-glass constriction of the stomach over the region occupied by the ulcer, so that the stomach appears divided into two parts, separated by a narrow isthmus (Fig. 13). An important point to remember is that this hour-glass constriction is permanent except during general anesthesia. The radiologist must bear this in mind, lest he diagnose a cicatricial contraction, and the surgeon must not forget it, for when operating under general anesthesia he does not see a constriction, and he may not realize that the stomach will be drawn in again at the seat of the ulcer as soon

Fig. 22.—Taken 11 hours after a bismuth meal in a woman aged 35, short-circuited a year previously by Sir Arbuthnot Lane. Showing the termination of the ileum, and the rectum full of bismuth. Some bismuth had run up to the splenic flexure; the following morning this had come down again. Il., ileum; I. C., iliac colon; the X marks the union between the ileum and the rectum.

as the patient has recovered from the anesthetic. I have seen a surgeon make his gastrojejunostomy opening at the level of a chronic ulcer of the lesser curvature and the result was promptly fatal.

If we were to make an artificial hour-glass con-

FIG. 23.—Taken 5 hours after a bismuth meal in a woman aged 26, nine months after colectomy. All the bismuth is in the rectum except traces in the last four inches of the ileum. The duodenal distension and the pyloric spasm had been relieved almost completely.

striction in a healthy stomach we should expect the pyloric portion of that stomach, beyond the constriction, to become small (for it would never be properly filled), just as the entire stomach becomes small in cases of stricture of the esophagus. The fact is exactly the opposite in chronic ulcer of the lesser curvature; the pyloric portion of the stomach is always large and dropped (Fig. 13); in the most extreme cicatrical hour-glass stenosis of the stomach the great curvature may be in the pelvis in the upright posture. This affords the most striking confirmation of the fact that the chronic ulcer of the lesser curvature occurs, not in a healthy stomach, but in the enlarged stomach produced by constant pyloric spasm.

The symptoms caused by these chronic gastric ulcers are often vague and difficult to interpret clinically, and they are not often diagnosed correctly except by the *x*-ray method, when the diagnosis can be made with certainty as a rule. One of the dangers of leaving these ulcers untreated is due to their tendency to become malignant after a time, and I have a number of instances of carcinoma of the stomach exemplifying various stages in the transition from a typical chronic ulcer to an extensive malignant growth. The *x*-ray appearances are those typical of a chronic ulcer, but with more or less deviation from the typical picture due to the malignant involvement (Fig. 15).

Thus intestinal stasis is shown to be an important cause of cancer, not only in the stomach, but also in the pancreas, the liver and bile-ducts, and in the breasts. Cancers occur also in the large intestine as the result of stasis; this is readily shown. In the rectum (Figs. 16 and 17) and in the cecum (Fig. 21) the long-continued irritation of stagnant feces is responsible for the growth; in the hepatic flexure region and in the first part of the transverse colon immediately beyond the hepatic flexure fecal accumulation is often due to bands continued down from the lower surface of the liver over the pylorus and gall-bladder (Fig. 20). These bands are found in a fair proportion of stasis subjects. The iliac colon, again, is often tied to the left iliac fossa by bands, these being the first to form in the body. These bands sometimes cause obstruction and lead to a condition of chronic congestion with yielding of the bowel-wall between the bands and the production of the disorder known as "diverticulitis" (Fig. 18). Following upon this long-continued obstruction we may get the appearance of a cancer in this region.

Needless to say the bearing of all this new knowledge on treatment is of the greatest importance.

I propose to say but little concerning treatment, and only in its relation to radiology. Having ascertained the existence of stasis in a particular case, and the presence of one or more of its complications, the question will always arise—should we go to the root of the matter and deal with the stasis, or should we apply our treatment to the complication,—the end result of the stasis—*e.g.* a gastric or duodenal ulcer. The answer is simple:—leave the end result alone if you can, *i.e.* if it is not causing stenosis, or becoming malignant, or impacted in the case of gallstones. If you treat the end result (*e.g.* by performing a posterior gastrojejunostomy for ulcer) you will give your patient temporary relief which may be great, but you will not cure his stasis. Or again, if you merely remove his appendix, which has become (secondarily) congested or kinked, no lasting benefit will result. In proof of this I would mention the very large number of patients sent to me for investigation by the *x*-rays at some period after one of these operations had been performed. They are sent to me because they are not cured; they are suffering from the general symptoms and signs of stasis; or perhaps some other complication has arisen, *e.g.* colitis.

The rational treatment of stasis is directed to the abolition of the undue retention of the contents of the lower ileum and the large intestine. In slight cases this may be done by the administration of liquid paraffin to accelerate the progress of the feces through the large intestine, and by

FIG. 24.—Rheumatoid arthritis, a disease frequently seen in the subjects of chronic intestinal stasis. The cancellous tissue of the bones is rarefied. The joint trouble subsides permanently on the relief of the stasis.

a spring support for the lower abdomen, to prevent the dropping of the large intestine and the lower coils of the ileum, and to obviate the evil consequences of an ileal kink if there be one.

In severe cases of stasis, too advanced to gain

sufficient relief from the above treatment, operative measures are needed; short-circuiting the ileum, near its lower end, into the rectum, and making a kink in the iliac colon above the short-circuit to prevent or diminish the regurgitation of the ileal contents from the rectum into the descending colon. Often there is already a well-developed kink in this region (Fig. 12), or there is a slight kink which can be made more effective at the operation. In some cases, where the large intestine is very unhealthy, and would cause flatulent distension and other trouble if left, Sir Arbuthnot Lane now removes the whole big bowel above the short-circuit opening at the time of the first operation. Formerly he would do this at a subsequent operation if it proved necessary; with increased experience, however, one is now able to judge, in a particular case, whether the big bowel must be removed, or may be retained. All the details of the operations have been described by Lane, and are now well known and are practised extensively by a number of prominent surgeons throughout the world.

We come now to the results of the radical treatment of stasis from the radiological standpoint: Can we show, by radiology, that the stasis has been relieved? Certainly we can; in a successful case the whole bismuth meal is in the rectum after 6 or 8 hours (Fig. 23). The stasis has been cured. If the large intestine has been left there may be some bismuth in the descending colon for a few hours (Fig. 22), but as soon as the patient has an evacuation this comes down and is passed with the rest. Some of the cases in which the bismuth passes back, not merely into the descending colon but right back to the cecum, are those in which the subsequent removal of the big bowel becomes necessary on account of flatulent distension and tenderness due to the irritation set up in the bowel wall by the retention of lumps of secretion in the big bowel.

The question will be asked, what is the effect of the radical cure of stasis upon the distended duodenum? If the explanation ascribing the "static" duodenum to the downward pull on the upper jejunum be the true one, then the cure of the ileal stasis should abolish this downward pull, and should, therefore, relieve the duodenal distention. Does it do so? Yes. I have reinvestigated a large number of patients after short-circuiting, at varying intervals, from three weeks to several years, and the general conclusions are as follows: The duodenal obstruction, as shown by "writhing" contractions, and repeated return of the bismuth toward the pylorus, are relieved at once by the 3 or 4 weeks recumbency following the operation, and do not come again even after the patient has resumed ordinary conditions of life and work. The duodenum does not return at once to its normal size, but gradually—in the course of months—it becomes smaller and shorter, though in old, neglected cases the duodenum tends to remain permanently more "baggy" than normal; but the chief point is that the duodenum never again becomes distended; it is no longer found full of bismuth; its outlines can be sketched only by observing small quantities of bismuth as they pass through it—which they do without delay—into the jejunum. No photograph of the "cured" duodenum can be taken, in marked contrast to the state of things before the operation, when a most striking photograph of the distended duodenum is readily obtained.

Another proof of the efficacy of the radical treatment is shown in the stomach, which loses its constant pyloric spasm, so that the rate of emptying of the stomach becomes normal, or nearly so within a few months after the operation. This was exemplified to me in a most striking way recently when I reexamined a woman six months after she had been "short-circuited" by Sir Arbuthnot Lane. Before the operation she had furnished one of my most striking instances of the distended, "writhing" duodenum, and scarcely any bismuth had left the stomach after 6½ hours. Now (6 months later) the whole of the bismuth was in the rectum after six hours, a little having run up the descending colon, and the whole had been evacuated within 24 hours. The duodenum could not be photographed, the bismuth passing through it, little by little, without difficulty, so that the duodenum was never seen filled with bismuth, in striking contrast with its behavior before the operation. Thus the patient has been relieved of all the signs and symptoms of stasis, and her stomach and duodenum have been put out of danger; the duodenum is no longer infected with microbes from the stagnant ileum, and the duodenal distension and overloading of the stomach have been rectified.

I have given details of other aspects of stasis in a contribution to the *International Journal of Surgery*, for April, 1914, with a series of skiagrams illustrating many of the changes due to the disease.

Much progress is being made on both sides of the Atlantic in our understanding of Chronic Intestinal Stasis, but there is still scope for searching inquiry by surgeons, clinicians, radiologists, pathologists, and in fact all medical workers, in the realm which has been discovered by the far-reaching observations of Sir Arbuthnot Lane.

Here, in the New York Polyclinic, I see earnest investigators at work on the stasis problem. Dr. Quimby is attacking it from the radiological side; Dr. Hayes and others from the medical and pathological standpoint, while Dr. William Seaman Bainbridge is getting brilliantly successful results from the application of surgical measures to the relief of chronic intestinal stasis.

FOUR CLINICAL LECTURES.

HELD AT THE NEW YORK POLYCLINIC MEDICAL SCHOOL AND HOSPITAL DURING THE WEEK OF THE MEETING OF THE INTERNATIONAL SURGICAL CONGRESS.

Fractures and Burns.

Dr. John A. Wyeth, as President of the Faculty and Senior Surgeon of the New York Polyclinic Medical School and Hospital, after welcoming the visiting physicians and surgeons, spoke briefly on "Fractures and Burns," presenting illustrative cases of each. Dr. Weyth said in part:

I shall speak this morning of factures of a single bone, the patella. As you know, fractures of the patella are caused, as a rule, by violent contractions of the quadriceps extensor muscle while the leg is in extreme flexion. The bone may be broken by a direct blow or by a fall on the knee. A blow and muscular action may combine to break it.

The line of fracture is usually transverse, or nearly so, just below the middle of the bone. The break may occur, however, above or below this plane. Occasionally the bone is split longitudinally by direct violence, or it may be comminuted. Fracture of the patella is rarely incomplete, the sepa-

ration of the fragments varying from the smallest fraction of an inch to as much as two or more inches, and being wider at the inner than the outer border. This lesion occurs, in the majority of instances, between the ages of twenty and forty, and is more common in males than in females.

Because of the superficial location of the lesion the diagnosis is easily made, the depression between the separated fragments serving as a guide. Should the separation be very slight, lateral motion of one fragment upon the other will elicit crepitus.

In the treatment of this condition I have lately used a very simple, satisfactory, and painless method of holding the fragments in continuous apposition. After the transverse incision, which exposes both broken surfaces, the clot is washed out with hot sterile salt solution, and the frazzled periosteal edges are sutured together with fine linen, thus approximating the fragments. The skin incision is then sutured with chromicized catgut.

On a two and a half inch, half-curved Hagedorn needle, a very strong linen thread, twelve inches long (No. 4) is carried from side to side, deep into the substance of the ligamentum patellæ, just at its insertion into the lower rim of this bone. A like thread is inserted well into the substance of the quadriceps extensor tendon at the upper margin of the upper fragment. A light gauze dressing is placed over the line of incision, and over this the apposing ends of the two linen loops on each side, above and below, are tied tight enough to hold the fragments in close and continuous apposition, and without the possibility of overriding.

A dry gauze dressing covers the field of operation, and a plaster-of-Paris cast is applied, holding the knee immobilized for eight weeks. At the expiration of this time the holding sutures are removed and the fragments are held securely in apposition, while the knee is bent to not more than 20 degrees. The cast is reapplied and worn for four weeks longer.

The limb is now put to use, with the necessary precaution to prevent severe strain in overflexion for at least six months.

I have employed this method in the cases presented, with satisfactory results.

I wish also to present a case of an extensive burn of the face, neck, chest, and right arm. This patient was brought to the hospital in the ambulance last night, in a state of shock, after having been rescued from a burning building.

In connection with this case it may not be amiss to recall to your minds a few points concerning burns and scalds, which, as you know, may vary in degree from the mildest form which produces a simple inflammation of the epidermis, to the most severe form, which destroys all the tissues or organs or a part, and which may result in the death of the individual. The gravity of the prognosis is usually proportionate to the extent of the surface of the integument destroyed, rather than to the depth of the destructive process.

Burns of the head and face, such as the patient presented, are the most dangerous; those of the extremities the least grave. Recovery rarely follows destruction of one-third of the cutaneous surface. Death may result from shock, from ulcer of the duodenum, or from exhaustion following prolonged suppuration and septic absorption.

When a severe burn or scald is encountered the immediate indication is relief of pain by the hypodermatic administration of morphia, or by some form of opium given by rectum or stomach. The most convenient local remedy is a saturated solution of baking soda in water, with submersion of the burned surface, if possible, or a mixture of bicarbonate of soda and cornstarch, one teaspoonful of each to a quart of water. The dressing should be kept wet with the solution, which is applied freely to the burned area. After five or six hours the free application of the following mixture, made into an emulsion, will be found beneficial:

Ichthyol ..... ℥ss
Cotton-seed or olive oil ..... O.ss
Limewater ..... O.ss

This should be continuously applied for the first three to five days during the stage of acute inflammation.

In order to bring about rapid repair of the skin the following ingredients, mixed thoroughly, may be used:

Ichthyol ..... ℥j
Diachylon ointment,
White vaseline ..... āā ℥iij

If these remedies are not convenient, the following may be substituted with equal benefit:

Lead plaster,
Liquid albolene,
Lanolin,
Vaseline ..... āā ℥j

These are melted together, and, when cooling, 40 minims of ichthyol added.

Either of these ointments should be applied thickly on the soft, linty side of canton flannel, on surgeon's lint, or on several layers of sterile gauze. The application should be repeated daily at first, after opening all blebs. In opening the blebs care should be taken not to remove the epidermis of the bleb, as this may become revitalized, thus greatly accelerating the healing process. In changing the dressing it is important not to disturb new granulations, but simply to wipe over them. When healing is well under way the dressing need be changed only every second or third day.

In the treatment of the depression or shock which often follows severe burns, stimulation with whiskey or brandy, by enema or by mouth, is indicated, as well as the hypodermic injection of morphine. Physiological salt solution, introduced by the colon, or injected into the areolar tissue, is of great value when the burn is extensive and the shock profound. It should always be remembered that opium and alcohol should be given sufficiently cautiously to avoid too profound narcosis with the former, and with the latter increase in the fever reaction which follows when the patient rallies from the shock.

In an emergency, when the remedies mentioned may not be obtained, a coating of ordinary white lead, as mixed for use in painting dwellings, is an efficient protection when poured over the burn. Flour sprinkled over until all the excoriated surface is well hidden is a method of treatment which is applicable in almost any emergency. Rubber tissue, or oil-silk, sterilized and laid over the raw surface, with cotton batting applied over it, but never directly on the burned surface, is equally efficient. Lint, or a soft cloth, dipped in a 2 per cent. carbolized oil, may be employed directly on the burn.

No pressure should be exercised in holding the dressings in place. When the back and posterior aspects of the extremities are chiefly involved, the prone position is of necessity maintained.

Operations for Inguinal Hernia Under Local Anesthesia.

Dr. John A. Bodine presented a case of ordinary right-sided inguinal hernia, upon which he operated under local anesthesia, employing a solution of novocain, 1-500. Dr. Bodine said in part:

In operating under local anesthesia the nervous apprehension of the patient may be quieted to a great degree by a calmative demeanor upon the part of the surgeon and his assistants. This is also influenced by the patient's position upon the table. A position of comfort and relaxation should be maintained. If the arms are crossed above the head the patient will be "fidgety" throughout the operation.

In the effort to avoid bleeding points it is of great importance that the lower end of the incision should not extend beyond the lateral end of the suprapubic skin fold. It may be started as high as one desires. This incision may be deepened to the operative field without encountering a vessel large enough to demand a ligature, whereas, if the incision be extended an inch lower, a large number of ligatures will be required. Not only does the catgut thus employed, when softened by the tissues, invite sepsis, but, in cocaine work, it means a number of acute stabbing pains whenever a blood vessel is cut or tied. The incision so placed gives ample room by downward traction of the mobile skin, and nearly always permits the completion of the operation without the use of a ligature.

The line of incision is infiltrated with the novocain or other anesthetic solution throughout its extent. This is accomplished by introducing the needle just under the superficial epithelium. The anesthesia thus induced will permit the incision to be painlessly deepened to the aponeurosis of the external oblique. Upon splitting and reflecting the aponeurosis, the iliohypogastric nerve is anesthetized by injecting a little of the solution into the sheath of the nerve as high up as possible.

The ilio-inguinal nerve is also sought, but if it is not found the hernial coverings should be infiltrated in a straight line over the neck of the sac, and the incision deepened until this structure is reached. If omentum is excised it is generally gently withdrawn, ligated and amputated without additonal injection, and, in my experience, without pain. If, however, only the iliohypogastric nerve has been found some infiltration will be needed into the conjoined tendon. The cord is lifted from its position and the operation concluded according to the Bassini method.

Two suggestions are offered which have proved of worth to me: First, if a strip of gauze is used to hold up the cord it may, during the necessary manipulation, roll the cord on its long axis, and exposure to air may cause agglutination in this position of torsion. A wetted strand of catgut as a retractor will obviate this danger. Second, the deep suture should include but one-half the thickness of the conjoined tendon, thus avoiding strangulation.

Fractures.

Dr. Alexander Lyle presented three patients whose histories were briefly detailed, in part, as follows:

Case I.—This patient, a man forty-nine years of age, while working in the well of an elevator was crushed by the descending car, sustaining injuries to the pelvis. Upon being released from his confined position he complained of scarcely any pain, and it was not until he made an attempt to stand that the pain became noticeable.

Careful examination revealed a fracture of the pelvis, the exact extent of which could not be determined by palpation. Examination by rectum elicited no evidence of injury to this organ, and catheterization of the bladder showed no blood in the urine. Shock was not marked. The patient was placed in bed and a very tight wide muslin binder put about the pelvis. The following day an *x*-ray examination was made, which revealed a very marked bilateral fracture of the pelvis. In the skiagraph an irregular line of the fracture could be seen, starting from the crest of the ilium and extending down, terminating in the greater sciatic notch. There were no wounds in the skin.

The patient was observed very closely after being put to bed, in order to determine the presence of any internal injuries, but the abdominal viscera proved to be uninjured.

The treatment of this case, like that of all fractures of the pelvis, has been very simple. Straps of adhesive plaster were brought around the pelvis, in order to immobilize it, and this was reinforced by a firm muslin bandage. The patient's convalescence has been uneventful. He will be kept quiet in bed for eight weeks before he is allowed to stand.

Fig. 1.—Fracture of the neck of the humerus.

In all cases of this kind it is well to bear in mind the great danger of rupture of the urethra, of the bladder, and of the pelvic vessels. As soon as internal injury can be determined operation should be resorted to.

Case II.—The next patient, a woman of thirty-five years of age, sustained a transverse fracture of the surgical neck of the humerus, as shown in Fig. 1. The head of the humerus may be seen in the glenoid fossa, while the broken end of the shaft has pierced the pectoral muscles and lies immediately beneath the clavicle.

After several attempts to reduce this fracture and to hold it in position by mechanical means had failed, it was determined to open through the deltoid and replace the fragments. With complete ether anesthesia, the bone was exposed. Upon bringing the fragments together it was found that they could be dove-tailed into each other so firmly that plating or wiring was unneces-

sary. The tissues were then sutured, a small pad of cotton placed in the axilla, and a firm plaster-of-Paris spica applied.

The patient's condition being excellent, the dressing was not removed for four weeks. It was then taken down and a light one applied, which remained for two

Fig. 2.—Fracture of the neck of the humerus after reduction.

weeks longer. Following removal of this, massage and passive motion were used, the patient now having almost complete use of her arm. Fig. 2 shows the condition after operation.

Case III.—The third patient is a young man twenty-four years of age, who sustained a fracture of the lower third of the right femur, as shown in Fig. 3. He is a truck driver by occupation, and is consequently very muscular. It will be noticed in the plate that the muscles have contracted to such an extent that the fragments have overlapped fully an inch.

Formerly our treatment in such cases consisted in the application of Buck's extension, with sufficient weights attached to counteract the muscular force. Much of this traction was exerted upon or below the knee, and consequently knee-joint complications often became more severe than the fracture. We now have a very decided improvement in the line of traction in the Steinmann nail. This consists of a long spike of steel which is put through the lower end of the femur, just above the condyles, and by the use of tongs traction is exerted upon this, the knee-joint being left perfectly free.

Fig. 4 shows the femur after the Steinmann apparatus has been in service and twelve pounds of weight applied over the pulley. It will be observed that not only has the muscular force been overcome, but that the fragments have been pulled over an inch apart. At this point the weights were reduced to six pounds, and a plaster-of-Paris roll bandage applied over the lower two-thirds of the femur, in order thoroughly to immobilize the fragments that are now in perfect alignment.

The patient's convalesence was normal in every respect and he was able to walk out of the hospital, without the assistance of even a cane, at the end of eight weeks.

Cancer.

Dr. William Seaman Bainbridge presented a number of cancer patients. In some instances the patients had been operated upon at a previous time, in others operations were performed on this occasion. One particular case, belonging to the first category, suggested certain practical points with reference to the diagnosis and treatment of malignant disease, a partial report of which is here given:

The patient, a woman, seventy-one years of age, presented herself at the hospital in March, 1914, complaining of "throat trouble." In January, according to the history, another physician opened the left tonsil for "quinsy," the tonsil at that time being enlarged and painful. The diagnosis of syphilis had been made by one physician consulted, but the Wassermann reaction was negative, as was likewise the history. Before I saw her for the first time, in March, a small piece of the tonsil had been removed for pathological examination, and the pathologist had reported "inflammatory tissue."

When the patient came under my observation the tonsil was very much enlarged, indurated, and the surface ulcerated. The surrounding tissue was edematous and reddened. The patient complained of great pain, and of difficulty in swallowing. Three sections were removed from the ulcerated portion, and these were given to three independent pathologists for examination. One sent in the report, "inflammatory tissue"; the other two reported "sarcoma." The latter coincided with the clinical diagnosis, and, inasmuch as the mass was growing very rapidly, with danger of death from hemorrhage, immediate operation was advised.

On April 3, at the Polyclinic Hospital, the patient was operated upon under general ether anesthesia. The external carotid artery, including the ascending pharyngeal branch, was ligated, and the mass removed, with as thorough dissection as circumstances allowed.

The patient recovered from the operation, and experienced great relief from the dysphagia and general suffering caused by this enormous mass, which had filled almost the entire mouth. To have left this mass, involving the soft palate, and interfering with respiration and deglutition, would have meant early death, either from hemorrhage or from pressure upon the trachea and consequent interference with breathing. By tying off the large vessels it was possible to remove the tumor, to relieve suffering and to prolong life.

After the operation pieces of the tonsil were again sent to different pathologists for a verification, if possible, of the clinical diagnosis of malignancy. Of the four pathologists who examined these independently, three reported round-celled sarcoma, and one, inflammatory tissue.

A B

Fig. 3.—Fracture of the femur; A, front view; B, side view.

A case of this kind is fraught with a number of valuable lessons.

In the first place, it emphasizes the vital importance of making a careful and thorough diagnosis, even in apparently simple affections such as

"sore throat" and "quinsy." Many times, in the daily routine of the busy practitioner or of the hospital or dispensary physician, it is difficult to accord to each case the careful diagnostic consideration which it should receive. For this reason the conscientious and capable physician or surgeon may make errors in diagnosis which a little more time, care, and thought would obviate.

The same thing, it seems, applies to the pathologist. If, armed with an adequate history of the case and with the clinician's presumptive diagnosis of malignancy, the pathologist is content to examine one or two slides with negative results, and to render a negative report, he is very apt to fall into many pitfalls in diagnosis. Ordinarily, a few slides will reveal the true diagnosis, but it must not be forgotten that this may not be the case. Sometimes malignancy is established only after the examination of a large number of sections. Numbers of instances of this kind have been reported by myself and others. For this reason a negative pathological

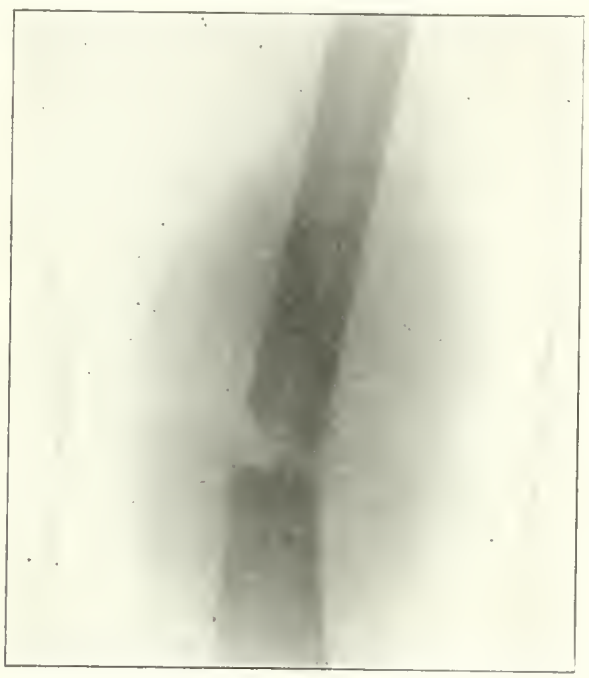

Fig. 4.—Fracture of the femur, shown in Fig. 3, after treatment with the Steinmann apparatus.

diagnosis should not be accepted in the light of positive clinical evidence of malignancy. The case under discussion illustrates this point.

In this connection it may be reiterated that adequate clinical data in each case should be given to the pathologist. It is fair neither to the pathologist, to the patient, nor to the surgeon himself, that the laboratory worker be expected, from the sections alone, to give reliable findings in all cases.

In the second place, the case emphasizes the importance of bearing in mind the question of the auto-infectivity of cancer. It cannot be positively stated, but, from the subsequent history, it is quite probable that the first operation, that of incising the tonsil for what was supposed to be "quinsy," or acute suppurative tonsillitis, stimulated malignant growth and accounted for the rapid development of the sarcoma. It is likewise quite fair to assume that this operation very materially affected the ultimate outcome of the case, for, while the patient, at the present time, is fairly comfortable, can breathe and swallow with ease, and is free from the danger of immediate death from hemorrhage, suspicious induration in the neck suggests early and rapid recurrence.

This patient's history recalls another case which came under my observation in this institution in 1908. Each illustrates, in a telling manner, the dangers of breaking down nature's barriers either for the purpose of taking specimens for microscopic study or through an error in diagnosis. In the case which I have just presented to you the growth was first cut into through a mistake in diagnosis, and afterward for the purpose of taking a specimen. In the other case to which I refer the second error was committed. In this instance a little boy, three years of age, developed a small tumor in front of the ear after a fall which caused a bruise in this region. The interne in the dispensary of the hospital to which the mother carried the child cut into this small lump and took out a section for pathological examination, telling the mother to return with the child in two weeks. The result was that the tumor increased enormously in size and with great rapidity, with involvement of the lymphatics of the neck and with metastases in the liver, spleen, and testes. Within about nine months from the time the child received the fall the condition had become inoperable, and the neoplasms, which proved to be sarcoma, irremovable. This was the condition when I first saw the patient, consequently no operation was performed. The child died early in December, the fall having occurred in February.

Such cases, one in a woman of seventy-one and the other in a child of three, emphasize the importance of keeping nature's barriers intact, in all instances where there is a doubtful question of malignancy. Instead of incising the unbroken skin or mucous membrane, the entire tumor should be removed and the section taken afterward for purposes of verification of diagnosis, and for determining the advisability of more extensive removal of tissue. If, perchance, nature's barriers have already been broken down, as in the case of the woman, a section may generally be removed without increasing the danger of extension. Under all circumstances, when the clinical diagnosis of maligancy is doubtful and a section is removed for microscopic verification or reinforcement, a prompt report should be insisted upon, in order that immediate operation may be resorted to if necessary. Inasmuch as negative pathological reports are not to be accepted in the face of positive clinical diagnosis, it is often advantageous to resort to frozen sections at the time of operation for the purpose of determining, in the light of the pathological findings, the extent of operative interference.

In closing I wish to reiterate once more the imperative duty of every surgeon who operates upon cancer patients to utilize all the diagnostic aids now at our command before pronouncing a condition malignant or non-malignant. Sins of commission may be just as disastrous to the patient as sins of omission in the matter of operative interference, and it is only by refinements of diagnosis, plus a goodly exercise of common sense, that we may avoid both pitfalls.

Diffuse Bilateral Sarcomatosis of the Kidneys.—U. Parodi reports a case of this condition in which there was in addition a diffuse infiltration of the liver and of the bone marrow with lymphocytes. Although the spleen was of normal size it was also the seat of a lymphocytomatosis.—*Archivio per le Scienze Mediche.*

SALVARSAN IN THE TREATMENT OF SYPHILIS;

WITH SPECIAL REFERENCE TO THE USE OF SALVARSANIZED SERUM IN CASES OF SYPHILIS OF THE CENTRAL NERVOUS SYSTEM.

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AND
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ON our return trip from the International Congress of Medicine which met in London last August, one of us (Crowell) prepared a paper giving briefly the results of the latest work done in Prof. Ehrlich's Laboratory. This information was obtained from him while conducting our party through his laboratory and from his paper on chemotherapy, which he read at the above-named congress. Believing the members of this Society would be interested in some phases of this paper and especially that portion with reference to the use of salvarsanized serum in the treatment of certain cases of syphilis affecting the central nervous system we decided to reproduce this paper briefly and report some cases in which we have treated the spinal fluid with salvarsanized serum with apparent excellent results.

In his investigations to ascertain the way in which salvarsan acted upon the *Spirochæta pallida*, Professor Ehrlich found it somewhat different from what was first supposed. (In this, parenthetically, we will say that we believe he has laid the foundation upon which a chemotherapy may be built that will eventually result in the discovery of specific therapeutic remedies that will apply to all infections equally as efficient as "606" in the treatment of syphilis.)

It is now known that parasites are killed only by those drugs for which they have an affinity. These drugs are termed parasitatropic.

At first the theory was that "606" destroyed the spirochete by direct action, but further investigation shows it to be indirect as well, in that it fixes the remedy and excites the organism to the formation of specific antisubstances. This view is based upon the fact that a solution of salvarsan may be added to a tube which contains the microorganisms without either destroying them directly or diminishing their motility. If, however, these are injected into test mice they will not infect the animal, while those not so treated will. This shows that the salvarsan is absorbed by the spirochetes and so damages them as to prevent their increase in the human body. In this way the direct effect of the remedy by fixation is proved, but it acts in a different manner from what was first supposed.

Ehrlich found that when a race of trypanosomes had been rendered immune against all the allies of fuchsin it was still not immune against arsenic and other compounds. This shows that the immunity is of specific nature since it is limited to a definite class of substances and shows it to be a purely chemical process.

He also discovered that in the parasites there are different specific chemoreceptors which condition the fixation of salvarsan and other drugs at the same time. This gives an intelligent reason for the use of mercury with salvarsan in the treatment of syphilis and the only one I have ever heard. A complete knowledge of all chemoreceptors of a given parasite is the basis upon which rests the success of chemotherapy and which is gradually and surely being worked out. The larger the number of different chemoreceptors, therefore, which can be demonstrated, the greater is the possibility of a successful chemotherapy.

To apply specific remedies, it is necessary to select one chemically allied to one of the chemoreceptors of the parasite; one which is not only haptophoric (fixes) but is toxophoric (destroys) as well. "The toxophoric groups of synthetic drugs poison the protoplasm of the bacterial cell when a chemical affinity exists between the toxophoric grouping and the cell constitutent."

It is not a difficult matter to destroy germs in a solution, but the question of internal disinfection is a very difficult one, as the living parasites are within the infected organism. Such poisons as would destroy the germs in solution may be powerful cell poisons—organotropic as well as parasitotropic. Bichloride of mercury would be useless for this purpose, though a parasitotropic, yet so powerfully organotropic as to render it useless for such a purpose. Only such substances can be considered therapeutic agents of which a fraction of the dosis tolerata is sufficient to bring about therapeutic effects.

The organotropic effect of a drug is due to the fact that there are quite different chemoreceptors in the various cells of the body, just as found in the parasites. Ehrlich domonstrated that parasites possess a whole series of chemoreceptors different from each other. If we can discover a grouping in the parasites which has no analogue in the organs of the body, the possibility of constructing an ideal remedy is accomplished. Such a remedy would be innocuous, as it is not fixed by the body cell and strikes the parasites with full intensity.

The theoretical and experimental work is easy, but the step from the laboratory to the bedside is difficult and dangerous, on account of the idiosyncrasies of men to certain drugs. This supersensitiveness does not exist in animals. Salvarsan is so constructed that a manifestation of a supersensitiveness to it is one of the rarest occurrences, owing to the fact that the protoplasmic cell receptors do not fix the drug, but it is fixed only by the cell receptors of the spirochete.

The apparent idiosyncrasies following its administration in man are due to errors in its preparation and administration. Too large an addition of alkali injures the veins used for injection, too small an amount causes blood coagulation and leads to thrombosis. Lengthy shaking of the solution and standing in the air oxidize the drug and make it much more toxic, forming an oxide of arsenic.

Secondly, certain constitutional diseases, such as Addison's disease and status lymphaticus, cause a supersensitiveness to arsenic compounds. Here the resisting power is lowered in addition to the supersensitiveness to the drug.

The seat and location of the disease may bring about a supersensitiveness excited by a local reaction. The rapid disintegration of a focus of parasites liberates toxins, which irritate the tissues and produce a hyperemia and swelling. This is of no significance if the reaction center is in the skin, but if it is located in the neighborhood of vital organs (brain) then this reaction may bring about changes inimical to life, or may even cause death.

We believe this fact calls for a thorough investi-

gation of each patient coming under our care. Also the administration of iodide of potassium previous to giving salvarsan for the liberation of such central focuses is very advisable in many cases. These facts make the treatment of syphilitics not only a difficult but a responsible task.

To free the body of spirochetes by means of one or two injections of "606," it is necessary that the dose be in proportion to the advance of the disease, since a definite number of parasites is destroyed by a definite dose of the remedy. The amount of the drug must be increased in proportion to the multiplicity of the parasites. These important facts call for the earliest treatment of syphilis possible, since not only is it far more possible to stamp out the disease with one or two doses of salvarsan in the early stages, but there is danger of irreparable injury to health or even the possibility of producing death in the late stages by endotoxins. Here the dark field illuminator and serological aids in our diagnostic work are of greatest importance.

The causes which make it possible to rid the system of parasites are not only the drug administered but the action of the antibody produced by the cell under the influence of the drug. This is especially true of the protozoa.

Spirochetes may escape the destructive action of both the drug and antibody and be changed into a new serum-proof variety known as a relapsing group. This is especially true of the trypanosomes, in particular those of syphilis. Such parasites offer very great difficulty in their treatment, since the auxiliary forces of the body fail to act. This makes it quite important to destroy the parasites all at once by means of drugs. Their great power of adaptation makes it possible for a single germ to cause a fresh outbreak of the disease.

The great difficulty then of a complete sterilization of the body by means of a single dose of medicine is due to the fact that there are in the body what are known as dead spaces or corners, one of which is the hollow situated between the spinal cord and the dura. This is filled with fluid almost entirely free from cells and albumin, the cerebrospinal fluid. The cells by which this fluid is secreted are highly impervious to most of the constituents of the organism such as albumin, and permit only a limited quantity of substances with small molecules to pass through. The drug with more complex molecules are, like albumin, kept back and unable to exert their influence on the cerebrospinal fluid; this makes it well nigh impossible to destroy parasites located here.

Another reason for deficient sterilization is that among the large number of parasites there may be some unaffected by salvarsan. This fact does not play an important part in the course of fresh infection, but is quite important in connection with certain cases of syphilis characterized by innumerable relapsing crops of the microorganism.

Here one of two things may occur: First, it is possible for a drug-proof stock to be formed by adaptation, or, in other words, a strain may arise which is immune to the action of the drug. Second, the continual formation of relapsing crops can bring about a change in the chemoreceptors of the parasites and result either in an increased or a reduced power of resistance to the drug. We should expect, however, that the relapsing crops would become much less sensitive to the action of the drug than the original stock. These few facts show how difficult it is to cure syphilis in the late stages. In fact, I heard no less an authority than Professor Wassermann say at the International Congress in London that he doubted very much our ability to cure syphilis (up to the present) where it had existed for three years. Others thought it possible but only after a long series of injections—the so-called serial treatment.

I believe it possible to cure almost any case at any stage of the disease by treating the dead spaces in the body and persisting in the treatment sufficiently long.

Efforts have been made to render the epithelium more previous to therapeutic agents—so to change the cells as to allow more of the therapeutic agent to pass into the cerebrospinal fluid. This has proved unsuccessful.

Direct injection of the remedy into the cerebrospinal fluid has been tried, but Professor Ehrlich is of the opinion—as the result of experimental work on animals—that these membranes are too sensitive for this, and advises the use of salvarsanized serum according to the plan suggested by Swift and Ellis of the Rockefeller Institute. The technique of this operation is as follows: First, give the salvarsan and draw into sterile tubes one hour thereafter about 50 c.c. of blood. Serum is obtained from this and 30 c.c. of a 40 to 50 per cent. solution of this serum is injected into the spinal fluid twenty-four hours thereafter. The saline solution for diluting this serum should be made of freshly distilled water. It is always well to withdraw as much as 30 c.c. of the cerebrospinal fluid before injecting the serum, and more if the pressure is high. This is practically always the case when the cell count is high and the globulin and Wassermann reactions are positive. It is well to bring the pressure down to 30 mm. before injecting the serum. This plan of administering the remedy obviates the ill effects of the drug on the sensitive central nervous system and at the same time makes it possible to apply the curative agent in sufficient quantities.

Our investigations have not gone sufficiently far for us to say what are the positive indications for this method of treatment. At present, it appears to us the cases most likely to be benefited by this plan of treatment are those that have a spinal fluid with high pressure, a high cell count, a positive globulin and a positive Wassermann reaction.

The following cases which we have treated upon this plan with results obtained are reported by Dr. Munroe:

As the clinical forms of syphilis of the nervous system are largely abstractions yet for the definite application of therapeutic measures it is well to have distinctive lines drawn to indicate the recognized clinical types.

It is not the purpose of this paper to discuss this classification, but it is necessary to refer briefly to the fact that a distinction is hereby made between cerebral syphilis and paresis. There are those who maintain that there are no real distinctions to be drawn. The majority perhaps say that the distinctions are justified not only by clinical symptoms but by the histological pathology, the different biological tests and the diverse results of therapy. It is only true to state that these differences are gradually melting away under the influence of more accurate clinical examinations and fuller laboratory researches.

Strictly speaking, one should say paresis is one form of cerebral syphilis, the spirochetes which are

being now recognized as the etiological factor having been demonstrated in the brain tissue. Yet, therapeutically, the same results have not been obtained as the condition known as cerebral syphilis; and for this reason it may be well, for the present at least, to observe the distinction.

There have been those who have contended that the therapeutic tests draw a decisive line, arguing that the paretic cases would not yield at all to treatment. It is true that paresis and tabes have been most resistant to ordinary treatment and it has been in hope of overcoming this resistance that we have been experimenting with a view to reaching more directly the diseased tissues. In the application of this treatment, however, we have not confined our work to paresis but are trying this method as described above on all cases that show disease of the central nervous system. We are not prepared yet to give the final results of this treatment because sufficient time has not elapsed.

Our present purpose is to make a preliminary report of a few cases in which the results, up to the present at least, appear nopeful.

The important points to be considered in connection with the diagnosis are: (1) Wassermann of the blood; (2) Wassermann of the spinal fluid; (3) pressure of the spinal fluid; (4) cell count of the spinal fluid; (5) globulin reaction of the spinal fluid; (6) condition of pupillary reflexes.

Favorable therapeutic results are predicated on improvement in any or all of these features, together with improvement in the general symptoms of organic nervous diseases.

Case I.—Mr. W. Cerebral Syphilis.—Had been treated previously with five doses of salvarsan, intravenously. At the beginning of the present course of treatment the blood Wassermann was very positive, the spinal fluid Wassermann weakly positive, globulin weakly positive, cell count 11, pupils negative. Five treatments of salvarsan were given intravenously and in three of the treatments salvarsanized serum was injected into the spinal cavity. After this course of treatment the blood became negative. Spinal fluid negative. Cell count reduced to 3. The general symptoms had entirely disappeared.

Case II.—Mr. L. Paresis.—In this case blood Wassermann strongly positive, spinal fluid Wassermann positive, globulin reaction positive, cell count 48. The pressure in this case was 160 mm., Hg. Pupils small and sluggish. Three treatments were given of salvarsan and in connection with two of them salvarsanized serum was injected into the spinal cavity. Mercury inunction was also used. As a result of these treatments the blood became negative to Wassermann, cell count 5, and globulin negative. Pressure not taken. I regret to say that this case did not remain with us long enough to complete even one course of treatment and has not been under observation since these treatments and I am quite sure that he will need further treatment and examination if any permanent results are to be expected.

(Since this report was made the patient has returned and has been given more treatments of salvarsanized serum. Mental condition still good and Wassermann negative. Cell count 5.)

Case III.—Mr. H. Cerebral Syphilis.—Blood Wassermann positive. Special Wassermann positive. Globulin weakly positive. Cell count 22. Pressure was not taken. Pupils negative. Five salvarsan treatments were given and along with three of the five, salvarsanized serum was injected into the spinal cavity. After treatment, cell count was 3, globulin slightly positive, and Wassermann on spinal fluid and blood negative. General symptoms very much improved.

These are three of a number of cases now under treatment and observation and a mere outline is given showing improved conditions of spinal fluid in every case. We have not gone into details of the general symptoms, but as intimated these have shown marked improvement, some of them disappearing all together. It is our purpose at a later time to report these and other cases with tabulated statements of results. It is too early yet to predict what the ultimate results will be nor do we yet claim that this should be recognized as a firmly established mode of treatment.

COMPARATIVE WASSERMANN, COBRA, AND GLOBULIN TESTS IN SYPHILIS.

WITH A REPORT OF ONE HUNDRED AND FIVE REACTIONS.*

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In 1909 Weil[1] described the resistance of luetic red cells to cobra-venom hemolysis as a reaction of possible value in the diagnosis of syphilis. He found that while normal red cells were more or less rapidly hemolyzed with cobra-venom dilutions varying from 1 in 20,000 to 1 in 40,000, luetic red cells showed resistance to hemolysis with these dilutions. The reaction consisted in adding a portion of a 4 per cent. suspension of washed red cells to an equal portion of venom dilutions of the following strengths: 1 in 10,000, 1 in 20,000, 1 in 30,000, and 1 in 40,000.

The resistance of luetic red cells to cobra-venom hemolysis has been considered to be due to (1) a decreased lecithin cell content as a reactive phenomenon to the luetic toxin; (2) that the cells had become lecithin-fast, with the result that less lecithin was available in a free state for hemolysis; (3) that the cholesterin of luetic red cells was increased which inhibited hemolysis in certain dilutions; or (4) that neither the lecithin nor cholesterin content was altered, but that a dissociation had occurred with inhibition of hemolysis by the latter substance.

According to Pascucci[2] the stromata of red blood cells consist of one-third lecithin and cholesterin and two-thirds protein substances; while Wells[3] states that dried red blood cells contain, according to Hoppe-Seyler, lecithin 0.3 to 0.7 per cent. and cholesterin 0.2 to 0.3 per cent. In the process of hemolysis cobra venom unites with lecithin to form what has been designated by Keyes[4] as cobra-lecithin, or by von Dungern and Coca[5] as desoleolecithin.

It has been stated by Abderhalden[6] that if red cells were washed absolutely free from serum, hemolysis did not occur with cobra venom. He does not mention the species of cells or dilutions of venom employed. He found that if a very small amount of serum or lecithin was added hemolysis took place. Lecithin was apparently necessary for hemolysis. Human red cells contain, at least under normal conditions, sufficient lecithin for the union with cobra venom. With human normal red cells hemolysis occurs after washing three to five times with sodium chloride solution in the centrifuge to remove the serum, and without the addition of lecithin. It is possible, however, that enough serum remains, even though inappreciable, to influence hemolysis.

Whatever may ultimately prove to be the correct biochemical explanation, it is apparently true that luetic red cells behave differently than normal cells with the dilutions of cobra venom concerned in Weil's test. It should be mentioned in this connection that the resistance of red cells to hemolysis is

*Read before the American Association of Immunologists, Atlantic City, June 21, 1914.

not, in the strict sense, specific for syphilis, any more than the Wassermann reaction is specific for syphilis experimentally or clinically. Instances are common in which positive Wassermann reactions have been obtained by competent observers in a variety of conditions, such as scleroderma, scarlatina, leprosy, polycythemia, erythema multiforme, and non-luetic granulomata, such as pseudoleucemia. In addition, jaundice and chronic alcoholism interfere with complement fixation by the Wassermann method. According to Stafford the inoculation of tubercle vaccine may produce, in tuberculous patients, a positive Wassermann reaction. Nor is the reaction positive in more than 55 per cent. of latent tertiary syphilis. An analysis of 4,200 cases from the published reports of Corson-White[7], Schwartz,[8] Wassermann[9], Fleischmann,[10] Swift[11] and Cummer and Dexter[12] shows average positive Wassermann reactions in latent syphilis in 52 per cent. On the other hand, Schwartz obtained positive cobra reactions in one patient with scleroderma, in another with Raynaud's disease, and in three patients with advanced carcinoma, all of whom gave negative Wassermann reactions.

The Wassermann reaction is, however, a very important, if not the most important, confirmatory adjunct to a clinical diagnosis, and when repeatedly positive means syphilis in by far the larger percentage of cases. A negative reaction has less value in suspected latent tertiary conditions. While the cobra reaction does not fulfill all desired requirements in the diagnosis of syphilis, it nevertheless has an important field in clinical diagnosis when repeatedly positive, and is of value as an index for continued treatment of the disease.

In an article on this subject by Schottstaedt and myself[13] the technique of the reaction was described, together with the results obtained, to March 27, 1912, in an examination of 43 normals and controls and 87 patients with syphilis. Since then the test has been used in the examination of 105 individuals, making a total of 235 to May 1, 1914. Except in one instance mentioned below, the reaction has never been found positive in any individual in whom it was felt that syphilis could probably be excluded from a survey of the family and personal history and the physical examination. In the first test made, which was upon the blood of a patient with morbilliform erythema, the reaction was positive. It has never been possible to check this reaction with a Wassermann test, as the patient did not return. On the other hand, the cobra reaction has been negative in a number of instances of well defined luetic affections and in some others, in which from the clinical examination a luetic basis was suspected. The discrepancies were not great, barring the instances of early secondaries five and six weeks after infection. In these instances the clinical diagnosis was not in doubt.

Field[14] has reported the results obtained in a comparative study of the Wassermann and cobra-venom reactions in syphilis as follows:

	Primary (Per Cent)	Secondary (Per Cent)	Tertiary (Per Cent)	Questionable and Negative Cases (Per Cent)
Wassermann positive.	70	87	75	30
Cobra venom positive ..	76	75	73	40

Technique of the Cobra Test.—The cobra test has been used by me during the past year as follows: 2 c.c. of blood are drawn from one of the veins at the bend of the elbow into a 5 c.c. glass syringe containing 2 c.c. of 2 per cent. sodium citrate solution to prevent clotting. The blood-sodium citrate suspension is then placed in a 15 c.c. graduated centrifuge tube in the ice-box for a few hours, since less autohemolysis subsequently occurs, in the process of washing the cells, if the cells remain in contact with the serum and sodium citrate solution. The citrate and serum are then removed with a pipette and the tube filled with 0.9 per cent. sodium chloride solution, which is then placed in the centrifuge and the cells washed for about ten minutes at a speed of about 1000 revolutions per minute. This washing process is repeated three times, the supernatant solution being removed with a pipette and fresh sodium chloride solution added. After the last washing the cells are found to be packed in the bottom of the tube. It has been found convenient to remove with the pipette any cells in excess of 0.5 c.c. and then add enough 0.9 per cent. sodium chloride solution to bring the suspension to 12.5 c.c., which makes a 4 per cent. suspension of cells. The thumb is then placed over the end of the tube, which is inverted three or four times to secure an even suspension. One cubic centimeter of the 4 per cent. suspension is now added to each of four small test tubes. This is done with an accurate pipette. One cubic centimeter of cobra venom dilution, 1 in 15,000, is added to the first tube; 1 c.c. of dilution, 1 in 20,000, to the second tube; 1 c.c. of dilution, 1 in 30,000, to the third tube, and 1 c.c. of dilution, 1 in 40,000, to the fourth tube.

The tubes are then covered with tin-foil and placed in the incubator for one hour at 37° C. At the end of one hour the tubes are gently shaken and placed in the ice-box for about 24 hours. At the end of this period if the blood is negative all tubes will show complete hemolysis. If hemolysis has occurred in the first tube, to which the 1 in 15,000 dilution of venom was added, but has not occurred in the others, the tubes are gently shaken, to bring into suspension any cells at the bottom, and are placed in the ice-box for one hour longer. At the end of this period, if hemolysis has not occurred in the tubes to which the 20,000th, 30,000th and 40,000th dilutions of venom have been added, the reaction is positive. Hemolysis practically always occurs in the tube to which the 1 in 15,000 dilution of venom has been added. This tube consequently serves as a check upon the reagent. In normal bloods hemolysis occurs in a 4 per cent. suspension of cells to which an equal volume of cobra-venom dilutions as high as 1 in 40,000 to 1 in 60,000 has been added.

In a 4 per cent. cell suspension from patients with an active tuberculosis, hemolysis occurs six or seven times more rapidly with the dilutions concerned in this test than occurs with normal cells, a fact noticed by Schottstaedt, which was mentioned in our earlier article.[13] Noguchi[15] had, however, mentioned that in tuberculosis the red corpuscles are subnormal in point of resistance to hemolytic agents. The test as here applied serves to differentiate latent tuberculosis from syphilis in many cases, since in the former the red cells seem to be hypersusceptible, while in the latter the cells are hyposusceptible to cobra-venom hemolysis.

In luetic bloods, about two months after the primary lesion, hemolysis is retarded or does not

occur in a large majority of the cases, in the tubes to which dilutions of venom 1 in 20,000 or above have been added. The only apparent exceptions occur when the patient has had enough treatment to be considered clinically cured, or unless such a patient falls into the latent tertiary class, 25 per cent. of which may not give a positive reaction by this test, while the Wassermann fails also in approximately 50 per cent.

Remarks Upon the Technique.—Too rapid centrifugation in the electric centrifuge while washing the cells will render them so fragile that hemolysis of luetic cells may occur and the reaction be considered negative. A centrifugal speed of about 1000 revolutions per minute does not entail this risk. Failure to recognize this possibility has probably militated against the results in the hands of some workers.

It is important to make the 4 per cent. suspension of cells accurately, since an excess may be sufficient to inhibit hemolysis in some of the tubes and produce the effect of a positive reaction in normal blood.

It is also important to have the venom dilutions accurately and freshly made. With this end in view it has been found best to powder the crystalline venom to permit more accurate weighing. This is done by rubbing it in a mortar with a few drops of commercial benzine, which is allowed to evaporate, leaving an amorphous powder. The venom powder is then weighed into 0.5 mg. portions, and each portion placed in a small dry corked test tube until ready for use. If 1 c.c. of 0.9 per cent. sodium chloride solution is added to a tube containing 0.5 mg. venom, a stock 1 in 2000, dilution is secured from which the subdilutions are readily made as follows:

A—1 c.c. stock solution plus 4 c.c. 0.9 per cent. sod. chlor. sol. = 5 c.c. of dilution 1 in 10,000.

B—2 c.c. sol. —A— plus 1 c.c. 0.9 per cent. sod. chlor. sol. = 3 c.c. of dilution 1 in 15,000.

C—1 c.c. sol. —A— plus 1 c.c. 0.9 per cent. sod. chor. sol. = 2 c.c. of dilution 1 in 20,000.

D—1 c.c. sol. —B— plus 1 c.c. 0.9 per cent. sod. chlor. sol. = 2 c.c. of dilution 1 in 30,000.

E—1 c.c. sol. —C— plus 1 c.c. 0.9 per cent. sod. chlor. sol. = 2 c.c. of dilution 1 in 40,000.

It will thus be seen that 0.5 mg. venom made into the 1 in 2000 stock dilution is sufficient for two tests. The subdilutions hold their potency for at least four or five days if kept in the ice-box.*

Fresh specimens of venom should be tested and the hemolytic activity determined on normal and luetic red cells.

In performing the Noguchi butyric acid test for increased globulin the following procedure has been followed: To 1 c.c. of a 10 per cent. solution of pure butyric acid in physiological salt solution, in a test tube, 0.2 c.c. of blood serum or cerebrospinal fluid is added. The mixture is heated to boiling, 0.2 c.c. of normal sodium hydrate solution is added, and the mixture again boiled. In the presence of increased globulin a definite flocculent precipitate occurs either immediately or within an hour or two. In performing the test on cerebrospinal fluid only clear fluid, free from blood, should be used. The same procedure is applicable to clear blood serum, from which all blood cells have been removed by centrifugation. Hemoglobulin stained serum should be discarded. Part of the Wassermann tests were performed with the anti-sheep method; in the balance the anti-human method was followed.

Summary.—The conclusions here given comprise comparative cobra, Wassermann, and globulin tests in one hundred and five individuals. All "suspicious" reactions have been excluded.

1—In 30 normals and controls the Wassermann and cobra tests were negative. In 6 of these the globulin test was negative in spinal fluid. In 90 other normals and controls the cobra test was negative.

2—In 22 patients with secondary syphilis the Wassermann and cobra tests were positive. In 5 of these the globulin test was also positive in the spinal fluid, while in 7 the globulin test was positive in the blood serum.

3—In 7 patients with active and latent tertiary syphilis the cobra blood test was positive, and the globulin tests in blood serum and spinal fluid were positive.

4—In 24 late tertiary and clinically cured cases both Wassermann and cobra tests were negative.

5—In 1 patient with cerebral lues the Wassermann and cobra tests were negative, while the globulin test was positive in blood serum and spinal fluid.

6—In 7 patients with syphilis the cobra test was positive and the Wassermann was negative, while in 14 instances the Wassermann was positive and the cobra negative. Two of the latter were instances of early secondaries five and six weeks after infection, in which the diagnosis was not in doubt.

I am indebted to Dr. Richard Schottstaedt for his assistance in the tests and the tabulation of results.

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*Those who may desire to secure cobra venom should address inquiries to the Loomis Laboratory, 414 E. 26th St., New York, where it may be possible to secure a limited amount by importation. One gram is sufficient for 4,000 tests.

Old Injury to Elbow.—C. Woodward reports the case of a child aged 7 years who fell on a stone and was treated with a splint for "fracture of a small bone and a bone out of place." All movements were remarkably free but the arm was very weak. The skiagram showed an anterior dislocation of the radius and the site of fracture of the ulna.—*Proceedings of the Royal Society of Medicine.*

BACKACHE AND POSTERIOR PARAMETRITIS.

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BACKACHE is one of the commonest complaints met with in ambulatory gynecological patients. Of 120 unselected cases, 64 complained chiefly of backache, either alone or associated with other symptoms. These 53 per cent. of women were anywhere from 20 to 50 years of age, married and hence subject to the various incidents and accidents of married life. It is, therefore, of great interest to the physician to go into this subject a little more fully, and determine as far as possible the causative factors which make this one symptom so prominent, and of such importance to the majority of women.

Of these 64 patients, 54 complained of backache only, and 10 complained of backache associated with a bearing down sensation. Of the 54 complaining only of backache, 38 were found upon examination to have a posterior parametritis; 10 had posterior parametritis associated with a retroversion, one had posterior parametritis with a descensus uteri, and 5 had retroversion. Of the 10 cases of backache associated with a bearing down sensation, 4 had a posterior parametritis associated with descensus uteri and retroversion, 2 had posterior parametritis associated with descensus uteri, 2 had retroversion associated with descensus uteri, and 2 had retroversion only.

From the above, it will be readily seen that posterior parametritis stands out preeminently as a cause of backache, being present in 55 of the 64 cases, or 86 per cent. We will, therefore, take up the subject of posterior parametritis.

Parametritis is that form of pelvic inflammation involving the cellular connective tissue of the pelvis, or in other terms, a pelvic cellulitis. Pelvic cellulitis involving the uterosacral ligaments, and usually its peritoneal folds, called Douglas' folds, has been designated by Schultze, posterior parametritis.

The cellular connective tissue is especially plentiful around the cervix at the junction with the vagina and at the base of the broad ligaments. Its function here is to act as a support and buffer to the pelvic organs. It is plentifully supplied with lymphatics, especially behind the cervix and at the base of the broad ligaments. This makes it readily susceptible to inflammations, which, when started, spread readily in the meshes of the connective tissue.

Parametritis, in general, is either acute, subacute, or chronic. We are here chiefly interested in the subacute and chronic forms, and shall consider only the acute form very briefly.

The acute form usually follows infection through a laceration of the cervix during childbirth, or trauma caused by surgical operation, making a point of entrance for bacteria. Two or three days after one of the above causes has become operative, there is usually a chill followed by fever and a rapid pulse. As a rule, pain is not a prominent feature, although there may be a sense of discomfort and heat in the pelvis. On examination the vagina is found to be hot and pulsating. An exudate, which spreads in the cellular connective tissue of the pelvis, may be felt filling out the fornices. This exudate is at first soft and elastic, but later as the edema is absorbed becomes harder and more sclerotic. If pus formation takes place, there is an increase in the chills and fever and sweating, and a point of softening or actual pointing can usually be made out on examination.

In the subacute form the inflammatory process comes on more slowly so that in about two or three weeks after a labor or abortion the patient, instead of improving becomes progressively weaker, complaining of a feeling of malaise, feverishness, and pain in the back. An examination at this time will reveal evidences of cervical catarrh, possibly ectropion, and the presence of an infiltration behind the cervix. The subacute form most commonly involves the sacro uterine ligaments. The patient may go on in this fashion for some time without any improvement, and slowly pass into a chronic condition. The edema of the infiltrated tissue gradually becomes absorbed, leaving on examination, hardened, thickened, and sclerosed uterosacral ligaments, which are stretched tightly from the back of the cervix to the sacrum on either side of the rectum. This condition can be more readily made out by a combined examination, putting the middle finger into the rectum and the index finger into the vagina behind the cervix, in this way getting the posterior parametrium between the two fingers. An attempt to lift the uterus by putting two fingers behind the cervix and making pressure upward toward the symphysis, causes severe pain in the back, due to the stretching of the tense, indurated uterosacral ligaments. This is a similar pain to that complained of by the patient, but of greater intensity. This condition may go on for months and years, the only symptoms being backache and leucorrheal discharge due to the cervical catarrh.

The diagnosis of this condition is not difficult. The loss of elasticity of the posterior fornix, lack of mobility of the cervix, palpation of the thickened uterosacral ligaments through the vagina and through the rectum, and pain on stretching the ligaments similar in character to that complained of by the patient, makes the diagnosis of posterior parametritis comparatively easy. Perimetritic adhesions must be differentiated from; the two conditions often being present together. In perimetritis, bands of adhesions pass from the fundus or the whole posterior surface of the uterus, whereas, in parametritis, the only bands to be felt are the two thickened uterosacral ligaments. If more than these two bands are felt, it is evidence that both conditions are present.

We now come to the question of treatment which is, after all, the most important as far as the patient is concerned, for the patient does not come to us primarily for a diagnosis, although without it correct treatment cannot be instituted, but for the relief of her complaints. The method of treatment pursued by us is highly successful in meeting her requirements. Here, again, we refer more especially to the subacute and chronic forms.

In the acute form rest in bed is essential. The diet is limited to fluids, the bowels are kept freely moving, preferably by saline cathartics. An ice bag or ice coil is placed on the abdomen, and tepid or cool vaginal douches of 1 per cent. lysol or 1 to 5000 bichloride of mercury are given twice or three times a day. If the exudate goes on to pus formation, an incision must be made either into the posterior fornix, the broad ligament or wherever the abscess points, and the cavity must be drained.

When the fever has disappeared, and the process has become subacute, more active treatment can be

pursued. The object of the treatment at this stage is to cause absorption of the exudate. This is accomplished by painting the cervix and fornices with tincture of iodine, followed by pouring into the vagina one-half to an ounce of glycerin or boroglycerin, and packing the vagina lightly with gauze. Hot compresses can be applied to the abdomen. Hot douches of bichloride or lysol are made twice a day by the patient.

In the chronic form, where the uterosacral ligaments are indurated and thickened, the object of the treatment is to cause the absorption of the exudate and a return of the tissues to their normal elasticity. To do this we aim to produce an increased blood supply and hyperemia to the affected area, which will the more readily carry off the inflammatory products. At the same time we must treat the causative cervicouterine catarrh. This is accomplished in the following manner: At every vaginal examination of the patient, gentle but firm massage of the posterior fornix is made, in order to stretch the uterosacral ligaments. This is more effective if it is made soon after a hot douche has been taken. The vagina is then cleansed, and any cervical mucus is removed by gentle swabbing with cotton or by suction. No intracervical or intrauterine manipulation or treatment is used, as this does not help the condition, but merely tends to drive the inflammation further along the genital tract. Any erosions present are treated. This treatment depends upon the nature of the erosion. For simple erosions we have an excellent remedy in pyroligneous acid. This is applied pure by squirting about ½ ounce directly upon the eroded area, and then drying up the excess with a cotton sponge. A change is noticed at once in the appearance of the erosion; from an angry red it immediately becomes pale, the pyroligneous acid having a mild antiseptic and a powerful astringent action. For the follicular and papillary erosions, more powerful causties are necessary. Pure carbolic acid is applied with an applicator directly to the erosion once or twice a week. In obstinate cases 50 per cent. zinc chloride may be used. Then we paint the external os, the cervix, and the vault of the vagina with tincture of iodine. This has a twofold action, being a powerful antiseptic, destroying any bacteria it may reach, and a good counterirritant. The blood supply to the diseased tissues is thereby increased, and a hyperemia is produced which aids in absorbing the products of the inflammation.

About an ounce of pure glycerin or boroglycerin is poured into the vagina and the vagina is packed with gauze (an ordinary 4-inch gauze bandage answers very well for this purpose). The gauze is packed first into the posterior fornix, then into the anterior and lateral fornices, and into the vagina. One end of the gauze is left protruding so that the patient may withdraw it. This is usually done at the end of twenty-four hours.

This produces a marked serous outpouring, glycerin being one of the most powerful dehydrating agents at our command, and thereby washing away the infected material lodged in the depths of the uterine and cervical glands, and also softening the exudate, thus aiding in its absorption. This method of pouring glycerin into the vagina and packing with gauze is far superior to the use of cotton tampons saturated with medicaments. In the first place the glycerin bathes the entire vault of the vagina and the cervix. Secondly, it secures better drainage, the gauze allowing the fluid drawn out of the tissues readier escape than cotton. Thirdly, it gives better support. Every one who has used the cotton tampon knows that it usually rolls into a little ball in the vagina, and becomes tucked away, offering very little if any support. Whereas, by packing the fornices and the vagina with gauze, the uterus is held up and the dragging downward is prevented, thus materially increasing the patient's comfort by stopping or relieving the backache. We do not use ichthyol, as we do not believe it has any action, and in addition it has a very disagreeable odor and musses everything up, much to the patient's annoyance.

After the gauze is removed, a hot vaginal douche is given. The douches are made twice or three times daily, as hot as can be comfortably borne, about 110° F., using 4 quarts of water, at an elevation of about 1 to 2 feet above the pelvis. The douches are taken lying down with the hips elevated, the solution being allowed to run in an out slowly, so that the entire douche takes from 20 to 30 minutes. The drug used has not very much influence as it is the prolonged heat which is the beneficial agent, causing a prolonged hyperemia and increased absorption. The drugs commonly used are boric acid, 1 dram to the quart, for a mild cleansing douche; bichloride of mercury, 1 to 10,000; potassium permanganate, 1 to 5,000, or lysol 1 per cent. for an antiseptic douche, and equal parts of zinc sulphate and tannic acid, 1 dram to the quart, for an astringent douche when hypersecretion is present. The glycerin and packing treatment is repeated three times a week. In addition hot sitzbaths help in the production of hyperemia and increased absorption. The Nauheim baths or salt baths are very beneficial by their action in improving the general circulation. These may be taken once or twice a week.

This is the course of treatment we have been pursuing for many years with uniformly excellent results. Great patience is required on the part both of the patient and of the physician, as the treatment takes several weeks and months before improvement is noticed. But in the end it is well worth it, as it obviates the necessity for operative procedure in a great number of cases, and in those where operation is unavoidable, a previous course of this conservative treatment will have done much to soften up the parts and increase absorption, so that the operation may be performed with greater ease and with much better results, to the great gratification of the patient.

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ABRAMS' METHOD OF TREATMENT IN ANEURYSMS.

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The writer believing that this method of treatment is deserving of more consideration than has been accorded to it wishes to present additional data bearing on the subject.

When his first article was submitted to the editors of several medical journals it was rejected for the reason that it was tantamount to a violation of tradition to attempt treament of an incurable (sic) affection by the simple method proposed. The Medical Record, ignoring the attitude of the formalist and traditionalist, published the writer's primary contribution' on the subject.

Since this time, the writer has reported in the *British Medical Journal*[2] and *La Presse Médicale*[3] forty cases in his own practice of thoracic and abdominal aneurysm symptomatically cured within a few weeks by the concussion treatment with absolutely no other adjuvant measure, not even rest.

The cases were all advanced and many of them have been seen after a period varying from two to five years without any recurrence of symptoms. Other physicians have reported in the journals and through correspondence equally good results.

The writer has cited the details of his treatment elsewhere, notably in his work on "Spondylotherapy" (5th edition), MEDICAL RECORD[4] and in "International Clinics."[5]

To eliminate the personal equation the writer wishes to direct attention to a few additional observations made by other physicians. In a masterly and exhaustive monograph[6] by the Minerbis of Italy, the value of the aortic reflexes has been corroborated. The elicitation of the aortic reflex of contraction is the essential object achieved by the concussion method of treatment.

Dr. C. B. Kohlhausen of New Mexico, in his report of an advanced case of aneurysm of the thoracic aorta treated by Abrams' method says as follows: "After the first treatment, lasting ten minutes, I was utterly amazed at the change in the condition of the patient and after six days all his symptoms had disappeared and he was symptomatically well."

Dr. M. L. H. Arnold Snow[6] presents a series of pictures showing variations in volume of an aneurysm superinduced by elicitation of the aortic reflex of contraction.

This writer comments as follows: "These changes induced by vibration have been previously only studied clinically, so far as I know. They are here put on record, with remarks on the interpretation of the skiagrams." Skiagraphic records of the aortic reflexes have been previously made by Dr. George Jarvis and the writer.[7]

Dr. Snow's report may be briefly summarized: The patient's skiagram showed an immense aneurysm and the skiagrams taken before and after treatment demonstrated conclusively that an aortic aneurysm could be contracted by elicitation of the aortic reflex of contraction. Dr. Snow concludes that the marked relief afforded the patient by the method of Abrams was additional clinical evidence of a reduction in the dimensions of the aneurysm.

Dr. Isaac Robinson, Toledo, Ohio, presents his own anamnesis as follows: "Age 62. No specific history. While surgeon of the Pennsylvania Railroad in 1897 my voice became husky and so continued. In addition to the dysphonia, pains developed in the chest and there was paroxysmal dyspnea. Numerous diagnoses were made by many physicians, but it was not until 15 years after the inception of my trouble that a correct diagnosis of thoracic aneurysm was made by aid of the Roentgen rays. At this time my symptoms were accentuated and it was impossible to lie on either side for a minute at a time. The pains became so intense that recourse was had to narcotic medication. After the first treatment by Abrams' method morphine was discontinued. After several weeks' treatment practically all the symptoms have subsided and the voice is nearly normal. When treatment was commenced the aneurysm projected at least three inches beyond the thoracic surface. At the present time of writing it projects about one-half inch."

Dr. Robert Houlie, Paris, France, presented to the Société de Médecine[8] a patient with aneurysm of the thoracic aorta who was treated by Abrams' method. Absolutely no results were achieved by different methods of treatment until the concussion method was instituted. The results were surprisingly rapid. "After three treatments the patient was practically transformed; the violent pains have evanesced, the pulsations have diminished, the patient can lie in any position without inconvenience and his dyspnea has lost its intensity. The physical signs also show great amelioration."

Dr. B. E. Witte, San Antonio, Texas, reports the following cases of aneurysm of the abdominal aorta which simulated gastric lesions: "Female, 42 years, suffered for three months from persistent emesis, hematemesis and violent abdominal pains. A diagnosis of ulcus ventriculi was made and a laparotomy was performed. The operation revealed a large aneurysm of the abdominal aorta. After recovery from the operation I executed treatment according to the method of Abrams. After three *séances* vomiting and hematemesis ceased, and at the present time of writing the patient is symptomatically cured. Another patient, a barber, was likewise laparotomized for a supposititious gastric ulcer. Here the operation likewise demonstrated an aneurysm of the abdominal aorta. Concussion treatment at the seventh cervical spine resulted in a subsidence of the symptoms and the patient was enabled to resume his occupation."

Dr. George O. Jarvis, Ashland, Ore., reports the following cases: Aneurysm of the subclavian artery. The diagnosis in this case was substantiated by six physicians. Abrams' treatment for aneurysm conducted daily for a period of one month was followed by the evanescence of all subjective signs, the heart and aorta within the normal boundaries and the disappearance of the swelling, pulsations, and bruit over the affected artery. *X*-ray plates demonstrated no signs of an aneurysm. Aneurysm of the thoracic aorta and abdominal aorta. The aortic arch was dilated and measured 20 cm. in its transverse diameter. The abdominal aorta likewise showed decided dilatation with aneurysmal thrill and murmur. Morphine was necessary to relieve the severe pains of the patient. Four weeks after Abrams' treatment was commenced the patient, who was bed-ridden, was able to walk two or three miles daily. Eventually morphine was discontinued absolutely and there was a disappearance of all subjective symptoms. Dr. W. W. Britt, Tonawanda, N. Y., recently reported a patient with aortic aneurysm who was practically rescued "from his deathbed" by this method of treatment.

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Yellow Atrophy of the Liver as a Sequence of Syphilis.—T. M. Bianchari reports two cases in which there was a slow progressive hepatic degeneration whose clinical course and pathological anatomy were identical with those of subchronic yellow atrophy of the liver. Syphilis was the outstanding etiological factor.—*Archivio per le Scienze Mediche*.

MEDICAL RECORD.

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New York, September 26, 1914.

THE ANTITOXIC RÔLE OF THE LIVER.

IN 1910 Billard and Dechambre discovered that the fluid obtained by the autolysis of the liver of the pig destroys the toxicity of a mortal dose of cobra venom. Subsequently Billard found that the hepatic autolysate has the same action upon other poisons, such as the tetanus toxin, the venom of the viper, cocaine, curare, and strychnine. In 1912 Barlocco demonstrated that the hepatic autolysate of the pig counteracts the toxicity of the diphtheria poison to an extent depending upon the length of time during which the toxin and autolysate are in contact with each other. A further study along this line has been conducted by Amilcare Bertolini, who reports his results in the *Annali dell' Istituto Maragliano*, June 22, 1914. His experiments were carried out with the liver of the ox and the findings of Barlocco were corroborated. But he went further. He sought to determine the exact mechanism of the detoxicating process. It was found that a solution of lactic acid of a strength equal to that present in a measured volume of liver subjected to autolysis for 48 hours, has the same effect upon the diphtheria toxin as the hepatic autolysate itself. If the acidity of the latter is neutralized the detoxicating action on the diphtheria toxin is removed.

The question now arises whether the detoxicating function of the liver is brought about by a purely chemical reaction or whether it is effected through the medium of a catalytic agent. It has been well established that the process of catalysis is inhibited by the presence of an acid even in the greatest dilution, and is accelerated by the presence of the hydroxyl ions. This would seem to signify that if catalysis has really a detoxicating action this would be favored by a slightly alkaline medium while it would be inhibited in the presence of the hydrogen ions. In other words, alkalinity would favor the antitoxic function, while acidity would not impair the virulence of the toxin. The conclusion is drawn that the mechanism of the detoxicating action of the liver is of the nature of an ordinary chemical reaction and does not call into play a catalytic agent.

The above facts are applied by Bertolini in a theory as to the relation of the liver to the various toxins that may be introduced into or formed in the human body. The diphtheria toxin, like all other poisons, accelerates autolysis, as the result of which there are set free a larger quantity than normally of substances having an acid reaction, thus favoring a more intense detoxicating action upon the diphtheria poison. It would thus appear that the autolysis excited by the toxins becomes a means of defending the organism against these toxins.

A NOTABLE SURGICAL CLINIC

IN the issues of the MEDICAL RECORD for September 19 and 26 a large amount of space available for original communications has been given to papers read and reports of clinics held at the New York Polyclinic during the week of the International Surgical Congress which met in this city last spring. In honor of this Congress the Faculty of the Polyclinic requested the surgical staff of the institution to open its doors to the visiting members of the profession, and to arrange a series of lectures and clinics. Accordingly, on four days of that week the surgical lectures and demonstrations were given which have here been reproduced for the benefit of our readers.

This was the first occasion on which the International Surgical Congress had met in this country—in fact the first time that it had been held elsewhere than in Brussels, the city of its birth. One can but wonder where the next Congress will meet and when—when indeed the enmities and hatreds engendered by this European strife will have become so far dulled that any really international meeting will be possible, even of medical men. These are wont to boast in their gatherings, in the intervals of war, that science is truly international, untinged by jealousies of race and nation, but when war comes they find that after all blood is thicker than water and love of country is more compelling than love of science.

We are getting a little away from the papers of which we purposed to speak, but there is one more thought suggested by the fact of the war and that these papers were read at a post-graduate institution. In no country has post-graduate instruction been carried further than in our own. It was in this city that post-graduate teaching was first organized on a practical basis, independent of universities and undergraduate medical schools, and American medicine owes much to Roosa and Wyeth who founded the Post-Graduate and Polyclinic schools. They were pioneers in a new field and their respective institutions and others modeled after them in most of the larger cities of the Union have done much for the uplift of medical standards in this country. These schools for post-graduate instruction in America will now have the opportunity to demonstrate their worth. "See America first" will be no longer the slogan only of the patriotic American physician, for all must heed it, as there will be nowhere else anything to see medically for some time to come. While the War of the Nations lasts and probably for some time thereafter the young medical men in this country will perforce come to the conclusion that it is not essential to their individual success to trek to the European clinics immediately after graduation and thereafter as often as may be when the vacation

season comes round. They will find there is as much to learn in America as in Germany or France and that it is not necessary to go abroad to pick up ideas originating here and merely relabeled on the other side. In other words the misfortunes of Europe may tend to develop greater initiative, certainly greater self-reliance, in the American medical profession than it has hitherto manifested.

We have still said nothing of the papers published in this and the previous issue. But they speak for themselves, and the authors of them, foreign guests and members of the Polyclinic staff alike, are all too well known to need an introduction to our readers.

A NEW OPERATIVE PROCEDURE IN PULMONARY TUBERCULOSIS

In a recent issue (August 1, 1914) we called attention to the development and present world-wide acceptance of the value of the production of artificial pneumothorax, according to the methods of Forlanini and Murphy, in the treatment of pulmonary tuberculosis. It has been noted by all observers that in cases of approximately identical involvement of the lung the value of the treatment was almost directly proportionate to the completeness of the pneumothorax, and that the efficiency thus directly depended upon the absolute or comparative absence of adhesions between the visceral and parietal pleuræ. In the presence of extensive adhesions, collapse of the lung has sometimes been obtained by making use of the methods employed for the obliteration of the pleural cavity in cases of long-standing empyema, namely, extensive rib resection (Estlander's operation), sometimes with modifications approaching the type of the Schede or Delorme technique. These operations are accompanied by considerable shock and loss of blood and are not well borne by the enfeebled tuberculous patient; the mortality has been so high as to make the operation unjustifiable in view of the uncertainty of cure, or even improvement.

To allow patients with extensive pleural adhesions to receive the benefit of the pneumothorax treatment, Torek (*Surg., Gyn. and Obst.*, July, 1914) has devised the operation which he calls "Interpleural Pneumolysia," and which consists in making a large incision in the sixth or seventh intercostal space under intratracheal insufflation or some other form of differential pressure, finding the line of adhesion between the parietal and visceral pleura, and following this line of cleavage over the entire surface of the affected lung. When this has been completed the lung is left collapsed as far as the development of fibrous tissue in the lung itself will allow, the restored pleural cavity is left filled with air, and the pleural cavity and overlying soft parts are closed without drainage. Subsequently nitrogen injections are employed in accordance with the indications such as obtain in the ordinary uncomplicated case. Certain modifications in technique may occasionally be necessary, as in the presence of the rupture of a superficial abscess of the lung, and due attention is given to these possibilities by the author. It should also be stated that many essential points in the technique have necessarily been omitted in this brief résumé. One case is reported, and the result seems to justify the belief that Torek has made an important contribution to the surgery of pulmonary tuberculosis.

PARAMENINGOCOCCUS MENINGITIS.

In 1909 Dopter isolated from the nasopharynx the parameningococcus which was later found to be responsible for some cases of epidemic meningitis that were not influenced by the antimengitis serum. The parameningococcus is differentiated from the meningococcus chiefly by the fact that it is not agglutinated by the antimeningitis serum, that it possesses specific agglutinins and precipitins, and that it does not evoke the peritoneal and intravenous reactions described by Dopter. In the peritoneal reaction it is found that if meningococci are injected intraperitoneally into guinea-pigs twenty-four hours after antimeningitis serum has been similarly injected, in twenty to thirty minutes the peritoneal exudate is found to contain few or no free meningococci. In the intravenous reaction it has been shown that if a mixture of antimeningitis serum and meningococci is injected into a vein in a guinea-pig there result in a few minutes convulsions, dyspnea, coma, and death. The importance of differentiating between the meningococcus and the parameningococcus resides in the fact that there is now available an antiparameningococcus serum which is curative in cases caused by the latter organism.

A case of this nature was reported at a recent meeting of the Société Médicale des Hôpitaux of Paris by Brodin and Vallery-Radot (*Presse Médicale*, July 1, 1914). The fact that the patient did not respond to the use of antimeningitis serum led the authors to suspect that they were dealing with an infection caused by the parameningococcus. This was identified as such by Dopter. In spite of the fact that the patient was in coma, the use of the antiparameningococcus serum was followed by immediate improvement and speedy recovery. The lesson which is taught by this experience is that when a case of epidemic meningitis does not respond to the use of antimeningitis serum one should resort to the antiparameningococcus serum, even though the identity of the organism in the particular case may still be in doubt.

At the same meeting Dopter and Pauron reported a simple method of distinguishing between the two organisms. In many instances an ordinary agglutination test suffices for this differentiation. But in the case of both specific sera there may occur at times coagglutinations, that is to say, the presence of group agglutinins may cause the agglutination of both microorganisms by the same serum. To obviate this difficulty the authors employ in addition to the specific agglutinating sera, a so-called saturated antimeningitis serum which will agglutinate the meningococcus but will not agglutinate the parameningococcus. The ease with which this reaction may be performed enables one at the start to make the differential diagnosis and then choose the suitable specific serum and so lose no time in the treatment of a given case.

The Humane French Bullet.

Writing in the *Münchener medizinische Wochenschrift* of August 25, Prof. Walther Traube says the German soldiers have a great dread of the French bullets, believing them to be poisoned, and during the battles around Mülhausen many French cartridges were brought to him for examination to determine this point. Where the bullet fitted into the shell of the cartridge there was a black band which the Germans regarded with great suspicion, but Straub found it was nothing more than a harmless ring of lacquer. The bullet itself was made of copper, zinc, and nickel, and on analysis was proved to contain no arsenic, phosphorus, or antimony, therefore a bullet "of very good material." It had a copper jacket so very thin that it seemed to be galvanized on, and being a mere film it was incapable of damage if split off from the core; the bullet therefore could not be "dumdumed" by nicking or filing its nose. Straub concludes, as a result of this examination, that "as far as the expression may be allowable in such a case, the French infantry bullet must be regarded as humane." This opinion, we may add, is confirmed by the experience of the German army surgeons. They have found the wounds inflicted by the French rifle to be of little moment unless a vital organ is pierced. Even wounds of the lung, as we learn from the letter of a surgeon in one of the army hospitals in Munich, are regarded as trivial. These effects are very different from those of the spitz bullet employed by the Germans and the English.

Insufflation of the Bladder and Air Embolism.

It is a practice with some surgeons, preparatory to a suprapubic cystotomy for cystitis, calculus, or neoplasm, to distend the bladder with air in order to facilitate access to this organ. This practice is not without danger, for according to Antonio Poddighe (*Giornale Internazionale delle Scienze Mediche*, June 30, 1914) there have recently been reported in the literature two cases in which autopsy revealed the existence of air embolism from the bladder. Aged individuals are particularly susceptible to this accident. Various opinions have been advanced as to the route by which air enters the blood-stream from the bladder. Thus, one observer believes that air traverses the ureter and penetrates the renal vein; another advances the view that air passs through the ureter into the renal tubules and thus enters the blood; still another holds that the air goes directly into the veins of the bladder or of the prostate. Poddighe subjected this question to experimental investigation, using dogs for the purpose. He found that in the case of the healthy bladder the insufflation of air into the viscus with considerable force through a metal catheter is not apt to rupture the organ inasmuch as the air returns to the exterior between the catheter and the urethra. In these cases there is rarely even a laceration of the vesical mucosa. If the catheter is tied tightly in the urethra at the extremity of the penis, rupture of the entire vesical wall, but first of all of the mucosa, may be caused by forcible insufflation. In neither of the above modes of distention does the air ascend the ureters to the kidneys. If the air is forced directly into the ureters under considerable pressure for a long time, there is no evidence that it reaches the circulating blood through the renal parenchyma. The insufflation of air directly into a large vein in the bladder produces embolism even with slight pressure. There can be no doubt that the vesical veins, lacerated by overdistention of the viscus, represent the only path by which air embolism follows insufflation of the bladder. The practice therefore is not a risky one provided there is no evidence of a sclerotic condition of the vessels of the bladder or of a solution of continuity in its mucosa.

Pemphigus Vegetans Cured (?) by Salvarsan.

Pemphigus vegetans is known as a malignant bullous affection, the lesions of which ulcerate and then undergo vegetation, so that they come to simulate syphilitic condylomata. It occurs in successive outbreaks and otherwise resembles pemphigus foliaceus of which it is assumed by some to be a mere variation. At a meeting of the Naturhistorischmedizinischer Verein of Heidelberg last spring, Antoni reported a typical case of pemphigus vegetans (*Muenchener medizinische Wochenschrift*, July 21). It was treated with apparent benefit by intravenous injections of saline solution, but as it is a disease of some tendency to remissions no strict claim of control over the process could be made, because when the next exacerbation followed the serum was powerless. The patient then received at short intervals three injections of salvarsan. The sudden and overpowering effect of the latter could not have been a coincidence, the lesions coming under complete control. The patient has now been free from new bullæ for a month. The possibility of a protozoan cause was strengthened by a peculiar blood find at the beginning of the last exacerbation.

The Heart of the Child.

One of the happiest adaptations of Nature is found in the functional peculiarities of the infantile heart. From the embryological viewpoint alone, the evolution of this organ, from a simple pulsating tube to a complicated four-chambered pump, is one of the wonders of biology. An interesting philosophical inquiry into the special manner in which the heart of the child is adapted to the needs of the growing organism is presented by Armbruster in the *Zentralblatt für Kinderheilkunde*, August 1, 1914. He notes that the increased rate of the heart beat in early life diminishes the burden of the heart in the following manner: the amount of blood pumped at each impulse is correspondingly smaller; the aspirating force of the right heart is increased; and the rapidly developing heart muscle is more effectively nourished. The author attributes the relative immunity of very young children to infectious diseases to the rapidity with which the blood flows through the arteries, which rapidity makes it difficult for microorganisms to gain a foothold in the blood stream.

News of the Week.

Conference of Sanitary Officers.—The fourteenth annual conference of sanitary officers of the State of New York was held at Saratoga Springs October 15, 16, and 17, 1914, under the presidency of Dr. Hermann M. Biggs, Health Commissioner of the State.

The Death Rate in New York.—There were 1,206 deaths in this city during the week ending September 12. This gives a death rate of 11.27 per

1,000, as gainst 11.50 for the corresponding week of 1913. There was not a single death from scarlet fever, a very unusual happening, and deaths from diphtheria, croup, whooping cough, and pneumonia showed a marked decrease. The mortality of infants under 1 year of age decreased by forty-seven deaths, but for infants between 1 and 4 years there was an increased mortality of forty-one deaths. The death rate for the first thirty-seven weeks in 1914 was 13.73, against a rate of 14.25 for the corresponding period last year, a decrease of more than one-half a point.

The Danger of Surgical Practice in Mexico.—According to the Dallas *News*, Dr. N. T. Moore, formerly secretary of the El Paso County Medical Society, is being held as a prisoner at Culician, Sinaloa, Mexico, because he performed an operation upon a resident of that city which resulted in his death.

University of Illinois, College of Medicine.—The following faculty appointments have been made in this college for the session of 1914-15: D. A. K. Steele, senior dean and head of the department of surgery; Charles Spencer Williamson, professor of medicine and head of the department; Charles Sumner Bacon, professor of obstetrics and head of the department of obstetrics and gynecology; Julius Hays Hess, associate professor of pediatrics and head of the division of pediatrics; Norval Pierce, professor of otology; Joseph C. Beck, associate professor of laryngology and rhinology and head of the division; Oscar Eugene Nadeau, instructor in surgical pathology; A. O. Shoklee, associate professor of pharmacology; Roy L. Moodie, instructor in anatomy; C. S. Smith, instructor in physiological chemistry.

Physicians' Signatures Registered at the Department of Health.—In order to prevent the practice of unqualified healers the law provides that physicians desiring to practise medicine in the State of New York must have secured a license from the State Board of Regents and have recorded this license at the office of the county clerk in the county in which the physician intends to practise. In the city of New York, in addition to the above requirements, section 160 of the Sanitary Code makes it mandatory for physicians practising within the city limits to register at the office of the Bureau of Records of the Department of Health in the borough in which they intend to practise. To do this the physician must present his license or the county clerk's certificate. No certificate of death, birth, or still-birth will be accepted from a physician who is not registered with the Department of Health.

Twenty-nine Notifiable Diseases in New York City.—At a meeting of the New York Board of Health on August 25 section 133 of the Sanitary Code was amended to read as follows: "It shall be the duty of every physician and of the commissioners or managers or the principal, supervisor, superintendent, or physician of each and every hospital, public institution, or dispensary in this city to report to the Department of Health in writing the full name, age, and address of every person suffering from any one of the infectious diseases included in the list appended, with the name of the disease, within twenty-four hours of the time when the case is first seen: Anthrax, Asiatic cholera, diphtheria (croup), dysentery (epidemic), epidemic cerebrospinal meningitis, glanders, gonorrheal ophthalmia, hookworm disease, leprosy, malarial fever, measles, mumps, paratyphoid, plague, acute anterior poliomyelitis (infantile paralysis), pulmonary tuberculosis, rabies, rubella (German measles, rötheln), scarlet fever, septic sore throat, smallpox, tetanus, trachoma, tuberculous meningitis, typhoid fever, typhus, varicella (chickenpox), whooping cough, yellow fever."

A Public Clinic in Genitourinary Diseases will be held every Thursday evening at 8:30 by Dr. Abr. L. Wolbarst at the West Side German Dispensary and Hospital (New York School of Clinical Medicine), 328 West Forty-second street. The clinics will begin on October 8 and end in April. Physicians and medical students are invited.

Hospital News.—The Whitinsville (Mass.) Hospital was opened for inspection on September 12 and 14 and will soon be ready for the reception of patients.

The new King's Daughters Hospital in Norfolk, Va., was opened on September 14.

The Huber Memorial Hospital in Pana, Ill., was opened with appropriate ceremonies on August 31. The hospital was erected at a cost of $100,000, the fund for this purpose having been started with a gift of $25,000 from the late Mr. Huber.

A tuberculosis sanatorium will be erected near Windsor, Minn., on the shore of Fish Lake, by the Southwestern Minnesota Tuberculosis Association, whose membership comprises representatives from eight counties in that State.

Fire in the Elm City Hospital, New Haven, Conn., in the early morning of September 10 damaged the building slightly.

The Minnesota State Medical Association will meet in St. Paul on October 1, under the presidency of Dr. A. E. Spaulding of Luverne. The secretary is Dr. Thomas McDavitt of St. Paul.

The Utah State Medical Association will meet at Salt Lake City September 29 and 30 under the presidency of Dr. J. F. Critchlow.

Obituary Notes.—Dr. OSCAR R. LONG, for many years medical superintendent of the Michigan State Hospital for the Criminal Insane at Ionia, died suddenly on September 10 at the age of 64 years. He was a graduate of the Detroit Homeopathic Medical College in the class of 1873.

Dr. PATRICK HENRY MANGAN of Central Falls, R. I., a graduate of the Kentucky School of Medicine, Louisville, in 1903, died at his home, after a long illness, on August 12.

Dr. GWYNNE P. HARRISON of Sharpless, W. Va., a graduate of the University College of Medicine, Richmond, Va., in 1901, was run over and instantly killed by a railroad train on August 12.

Dr. LEVI D. SHEETS of Glen Ridge, N. J., a graduate of the New York University Medical College in 1849, and a veteran of the Civil War, having served as surgeon in the Second Army Corps, died at his home on August 25, aged 88 years.

Dr. THOMAS S. NAGLE of Allentown, Pa., died on August 28 of typhoid fever. He was born January 29, 1847, and was graduated from the Long Island Hospital Medical School in 1870.

Dr. MARGARET H. VAN TINE, 86 years old, one of the first women to practise medicine in the State of New York, died Thursday at the Home for the Aged in Brooklyn, where she had been since her retirement fifteen years ago. Her practice in Brooklyn extended over a period of forty years.

Dr. L. H. SPALDING of Peoria, Ill., died suddenly in Rochester, Minn., on August 23, while hurrying to the bedside of his son, recently operated upon at St. Mary's Hospital. He was born in 1845 and was

a graduate of the University of Maryland School of Medicine in 1869.

Dr. JAMES H. SANDERSON of Worcester, Mass., died of pneumonia on August 28, at the age of 47 years. He was a graduate of the College of Physicians and Surgeons, New York, in 1890, and served as interne in Bellevue Hospital.

Dr. MORRIS LONGSTRETH of Cambridge, Mass., died in Barcelona, Spain, the latter part of August, aged 68 years. He was born in Philadelphia and was a graduate of the Medical Department of the University of Pennsylvania in 1869 and of the Jefferson Medical College in 1872. He had been in poor health for some time.

Dr. CORNELIUS TOWNSEND FORD of Mullins, S. C., died in Wilmington, N. C., on August 26 at the age of 80 years. He was born at Page's Mills, S. C. He began the study of medicine in Philadelphia and later went to New Orleans, receiving his degree from the New Orleans School of Medicine in 1861. He served as surgeon in the Southern Army during the Civil War and at its close began the practice of medicine in Mullins.

Dr. JAMES B. GARVEY died at Dunmore, Pa., on August 23 at the age of 71 years. He was graduated from the College of Physicians and Surgeons of Baltimore in the class of 1884. He was a member of the Lackawanna Medical Society and of the Medical Society of the State of Pennsylvania and a Fellow of the American Medical Association.

Dr. GEORGE H. B. SWAYZE died at Philadelphia on August 22 at the age of 81 years. He was graduated from Jefferson Medical College in the class of 1859. He served as assistant surgeon in the One Hundred and Seventy-eighth Pennsylvania Infantry during the Civil War. He was founder of the Medico-Chirurgical College of Philadelphia and at one time dean of the faculty and professor of obstetrics and gynecology.

Dr. JOHN R. UMSTAD died at Norristown, Pa., of typhoid fever on August 26 at the age of 58 years. He was graduated from Jefferson Medical College in the class of 1876. He was a member of the Montgomery County Medical Society and of the Medical Society of the State of Pennsylvania and a Fellow of the American Medical Association.

Dr. EDWARD HOTTENSTEIN died at Kutztown, Pa., on August 27 at the age of 83 years. He was graduated from Jefferson Medical College in the class of 1853.

Dr. ALEXANDER HAZARD of Philadelphia, died at Atlantic City on August 25 at the age of 67 years. He enlisted as a medical cadet in the United States Army during the Civil War and he was graduated from the medical department of the University of Pennsylvania in the class of 1867.

Dr. S. P. PECK of Hinton, W. Va., died suddenly on September 2, at the age of 55 years. He was a graduate of the College of Physicians and Surgeons, Baltimore, in the class of 1877. He was for many years a surgeon of the Chesapeake and Ohio Railway.

Dr. WILLIAM FREEMAN NYE of Minneapolis died on August 31 at Lake Minnetonka. He was born in 1857 and was a graduate of the Northwestern University Medical School, Chicago, in 1878.

Dr. WILLIAM E. BARNARD of Union Grove, Ala., died on August 31, aged 33 years. He was a graduate of the University of Alabama School of Medicine, Mobile, in 1905.

Dr. J. H. BELL, for fifteen years surgeon of the White Star Steamship Line, died in Liverpool on September 15. He had been surgeon successively on the *Baltic*, *Cedric*, and *Celtic*, and was on the *Adriatic* at the time of his death.

Dr. DEVILLE J. MAYER of Junction City, Kans., died at his home in that city on September 9 after an illness of several months. He was born in 1862 and was a graduate in medicine of the University of Michigan in the class of 1893.

Dr. JOHN HARRY LANE died suddenly at his home in Medora, Ill., on September 9. He was born in 1844 and was a graduate of the Washington University Medical School, St. Louis, in 1876.

Dr. GEORGE IVERSON ROSS of Canton, Mass., died suddenly on September 13 at the age of 67 years. He was born in Newport, R. I., and was a graduate of the College of Physicians and Surgeons, Baltimore. He practised for a time in Canterbury, Conn., but for thirty years had lived at Canton.

Dr. CHANDLER C. LARKIN died in Mankato, Minn., on September 3 of valvular disease of the heart. He was born November 17, 1884, and was graduated from the medical school of the University of Minnesota in 1911.

Dr. GEORGE F. JENKINS of Keokuk, Iowa, died on September 4 at the age of 72 years. He was a graduate of the Missouri Medical College, St. Louis, in 1867. He had been president of the Iowa State Medical Society and vice-president of the American Medical Association.

Dr. LOUISE DODSON HOLMES of Athol, Mass., died on September 11 in Springfield of angina pectoris. She was born in Greensboro, N. C., in 1867 and was a graduate of the Woman's Medical College of Cincinnati in 1895. She had practised medicine in Athol for the past nine years.

Dr. TRUMAN G. WILKINSON of Williamsport, Pa., died at Reading, Pa., on September 3 at the age of 36 years. He was graduated from the Medico-Chirurgical College of Philadelphia in the class of 1899.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

WAR NOTES—WOUNDED, HOSPITALS, AND AMBULANCES—INDIAN OFFERS OF HOSPITAL PROVISION—DELHI MEDICAL ASSOCIATION—CHADWICK GOLD MEDALS FOR ARMY AND NAVY MEDICAL OFFICERS—THE APPROACHING SESSIONS, SCHOOLS, AND GENERAL MEDICAL COUNCIL—OBITUARY.

LONDON, September 11, 1914.

THE war absorbs the attention of the whole community. The work of the army medical service has naturally a special interest to the profession, intensified by the eager questioning of the doctor wherever he goes as to ambulances, the wounded, their transport, the Red Cross, and similar war subjects. The hospitals of the metropolis and the provinces placed a proportion of their beds at the disposal of the government and many wounded have experienced the comfort so provided, for arrivals began more than a week ago. One of the first batches, if not the first, upward of 300, were taken in at the London Hospital, about as many at the Royal Herbert, more than 100 at Plymouth, and so in other towns. The Dreadnought has 200 at the disposal of the Naval Medical Department. An "Allied Forces Base Hospital" has been fully equipped with 200 beds under the charge of Major E. Miles, surgeon of the Cancer Hospital, and is at

the service of the military department to go on the continent. A British Field Hospital of 40 beds for Belgium has also been fitted up with every requisite for emergency work under the Red Cross, Belgian Branch. Five surgeons and 20 nurses form the medical staff, which is said to be honorary. The Research Hospital, Cambridge, has also been placed at the disposal of the War Department fully equipped and staffed for the care of 20 wounded officers. Nor is it at home alone that such offers are made, for the dominions are the seat of a similar upheaval caused by the war. India's ruling princes, always eager to place their wealth at the service of the empire, are adding contributions of hospitals and ambulances for wounded. Here is an example: The Delhi Medical Association offers the field hospital which was sent to Turkey during the Balkan war and Bengalee students are clamoring for the privilege of forming an ambulance corps. Donations to the Imperial Relief, the Prince of Wales Fund, the Indian Relief Fund, and other forms of assistance are being announced on the most generous scales for the victims of the war and their dependents.

The Chadwick trustees announce their intention, under the authority of the trust, to award this year's Chadwick gold medal and a sum of £50 each to the military and naval medical officer respectively who shall have most distinguished himself in promoting the health of the men in the two services. The trustees also intend to promote series of lectures and demonstrations on naval, military and hospital hygiene.

Just over a fortnight will bring us to the opening of the next winter session at the medical schools and colleges, the 1st of October being the traditional "opening day" which almost all students as well as numerous teachers make a point of remembering. Many practitioners, too, are glad to look in at their old schools sometimes and the day is one of reunion of old acquaintances as well as of contemporaries. The winter session of six months duration—twice as long as the summer session—is moreover that in which new students begin their curriculum and this is a circumstance which interests the lecturers at the colleges as well as the physicians and surgeons to the hospitals, for they may be spoken of collectively as the teachers, and besides their fees for teaching they are naturally concerned with the prosperity of the institutions they serve. So it is that already we are looking forward to "our opening day" and even this terrible war does not hinder us when we casually meet from exchanging opinions as to the probable number of new entries on the 1st proxim. at our several schools and hospitals. The prospectuses of all of the universities are already freely circulated, so that full information is at the service of every one desiring to ascertain the requirements for beginning the study of medicine and allied branches of knowledge, as well as the course to be pursued and the examinations to be passed in order to be placed on the *Medical Register* as authorized to practise the profession.

The *Register* is kept by the General Medical Council, a body established by Parliament in 1858 and comprising representatives of the universities and other corporations which were entitled to grant diplomas in medicine, as well as of actual practitioners of the government.

The power of removing a name from the *Register* in case of certain serious offenses gives the Council control over the profession which has, on the whole, been reasonably exercised. To the Council is also committed similar powers in regard to dentists and a separate *Dental Register* is kept.

The death is announced of Dr. Walter Holbrook Gaskell, F.R.S., LL.D., Fellow of Trinity Hall, Cambridge, and University Lecturer on Advanced Physiology since 1883. He was Marshall Hall Prizeman of the Royal Medical and Chirurgical Society in 1888, and in the next year took the gold medal of the Royal Society. He was also Baly medallist of the Royal College of Physicians.

The death has also occurred of Lt.-Col. R. W. Barnes, late of the R. A. M. C., who joined the service in 1880, was in the Nile Expedition of 1898, for which he was mentioned in dispatches, and received two medals with clasp. In the South African war in 1899-1900 he was in charge of a general hospital, for which he was awarded the Queen's medal with two clasps. He retired in 1900.

Progress of Medical Science.

Boston Medical and Surgical Journal.

September 10, 1914.

1. Syphilis in Massachusetts. A Post.
2. Syphilis of the Eye in Hereditary Syphilis. G. S. Derby.
3. Vascular and Cardiac Syphilis. G. G. Sears.
4. Primary Syphilis of the Tonsil. C. M. Smith.
5. Syphilis of the Lung. E. A. Burnham.
6. The Relation of Syphilis to Internal Medicine. D. L. Edsall.
7. What the City Should Do to Control Syphilis. T. B. Shea.

5. Syphilis of the Lung.—E. A. Burnham concludes that syphilis produces in the lung pathological changes which in turn cause symptoms and physical signs which are identical with those produced by pulmonary tuberculosis. The two conditions are confounded by our most skilled diagnosticians. Great injustice is done the patient and great suffering is often inflicted upon his family by sending cases with lung syphilis to tuberculosis sanatoria. Greater care must be exercised in differentiating the two conditions, and especially those cases where there are signs of infiltration and open lesions in which tubercle bacilli cannot be demonstrated.

6. The Relation of Syphilis to Internal Medicine.—D. L. Edsall states that the results of the recent large experience in Wassermann reactions in the medical wards of the Massachusetts General Hospital show in consonance with the experience of other clinics elsewhere, the much greater frequency of gastrointestinal manifestations of syphilis than has been thought, until very recent years. If one includes the cases in which the symptoms were abdominal and apparently referable to the digestive tract, there were 46 cases in which the clinical manifestations were digestive. There were eight cases of nephritis with a positive Wassermann reaction. What the relation of the syphilis to the nephritis was is still too confused a question to make it profitable to discuss it here. There were four cases with very marked splenomegaly as the main manifestation and a number of others in which there was usually marked splenic enlargement in association with liver disease, these cases emphasizing again the important role of syphilis in splenomegaly. There were four cases in which unusually marked intestinal adhesions occurred after operation in persons who had syphilis. There is another group of cases including three of visceroptosis and neurasthenia and three of simple general neurasthenic symptoms, in one of the latter associated with marked inanition. All those with visceroptosis apparently developed their neurasthenic symptoms after the syphilitic infection and in the three

cases with debility there was no other explanation of the condition than the syphilis. One may at time see the most unusual manifestation of syphilis and may be unable in the end to say what was the matter excepting in general that the patient had syphilis. For instance, a colored man was admitted to the ward with a diagnosis of tuberculous peritonitis and had marked loss of weight, slight irregular fever, vague pains in various parts of the abdomen, a somewhat prominent and boggy feeling abdomen, and did appear to have peritoneal tuberculosis. But he had a positive Wassermann and upon treatment almost immediately got entirely well.

New York Medical Journal.

September 12, 1914.

1. Tuberculization and Immunization. M. Fishberg.
2. The Paraffin Treatment of Constipation. J. H. Kellogg.
3. Newer Teachings Concerning Diseases of the Gastrointestinal Tract. M. I. Knapp.
4. The Indications of Gastric Ulcer and Its Surgical Treatment. C. G. Cumston.
5. Appendicostomy in a Case of Chronic Ulcerative Coloproctitis. J. F. Saphir.
6. A Clinical Study of the Renal Functional Activity by Means of Phenolsulphonaphthalein. J. P. Jones.
7. A Case of Sciatica Entirely Cured in Three Weeks' Treatment. H. Marcus.
8. Systematized Education of the Public in Health Matters. H. Greeley.
9. The Contributions Which Women Have Made to Medical Literature. M. M. Loomis.

2. The Paraffin Treatment of Constipation.—J. H. Kellogg enumerates the virtues of paraffin oil as follows: It lubricates the alimentary canal throughout its whole length. This mechanical action is highly important in overcoming kinks due to redundancy or to Jackson's membrane, and adhesions resulting from colitis or other causes. The human alimentary canal, like that of other primates as illustrated in the diet of the higher apes, is adapted to a moderately coarse bill of fare. The concentrated diet of modern civilized life contains so little indigestible material that the residue forms a pasty mass which tends to adhere to the intestinal wall, especially when any obstruction is caused by kinks, folds, adhesive bands, or a spastic state of the bowel due to colitis. When delay occurs the further absorption of water converts these pasty residues into hard masses, scybala, which sometimes have almost the density of wood. Fats of all sorts are more or less laxative if taken in sufficient amount, through their effect in modifying the character of the food residues. Paraffin is useful in all forms of intestinal stasis no matter what the cause, by preventing the abnormal drying out of the food residues which is the necessary result of too long retention in contact with absorbing surfaces. Another remarkably interesting and useful property of paraffin oil is found in the fact that it stimulates the activity of the small intestine. Paraffin oil, itself not absorbable, takes up a very considerable portion of the toxins found present in the intestinal tract and thus prevents their absorption. When paraffin is used, it may always be seen in the stools, showing a brownish or blackish color, due to the substances it holds in solution. Paraffin oil serves a useful purpose in protecting the mucous membrane when it is in an irritated state, as in cases of chronic colitis. Paraffin serves another useful protective purpose in hindering the absorption of poisons by mucous surfaces which have been deprived of their epithelium. In cases of colitis paraffin oil protects the irritated surfaces, but also through its lubricating effect and through softening the intestinal contents, aids greatly in overcoming the spastic condition of the intestine, which in many cases of chronic constipation is so formidable an obstacle to recovery. Incompetency of the ileocolic valve is a most common and effective cause of iliac stasis. Aside from the regulation of diet, the regular use of paraffin oil is the most effective means of combating this condition. In cases in which the iliac stasis is due to spasm of the ileocecal valve, induced by chronic appendicitis, ovarian irritation or inflammation, colitis, or possibly painful rectal disease through reflex irritation, paraffin proves itself to be an invaluable remedy, since it has the property of increasing the peristaltic activity of the small intestine to such a degree as to enable it to overcome the spasm of the ileocecal valve without producing irritation, which would inevitably increase the spasm of the sphincter as do drug laxatives. Paraffin is capable of rendering invaluable service in cases of intestinal intoxication by increasing the number of daily stools.

4. Gastric Ulcer and Its Surgical Treatment.—C. G. Cumston states that gastric ulcer has undoubtedly a natural tendency to heal, and proper medical treatment gives satisfactory results in the majority of uncomplicated cases. Although medical treatment should always be tried first and often is quite successful, it is none the less true that sometimes it utterly fails and that there exist ulcers which are rebellious to treatment. It is in these instances that the surgeon comes into play, and two methods are at one's disposal, namely, the radical and the palliative interferences. The radical method is resection of the ulcer. Excision of the diseased part is evidently the ideal treatment, and has considerable advantages theoretically, such as complete removal of the lesion and the impossibility of malignant transformation taking place in the ulcer. But in reality the cure is not as permanent as at first sight it would seem. In the first place, the ulcer is only single in about twenty per cent. of the cases, in the remaining eighty per cent. it is mutiple, and when a single ulcer is resected, one can never be certain, even after a careful exploration of the interior of the stomach, not to overlook another, so that the resection of one does not prevent the evolution of another which has escaped the operator's notice. Then, too, resection of the ulcer hardly changes the causes to which it is due nor the soil on which it has developed, so that there is nothing astonishing in the fact that a new ulcer develops after the operation. Resection of a gastric ulcer is a difficult procedure and is rarely possible under good circumstances, because the absolutely essential condition for a successful resection is an easy mobilization of the stomach. After resection of the lesion and suture of the stomach, the loss of tissue may be such that the organ is deformed and its motor functions considerably interfered with. The thick adhesions often conceal from view small abscesses, the rupture of which can readily infect the peritoneal cavity, thus adding another danger to the operation. There remains the palliative method. This has for its object, not the elimination of the ulcer, but the creation of conditions favorable for its rapid cicatrization. Two quite different operations attain this result, namely, gastroenterostomy and jejunostomy. Gastric ulcer is to be divided into two groups, viz., ulcers seated in the pyloric region and pylorus, and secondly, ulcers in any other part of the stomach, including the cardiac region. The first class is the only one where gastroenterostomy is indicated, while the second should be treated by jejunostomy. Gastroenterostomy sets up changes in the gastric chemistry, which without any doubt result in a favorable healing influence for the ulcer. It diminishes the gastric hypersecretion and hyperacidity, the principal factor being the mixture of the bile and pancreatic juice with the gastric juice, by reflux of the former into the stomach. Ulcers situated far from the pylorus should never be treated by gastroenter-

ostomy, which should be reserved for pyloric lesions only, if the surgeon does not wish to have a poor therapeutic result or one which is nil. When the ulcer is not pyloric jejunostomy by the Eiselsberg-Wizel technique, the only one to be employed is the only proper interference, and it may be laid down as an axiom that the nearer the ulcer is to the cardia, the greater is the contraindication to gastroenterostomy and an absolute indication for jejunostomy. Among the symptoms which endanger life, hemorrhage is the first to be considered, and here the author refers to serious hemorrhage, because any operative interference is here contraindicated and medical treatment gives far more hope. This does not apply to slight hematemisis, however, which recurs at frequent intervals, and if it is not permanently stopped by medical treatment, it is a sufficient argument for surgical treatment. Under these circumstances it is wiser and more prudent to resort to jejunostomy without waiting for the development of more serious trouble. Progressive loss of flesh is another important symptom. The loss of weight should not be allowed to go too far, first, because a weakened organism is in poor condition for defense and repairs its lesions with difficulty; secondly, because the ulcer markedly undermines the organism and thus favors the development of tuberculous infection or the appearance of a latent tuberculosis. There are also cases of gastric ulcer, in which gastric intolerance is absolute, and severe pain is produced by taking food. Absolute rest of the stomach is here particularly necessary, so that jejunostomy is clearly indicated. In the simple types of acute gastric ulcer, the medical treatment which is easily carried out, should rapidly show results. But if medical treatment is of no avail, then jejunostomy is to be recommended without hesitation. This operation is even more imperative when the social position of the patient precludes proper medical treatment. Jejunostomy will also be advantageously applied in those cases where gastroenterostomy is indicated, but where the physical condition of the patient is at a low ebb. Again in all cases where gastroenterostomy is unwise, although feasible on account of the local condition, jejunostomy has its field of usefulness, likewise in cases where gastroenterostomy has already been done and failed in its results.

Journal of the American Medical Association.

September 12, 1914.

1. Focal Infection: Its Broader Application in the Etiology of General Disease. F. Billings.
2. The Newer Bacteriology of Various Infections as Determined by Special Methods. E. C. Rosenow.
3. Gastrointestinal Studies, II. The Fractional Study of Gastric Digestion with a Description of Normal and Pathological Curves. M. E. Rehfuss, O. Bergeim, and P. B. Hawk.
4. Experimental Researches in Methyl Alcohol Inhalation. H. H. Tyson and M. J. Schoenberg.
5. A Study of the Arneth Formula. G. E. Henson.
6. The Dessication Treatment of Congenital and New Growths of the Skin and Mucous Membranes. W. L. Clark.
7. The Diet in Typhoid Fever. L. F. Barker.
8. The Effects of Food on Metabolism in Typhoid Fever. W. Coleman.
9. The Psychosis Occurring During the Course of Pernicious Anemia. G. H. Williams
10. The Bacteriology of Typhus Fever. R. M. Wilder.
11. Studies Concerning Diabetes. F. M. Allen.
12. The Influence of Sweat Baths on the Non-Protein Nitrogen Content of the Blood in Nephritics. J. H. Anstin and T. G. Miller.
13. The Use of Atophan and Radium Emanation in the Treatment of Gout and the Arthritides. A. F. Chace and M. S. Fine.

1. Focal Infection.—By F. Billings. (See MEDICAL RECORD, July 4, 1914, page 35.)

2. The Newer Bacteriology of Various Infections as Determined by Special Methods.—By E. C. Rosenow. (See MEDICAL RECORD, July 4, 1914, page 35.)

3. Gastrointestinal Studies.—M. E. Rehfuss, O. Bergeim, and P. B. Hawk have employed a method by which it is possible to follow the entire cycle of gastric digestion with practically no discomfort, and by which it is possible at any given moment to draw off any or all of the juice secreted in sufficient quantity to perform the necessary chemical examinations. They have pointed out the inadequacy of the ordinary stomach-tube and have substantiated the statements of Harmer and Dodd that the stomach-tube does not remove completely the gastric contents. The principle of the authors' tube is entirely that of gravity, and the tip is sufficiently heavy to seek the lowest portion of the stomach. Furthermore, it is slotted in such a way as to permit the aspiration of a representative sample of the gastric juice. These perforations represent the maximum bore of the rubber tubing. The instrument is inserted and left in the stomach for hours until the gastric cycle is completed. The authors conclude that by means of their modified gastric tube, they can study the entire cycle of gastric digestion, recording both the secretory and motor activity. They can construct a curve which graphically records the entire course of digestion. Information as to the amount of the secretion can be obtained at any point by complete aspiration and by the character of the specimens which are obtained. There is no specific curve for the normal person, but three types of curve can be found depending on the rapidity of reaction to a given stimulus, the height of the curve, and the descent of the curve. These types may be termed, respectively, the hypersecretory, the hyposecretory, and isosecretory types, depending on their respective reaction to such stimuli. Figures approximating those commonly regarded as hyperacidity are to be found in some period of the curve in a large number of normal persons. A "continued" secretion is described in normal persons which is intimately linked with alimentary and chronic hypersecretion, but can be distinguished from them. The value of this method in various pathological states is emphasized and a limited number of cases are reported together with their findings. The technique commonly employed for estimating gastric function is entirely inadequate, inasmuch as it indicates but one phase in a constantly changing cycle, and that phase is by no means always the high point in the digestive curve. The authors would insist on the great advantages of this method which, correlated with the various tests performed on different samples as well as the special tests described elsewhere, enables them to make a more perfect study of the digestive cycle than has hitherto been possible.

5. A Study of the Arneth Formula.—By Graham E. Henson. (See MEDICAL RECORD, July 4, 1914, page 37.)

7. The Diet in Typhoid Fever.—Lewellys F. Barker states that one should bear in mind a point emphasized by Coleman, namely, the necessity of beginning cautiously, and gradually increasing the caloric value of the intake. The plan Coleman recommends is to give a pure milk diet for two days in all cases. If the patient be very ill, he may be kept, thereafter, on a fluid diet of from 1,000 calories (1 liter milk, 50 c.c. cream, 50 grams lactose divided into eight feedings), up to 3,900 calories (1.5 liters milk, 0.5 liter cream, and a pound of lactose, divided also into eight doses) in the twenty-four hours. Soft boiled or scrambled eggs may be added to this diet even when patients are quite sick. In mild cases, the patients may from the beginning take, in addition, buttered toast, mashed potatoes, and cereals in amounts sufficient to make the total caloric intake 4,000 per day. In convalescence 5,000 or 6,000 calories per day may often be given. The careful analysis of the patients in Bellevue Hospital showed a lower mortality among the patients fed on

the high-calory diet than among the other cases. Complications (hemorrhage; perforation) and relapses were no more frequent than in patients fed in the old way. The greater gain from the liberal diet consists in the lessening of emaciation, the shortening of convalescence, and the prevention of exhaustion phenomena after the disease has run its course. Most patients lose 5 or 10 pounds even on the high-calory diet, though now and then a patient can maintain his weight. In the Johns Hopkins Hospital the author and his associates have been struck with the better appearance of their patients during convalescence since they have fed their patients more liberally. Since convalescence can be shortened, and emaciation prevented, there is good reason to believe that posttyphoidal psychosis and posttyphoidal neurasthenic states will be less common than under the old regimen.

8. Effects of Food on Metabolism in Typhoid Fever.—Warren Coleman concludes that food does not increase the heat production or the temperature in typhoid fever, even when given in large amounts (at least, when the quantity of protein is kept relatively low). Therefore, the fear which has been entertained by physicians for so many years that a liberal diet would raise the temperature of the patient is proved to be groundless. The body utilizes carbohydrate in preference to fat or protein to meet the increased demand for energy in typhoid fever just as it does in health when called on to perform additional work. Consequently, carbohydrate should occupy a prominent place in the diet.

9. The Psychosis of Pernicious Anemia.—G. H. Williams reports the cases of two patients suffering from well defined pernicious anemia, who showed in common many mental signs, namely, lack of orientation—in the one case in every field, and in the other especially in regard to place; lack of insight; such delusions as one commonly meets in paranoid states—those of a persecutory type; the memory in one case apparently normal, until late in the condition, while in the other there was lack of accuracy for both recent and remote events; the mood in both parties much happier than the physical condition would warrant; lack of attention and appreciation, and numerous physical signs such as parasthesias, diminished sensibilities, vertigo, speech disturbances, loss of functions of the arms and legs, ankle-clonus, unequal patellar reflexes, Romberg signs, unsteady gait. Apart from the abnormal mental conditions present it is evident that one is dealing with some lesions of the brain and spinal cord, such as have been described by various writers in their reports of cases.

The Lancet.

August 22, 1914.

1. Heredity in Man. W. Bateson.
2. The Diagnostic Value of the Complement Fixation Reaction in Tuberculosis. (a) In General Hospital Practice. J. McIntosh and P. Fildes. (b) In Sanatorium Practice. J. A. D. Radcliffe.
3. Sepsis in the Recognition and Non-Recognition of Syphilis. E. M. Corner.
4. The Importance of a Very Thorough Examination in Cases of Foreign Body Alleged to Have Been Swallowed or Inhaled. E. D. Davis.
5. A Case of Congenital Atresia of the Bile-Ducts. S. Wyard.

1. Heredity in Man.—W. Bateson points out that potentialities and aptitudes, physical as well as mental—sex, colors, powers of work or invention, liability to diseases, possible duration of life, and the other features by which the members of a mixed population differ from each other—are determined from the moment of fertilization. The clearest evidence of regularity in the inheritance of human characteristics has been obtained in regard to the descent of marked abnormalities of structure and congenital diseases. As to the descent of hereditary diseases and malformations, however, one has abundant data for deciding that many are transmitted as dominants and a few as recessives. The most remarkable collection of these data is to be found in family histories of diseases of the eye. Neurology and dermatology have also contributed many very instructive pedigrees. The greatest practical change likely to ensue from modern genetic discovery would be a quickening of interest in the true nature of man and in the biology of races. The remedies proposed in America, in so far as they aim at the eugenic regulation of marriage on a comprehensive scale, have been devised without regard to the needs either of individuals or of the modern state. The definitely feeble-minded one may with propriety restrain, and one may safely prevent unions in which both parties are defective, for the evidence shows that, as a rule, such marriages, though often prolific, commonly produce no normal children at all. In the study of history biological treatment is only beginning to be applied. The causes of the success and the failure of races are physiological events, and the progress of man has depended upon a chain of these events, like those which have resulted in the "improvement" of the domesticated animals and plants. How has that progress in control of nature which one calls civilization been achieved? By the sporadic appearance of variations, mostly, perhaps all, consisting in a loss of elements, which inhibit the free working of the mind. Annul the work of a few hundreds of men, and on what plane of civilization should one be? One should not have advanced beyond the medieval stage without printing, chemistry, steam, electricity, or surgery worthy the name. These things are the contributions of a few excessively rare minds. Galton reckoned those to whom the term "illustrious" might be applied as one in a million. In the light of Mendelian knowledge the discussion whether a race is pure or mixed loses almost all significance. A race is pure if it breeds pure and not otherwise. Historically one may know that a race like the English was, as a matter of fact, of mixed origin. But a character may have been introduced by a single individual, though subsequently it becomes common to the race. A population like the English indeed owes much of its strength to the extreme diversity of its components, for they contribute a corresponding abundance of aptitudes. Everything turns on the nature of the ingredients brought in, and these genetic disturbances lead ultimately to great and usually unforeseen changes in the nature of the population. External changes may indeed give an opportunity to special strains which then acquire ascendency. The industrial developments which began at the end of the eighteenth century, for instance, gave a chance to strains till then submerged, and their success involved the decay of most of the old aristocratic families. In all practical schemes for social reform the congenital diversity, the essential polymorphism of all civilized communities must be recognized as a fundamental fact, and reformers should rather direct their efforts to facilitating and rectifying class distinctions than to any futile attempt to abolish them. To the naturalist the broad lines of solution of the problems of social discontent are evident. They lie neither in vain dreams of a mystical and disintegrating equality, nor in the promotion of the malignant individualism which in older civilizations has threatened mortification of the humbler organs, but rather in a physiological coordination of the constituent parts of the social organism.

2. The Diagnostic Value of the Complement Fixation Reaction in Tuberculosis.—J. McIntosh, P. Fildes, and J. A. D. Radcliffe state that from a study of the literature dealing with complement fixation in tuberculosis it is clear that great diversity has been obtained in the results, while few have published series of cases of sufficient magnitude or sufficiently controlled to allow

of exact deductions. The chief cause for the diversity in the results is the composition of the antigen used. It was not appreciated by the earlier writers that an antigen consisting of old tuberculin was not analogous to an emulsion of tubercle bacilli. In fact, the antisubstances to these antigens are entirely different. The authors' technique which they have employed in carrying out the tests resembles in principle that which they have elaborated for the Wassermann reaction. As an indicator they have used both sheep and ox corpuscles, and have found the latter to be of advantage when the test serum contains an excess of the so-called normal amboceptor for sheep's corpuscles. The only reagent which requires special mention is the antigen. After a series of experiments in which various tuberculins and preparations of tubercle bacilli were tested it was found that a simple emulsion of living tubercle bacilli gave the best results. Every strain of tubercle bacilli is not suitable to act as an antigen. The strain employed in the tests was of the human type isolated from a case of phthisis, and was grown on Dorset's egg medium, on which it produced a more or less diffuse growth in from seven to ten days. It is found that a most trivial lesion which may even be overlooked in the post-morten room will give a positive Wassermann reaction but in the case of tuberculosis the lesion must be of considerable dimensions before the reaction can detect it. A caseous bronchial gland will not give a positive reaction; indeed, the common affections of the cervical glands will usually yield a negative result. On the whole one has come to the conclusion that a lesion in order to give a positive result must be of such dimensions as to constitute disease, and require the intervention of the physician or surgeon. One therefore looks upon the positive reaction as indicating active tuberculosis. It will thus follow that the complement fixation test is of much greater value than the cutaneous reaction, for instance. This latter indicates a state of hypersusceptibility to tubercle, and such a state may be present even though the lesion is quiescent or cured. It is no indication of active tuberculosis. When a particular condition is under examination and is suspected of being tuberculous a positive von Pirquet reaction will be of relatively little value, since so many adults are sufficiently tuberculous to give a positive result. A positive complement fixation will, however, strongly support the suggestion that the condition is tuberculous because it indicates active tubercle. As regards the value of the reaction in the diagnosis of pulmonary tuberculosis, the author concludes that in such suspected cases, a positive finding is of considerable value in establishing a diagnosis.

3. **Sepsis in the Recognition and Nonrecognition of Syphilis.**—E. M. Corner alludes to the very great importance of sepsis as a complicating factor in the pathological and clinical manifestations of syphilis. An aseptic condition of a primary sore may so mask its nature as to render it and the bubo quite unrecognizable; its nature may be suspected from its slowness in healing, its pathology may be proved by the demonstration of the presence of the spirocheta pallida. In the secondary stage of syphilis, it has long been recognized that an additional septic infection makes the secondary symptoms and signs very much worse. In the more cleanly classes of the community syphilis can be quite overlooked or not recognized in its primary, secondary or tertiary stage, and consequently its transmission may be unchecked and its dissemination unimpeded.

The Lancet.

September 5, 1914.

1. Dysentery. F. M. Sandwith.
2. Bullet Wounds in War. W. G. Tottenham Posnett.
3. On Some Signs and Symptoms of Hypothyroidism in School Children. J. Lawson Dick.

1. **Dysentery.**—F. M. Sandwith states that the history of the disease shows us that, almost more than any other infectious disorder, it has had a widespread diffusion all over the inhabited world; most countries have suffered from national visitations, and it is still true that wherever man is found some form of it is liable to appear. Since the Peloponnesian war there has hardly been a protracted military campaign in which dysentery has not scourged the hostile armies. To take only some modern instances: in the American Civil war the Federal troops lost 37,794 men from dysentery and diarrhea, which was nearly 30 per cent. of the total deaths; these diseases were also frightfully prevalent among the Federal prisoners at Andersonville, where they occasioned 50 per cent. of the sickness and 58.7 per cent. of the deaths from all causes. In the Franco-German war (1870-71) there were 38,652 admissions and 2,380 deaths from dysentery in the German army; the troops on their return home spread infection in many districts, some of which after all these years are not yet quite free from it. In the South African Campaign (1899-1902) there were 38,108 cases of dysentery with 1,342 deaths. Dysentery is now admitted to be water-borne. Dysentery can also be conveyed to man by contaminated food, by flies, and by human carriers. Even now it is not universally recognized that dysentery, under certain circumstances, is communicable from man to man, and that isolation is as necessary in this disease as in typhoid fever.

British Medical Journal.

August 15, 1914.

1. Section on Medical Sociology. Discussion on the Duty of the State Towards the Early Environment of the Child. W. L. Mackenzie.
2. Discussion on Medical Certification other than under Lunacy Acts. C. Sandeman.
3. The Serum Diagnosis of Pregnancy and of Cancer: a Critical Study of Abderhalden's Method. A. Leitch.

3. **The Serum Diagnosis of Pregnancy and of Cancer.**—A. Leitch has come to the following conclusions after a careful investigation of Abderhalden's dialyzation method: The real fallacies of the technique are beyond control, and the hypothetical fallacies which Abderhalden invokes to account for false reactions have no bases. Positive results are quite well accounted for by the facts that the "substrates" alone, and the serums alone, give diffusible substances reacting with ninhydrin; that the dialyzers vary enormously in the quantities of such substances which they allow to pass in a given time; that serums, influenced by the distilled water and by the presence of a tissue acting by virtue of its physical state, are progressively cleaved, and that it is not the substrate which is split by the serum so much as the serum which is split by the substrate. These very real fallacies quite destroy the value of the method, and cast grave doubts on the whole theory. But it may pertinently be asked why one obtains such a large number of positive reactions in the serum of pregnancy in comparison to diseased conditions. It may be that regnant serum more commonly possesses the property of being split up when some suitable physical accessory is added, such as placental tissue. But what seems more probable is that there exists in serum, more frequently, though not exclusively, in pregnancy a *general* proteolytic and peptolytic power which one can demonstrate by adding a suitable, though not necessarily a *specific*, protein or peptone. The serum of the normal guinea-pig is generally credited with a fairly strong proteolytic power. The author tested the action of several guinea-pig serums on egg albumen, coagulated cancer tissue, human blood clot, and human placenta, and it happened that only with the latter were strong reactions evident. This seems to show that placental protein is a suitable

substrate for the demonstration of a general proteolytic power. Pincussohn and Petow found that the normal serum of each species of animal had a peptolytic power against the muscle peptones of that species only, whereas the serum of the guinea-pig had a peptolytic power against the muscle peptones of all other species tested. One may thus even admit that more in pregnancy than in other states the human serum may have a proteolytic and peptolytic power against the proteins of human tissue more than against other proteins; even that certain proteins, owing to their physical configuration, are more suitable than other for a demonstration of these enhanced powers; and yet one may condemn Abderhalden's whole theory of specific guardian ferments.

British Medical Journal.

August 22, 1914.

1. Section of Surgery. Discussion on the Evolution of the Shockless Operation. H. M. W. Gray.
2. Section of Naval and Military Medicine and Surgery. Treatment of Wounded in Naval Warfare. D. W. Hewitt.
3. Section of Ophthalmology. Discussion on the Hygiene of Reading and Near Vision. J. H. Parson.
4. The Teaching of Ophthalmology. A. M. Ramsay.
5. Opium and Omnopon. H. Sahli.
5. A Case of Disseminated Sclerosis Treated by Inoculation. H. L. Smith and T. G. Stewart.

1. The Shockless Operation (Anoci-association).—H. M. W. Gray regards local anesthesia as the chief factor of any of those at our disposal in the prevention of pain and therefore of shock. Novocain, at all events in weak solutions of ¼ to ½ per cent., may be regarded as non-poisonous, having no deleterious action either at the site of application or on distant organs. Prevention of mental excitement or irritation is nearly as important as the prevention of pain. Too much time is occupied in the preparation of the patient. It is especially unnecessary and undesirable to keep a patient entirely confined to bed before most operations. One should learn lessons from emergency patients of all kinds in whom "preparation" is of the worst possible type, yet 70 to 90 per cent. of such cases recover with very little manifestations of shock. What is known nowadays as "carnivorous surgery" must be avoided. Cutting instruments must be sharp. Seizing large masses of tissue in pressure forceps, rough, sudden, or irregular retraction of wound surfaces, rough handling, tearing or pulling of tissues, especially of the parietal peritoneum or pleura, mesentery, and so forth, must be avoided as far as possible. In an abdominal operation conducted under local anesthesia alone, it is easy to appreciate that severe shock is readily produced by unskilled handling. It is also very appreciable how far shock may be completely avoided by well placed injections of local anesthetic in the abdominal parietes, mesentery, broad ligaments, etc., coupled with gentle treatment of the tissues. The use of local anesthesia demands that desirable delicacy of manipulation. The author emphasizes the importance of conserving heat and obviating irritation by the avoidance of undue exposure of abdominal viscera, raw surfaces, or even of large areas of the skin. Accurate and immediate hemostasis is more than desirable. Loss of even small quantities of blood may turn the scale in some patient. In abdominal cases the author believes that a firm binder has a beneficial effect during the first possible precarious hour or two. In view of numerous observations regarding changes produced by anesthetics in brain cells and their immediate and remote effects on the heart and other important organs and tissues, surely it is right to dispense with them as much as possible. This toxicity is greatest in the case of chloroform, ether stands next, while nitrous oxide has little deleterious effect when skilfully administered. The anesthetic is injected as follows: Five or six skin blebs are made with a fine needle and are infiltrated with a thicker, longer needle, along first the line of incision and then the lateral abdominal parietes, down to the peritoneum. If pain is made much of at this stage, the patient is given a small amount of ether, and if the operation is likely to entail difficult manipulation, he is given ¼ to ½ grain of a mixture of the alkaloids of opium. According to the length of the incision and the thickness of the abdominal wall, 100 to 200 c.c. may be used, After 10 to 15 minutes the operation may be begun. If pain is felt in the deeper layers, either a little more solution is injected locally or else wait for a few minutes longer. Further injections may have to be made into the peritoneal attachments of the organs which are to be operated on. As already stated a small amount of ether may have to be given at this stage, but need not usually be continued. When infiltrating the abdominal wall the solution should be injected as the needle is being pushed onwards, so that vessels and nerves, unless fixed in fibrous tissue, are floated aside. This will also cause the peritoneum and the fairly dense subperitoneal tissue immediately lining it to be carried in front of the solution, so that the looser part of the subperitoneal tissue is flooded with the solution. Diffusion of the fluid joins up the lines of punctures. Frequently in cases of appendicectomy, for example, the needle is pushed through the peritoneum, at the same time forcing out the anesthetic solution at greater speed, so that the bowel may be floated away from the point of the needle. During a severe operation, if the pulse tends to flag, especially if severe hemorrhage or previous sepsis has occurred, an intravenous or subcutaneous infusion of saline solution is the best restorative, unless direct transfusion of blood can be made.

2. Treatment of Wounded in Naval Warfare.—By D. W. Hewitt. (See page 466.)

British Medical Journal.

August 29, 1914.

1. Common Ailments in Camp: Their Significance and Prevention. C. Webb-Johnson.
2. Gangrene in War. C. M. Page.
3. An Analysis of the Results of the New Sight Tests of the Board of Trade. F. W. Edridge-Green.
4. A Case of Late Infection Following Elliot's Operation. A. H. Griffith.
5. The Causes of Blindness in Eleven Hundred Children; with Special Reference to the Influence of Venereal Disease. N. B. Harman.
6. The Factor of Heredity in Myopia. J. A. Wilson.
7. The Choice of a Cataract Operation. E. E. Maddox.
8. English Pellagra in Early Childhood. C. R. Box.
9. Two Unusual Cases of Mastoiditis in Children. W. Wilson.
10. Intraperitoneal Rupture of the Bladder. N. Flower.
11. A Simple Method for Determining the Amount of Glucose in Diabetic Urine and Other Liquids. A. F. Dimmock.

1. Common Ailments in Camp.—Cecil Webb-Johnson states that it is a well-known fact that common ailments in camp are responsible for a great wastage of public money and a loss of training for a large percentage of men. It is known that the greater number of admissions to hospitals is among men between 20 and 25, and lowest among men between 40 and 50. This being the case, it is in the interest of the military authorities to pay especial attention to the young recruits, who should be questioned by their non-commissioned officer as to the state of their health during the first few days of camp life. The recruit is the last man to complain, because he is in the pristine state of enthusiasm and naturally wishes to appear as strong and capable as his comrades who have had more experience than himself. A very thorough examination of the mouth and throat should be made, for a man with bad teeth, enlarged tonsils, or adenoids generally gives trouble when in camp. The author thinks a man

may be rejected on general grounds, even if he is quite sound, for it is a well-known fact that certain men, although they pass according to the regulations, are not fitted for military service. All recruits should be medically examined before going to camp. One cannot be too strict in insisting upon the utmost cleanliness, not only in the person, but in camp generally. Whenever possible, the tents should be moved to fresh ground periodically, the length of time for the original tent ground depending on circumstances such as the weather, etc. Proper facilities should be given for hanging up all blankets and beddings, so that they can be sunned and aired. The author emphasizes the importance of every man having good serviceable boots and at least two pairs of good thick undarned socks. One of the greatest troubles in camp is blistered feet, and a large percentage of men are rendered unfit for duty for one or more days on this account. The next commonest minor ailment is gastric trouble. This takes various forms, including: (a) Constipation, (b) diarrhea, (c) vomiting, (d) colic. The change of air and food are responsible in a great measure for the constipation which is so common in camp life.

2. **Gangrene in War.**—C. M. Page had exceptional opportunities for the study of this subject during the late Balkan war. He classifies the types of gangrene seen under war conditions in accordance with their etiology, as follows: (1) Gangrene secondary to the interference with the blood flow through the main vessels of a limb. (2) Traumatic gangrene. (3) Infective gangrene. (4) Gangrene due to vasomotor paralysis. (5) Gangrene secondary to the effect of high explosives. The occurrence of the disease in young men with healthy circulatory systems is the one feature which is common to all these types, which feature differentiates them on the average from gangrene as met with in civil practice. This fact considerably affects the line of treatment and the prognosis. Gangrene of the extremities is occasionally seen as a result of direct slow velocity gunshot injury to the main brachial or femoral vessels; it more often occurs when a bone injury is present as well. In general, in this type of gangrene amputation can be carried out near the seat of injury and as soon as the process is definitely limited. In some instances, if the primary injury has not seriously involved the bone and is not infected, amputation at even a lower level may be safe. Traumatic gangrene is a term applied to a condition often indistinguishable from infective gangrene. Theoretically it is applied only to those cases in which death of a part result from direct injury, but it is evident that infection will be an important factor in the extent and progress of the condition. The treatment is practically the same as for the infective type. Acute infection with many organisims may cause some degree of local tissue necrosis. The term "infective gangrene," however, is usually reserved for those cases in which the process is definitely progressive and associated with toxemia. The cases of symmetrical gangrene which were seen in large numbers among the Turkish troops in the last months of 1912 resulted from a vasomotor disturbance. The gangrene was practically always symmetrical and affected the lower extremity in the brain of a spasmophile child is poor in lime in combut, as far as could be seen or learned, never independently of the feet. In cases in which the gangrene was moist and extending, or where signs of tetanus were present, amputation well above the lesion was carried out. The prognosis in this type of the condition was not favorable, as in addition to the pronounced toxemia the subjects were usually thoroughly exhausted from exposure and dysentery. When the gangrene was fairly dry the affected parts were powdered with boracic acid and left exposed to the air or lightly covered with wool; good food and stimulants then assisted the rapid formation of a line of separation. The author considered the condition to be strictly comparable to that of frostbite. The arterial circulation of the men affected was rendered extremely poor by the condition of starvation and fatigue; under these circumstances a temperature above freezing was able to produce stasis in the peripheral vessels. It is interesting to note that a strictly comparable condition attacked many of the English and French troops in the Crimean war. The mortality from this cause in the army which served in Bulgaria as well as in the Crimea was 33.3 per cent.; among the troops who only served in the Crimea it was 16.3 per cent. This enormous death rate was largely due to the complication of enteric diseases and typhus, which were both frequently acquired after the troops were admitted to hospital. Extensive gangrene of the extremities has been stated to occur in men after they have recovered from the effects of violent explosives. The only recent definite communication the author can find on the subject of this type of injury is by v. Berdisavljever, reporting from Servia; he says he saw cases of hematuria, hemothorax, and shock as the result of explosions, but he says that in no instance did he see gangrene. MacLean had under his care in Constantinople a remarkable case of gangrene of all four extremities attributed to this cause.

5. **Blindness in Children.**—N. B. Harman states that statistics based upon the study of eleven hundred blind children show that there has been a definite diminution of the incidence of cases of blindness caused by ophthalmia neonatorum, and it is reasonable to credit this diminution to the great efforts that have been made to prevent the disease during the past few years. The diminution is really greater than it appears by this method of tabulation, for the cases seen and accounted for in the first two counts are included within the last return. The apparent increase of the incidence of the cases of congenital syphilis is in part due to the diminution of the cases of ophthalmia, and in part to the use of finer methods of diagnosis, cases that formerly were tabled among those of "uncertain origin" are now definitely accounted for. It is certain that the number of cases of blindness due to ophthalmia is diminishing both actually and relatively to the causes of blindness. But there is not sufficient evidence to state certainly that the apparent increase of the syphilitic cases is due to any other cause than the diminution of one large class of case of blindness and the better means of diagnosis. The sum total of this examination of these blind children is the finding that more than one-half of them owe their miserable state of blindness to venereal disease of their parents.

6. **The Factor of Heredity in Myopia.**—J. A. Wilson points out that myopia is frequently hereditary, but the general opinion is that near-work—reading, writing and sewing—is the more important factor in its production, and the chief evidence for this opinion is the striking increase of myopia that occurs during school years. In a study of 1500 consecutive cases the author finds evidence of heredity in 58 per cent.; keratitis is classed as the cause of the myopia in 12 per cent.; and the cases in which evidence of heredity was unobtainable, constituted 30 per cent. When myopia is clearly hereditary, then it exists in all degrees—high and low—but low degrees are more frequently hereditary than high. High myopia makes its appearance before school work begins, and therefore must be due to heredity. It may be said that when the myopia is high the intensity of heredity has been

great, and that when the myopia is low the impulse of heredity has been less, and that near work or other suitable environment is necessary for the production of this variety, or to enable hereditary tendencies to become manifest. In the absence of this near work, or environment, the factor may lie dormant, skip a generation, or be only partially or fitfully expressed. When both parents are myopic then myopia is very prevalent among the offspring; it is less so when only one parent is myopic, and still less so when neither parent is affected. There is irregularity of incidence in individual families, but this is to be expected, as one or both parents may carry unexpressed the hereditary tendency to myopia, or one parent may be hypermetropic. When taken collectively this irregularity disappears. Among school children the sexes are found to be disproportionately affected, and this disproportion increases at and beyond the age of puberty, giving in the author's cases a ratio of two females to one male, a ratio that suggests sex-limitation. The incidence of myopia bears a direct relationship to the amount in the parentage, or extraction, and there is order in the transmission. There is similar evidence of heredity in high degrees and in low degrees of myopia and in the various occupations. There is no special association with any particular occupations, and all these innate characteristics indicate that the etiology of myopia is independent of environment.

Berliner klinische Wochenschrift.

August 3, 1914.

Myoma and Pregnancy.—Landau states that despite the many successes in the treatment of myoma with mesothorium, radium and Röntgen rays we are often called on to treat these growths surgically. We do well, therefore, to group them according to indications and treatment. From this viewpoint there are four categories. In the first belong most uncomplicated cases, in which gestation occurs just as in the normal uterus. Any plan of active treatment is quite superfluous, even harmful. Growths of this type are often discovered by chance, both general and local symptoms of myoma having been absent. In the second category myoma causes such symptoms without or with pregnancy that an expectant policy is out of the question. Treatment, however, should be conservative, the growths being enucleated. The author has proceeded in this manner fourteen times. In some cases of enucleation of large myomata—the size of a man's fist—the women have continued to bear children, as many as five, all at term. In the third category pregnancy is not prejudiced, nor do the growths give rise to symptoms. The seat of the growth, the displacement of the uterus, or some other factor may, however, offer mechanical obstacles to delivery—for example, retrouterine or retrovesical myomata. The indication here is cesarean section, followed with total or supravaginal hysterectomy. Thus far there has been no mortality to mothers or children in the author's material. Finally, there is a fourth group in which pregnancy must be interrupted forthwith. On account of the distortion of the cervix uteri abortion is very largely out of the question, the indication being the same as in Group III. The Landau brothers have operated on 31 cases comprised under Group IV. During the past nine years they have performed 541 myomectomies and hysteromyomectomies. There were consecutive series of 152 and 131 cases respectively without mortality. In the entire material there were 51 cases of operation for myomatous gravid uterus—nearly 10 per cent.

Salvarsan Treatment and Latent Microbism.—Gutmann lays down the following rules of procedure in regard to salvarsan treatment. Acute febrile affections in the course of evolution with microbic latency are withdrawn from our cognition because of the total absence of symptoms. Now, since latent microbism conceals dangers, we must scrupulously adhere to the dictum of Gennerich that salvarsan should only be injected when the patient feels perfectly well. The therapeutist is then absolved from blame when, despite all pains, a collision between a salvarsan injection and latent microbism gives rise to more or less evil consequences. After recovery from any of the acute febrile affections amenable to salvarsan treatment, when there is nearly always some persistence of latent microbism, there should be a pause of from 8 to 14 days before other injections; and further consecutive injections must be small at first for testing purposes, to be gradually increased.

Epithelizing Action of Aminoazobenzoles.—Martinotti, of Modena, sums up results of his experiments as follows: The coloring matters which belong to aminoazotoluol and aminoazobenzol have a more or less strong and perceptible action on epithelia. This action is expressed by epithelial proliferation after the injection of solutions or emulsions of these substances in the cushion of the rabbit's ear, and after application to recent wounds, a difference being visible according to the nature of the excipient (oil, glycerin, water). The maximum results are supplied by the inferior combinations, weakening as we ascend in the scale. The benzol combinations are superior to the toluols. The term scarlet red is vague and applied to members of both classes. The most powerful epithelizer of all is hydrochloride of diaminoazobenzol, while next in order is aniline yellow.

Berliner klinische Wochenschrift.

August 10, 1914.

Peculiar Traumatic Joint Contracture.—Tietze describes a reflex contracture in joints which are held in rigid positions as a result of traumatism. He refers the reader to a paper read by him before the last German Surgical Congress, entitled "Theory of So-called Arthrogenic Contractures." The subject is limited at present to contractures of the hand and fingers, and the author has had many sketches made from photographs through which the positions of the joints can be studied. The patients are not advanced in years and the lesions are comparatively recent, so that the cases under consideration differ widely from the average of clinical material in which joints are involved. There is no destruction of osseous tissue. The joint positions cannot be voluntarily assumed, and one cannot escape the conviction that the muscular contractures are brought about reflexly from the injured joints. They are by no means characteristic, for the same positions occur in spastic paralyses during forced attempts to perform certain movements. In the clawlike attitudes there is a suggestion of the ape, and the author and Foerster have long upheld the view that in spastic paralyses a phylogenetic element is visible which clearly possesses a reflex mechanism. In certain healthy individuals these clawing and climbing movements and attitudes can apparently be executed voluntarily. Foerster has thus far devoted his attention chiefly to the lower extremities, but the author believes the theory is more readily applicable to the upper limbs.

Are Worms (Oxyuris) Directly or Indirectly Responsible for Appendicitis?—Aschoff states that the relative frequency of oxyuris infection of the normal or not acutely inflamed appendix has long been known. The picture of oxyuris pseudo-appendicitis described by the author several years ago has been essentially upheld by the results of Rheindorf's investigations, and its fre-

quency is admitted. The finds depicted by Rheindorf of the formation of fissures in the mucosa of the appendix, attributed by him to the immigration of the oxyuris, are essentially mere artefacts. As long as there is no evidence that the oxyuris can cause gross epithelial defects or tissue destruction which persists for a time, the assertion of Rheindorf that the oxyuris can cause appendicitis indirectly must be regarded as unproven. The part played by the oxyuris in causing pseudo-appendicitis should lead the profession to pay more attention than heretofore to this parasite. Children with attacks suggesting appendicitis should receive thorough treatment for worms, especially as the symptoms often reappear even after removal of the appendix, unless the cause has been removed.

Relation of Atypical Gout to Affections of the Respiratory Organs.—Mayer first mentions the long known relationship between typical gout and asthma and adds that the latter also occurs in atypical gout. His conception of the latter is extremely simple—disturbed purin metabolism without gouty paroxysms. He attacked the problem by testing the purin metabolism of 40 subjects with asthma and chronic bronchitis, the test being again very simple—the injection of uric acid and piperazin into a vein and watching for uric acid retention. This phenomenon he found present in 9 out of the 40 patients, agreeing in all respects with the same finds in typical gout. In nearly all of these there was evidence of metabolic anomalies—gout and diabetes in ascendants and near relatives, children with exudative diathesis. The respiratory complication of atypical gout was always one and the same—a dry bronchitis known since Laennec's time as characteristic of typical gout. Upon this foundation paroxysms of asthma readily develop, for example under the influence of alcohol and food rich in nucleins. Atypical, like typical gout, causes tuberculosis to pursue a mild chronic form—the so-called fibroid phthisis; tuberculosis also tends to cause typical gout to become atypical.

Münchener medizinische Wochenschrift.

July 28, 1914.

Calcium Milk for Sick Nurslings.—Weih states that Finkelstein's albumin milk represents a great advance in the nourishment of sick infants. Later it appeared that this preparation could be replaced by milk mixtures containing an addition of lime salts. A casein calcium was placed on the market under a trademarked name and recommended for milk mixtures in the dosage of twenty grams to half a liter. Still more recently another commercial substance has been advocated which contains double the lime and phosphoric acid content of the first named. It contains 20 per cent. of tricalcium phosphate and albumin representing 10.5 per cent. nitrogen. This is added to ordinary full milk in the proportion of thirty grams to half a liter. The chief indications are rickets and spasmophilia. The older calcium therapy has largely been abandoned, because it has never been proved that rickets is purely a deficiency disease. Recent experiments have, however, shown that the tissues are at fault—the various collagenous structures which are unable to fix the diet calcium. It has been shown that when given with phosphorized cod liver oil calcium is well retained in the body, hence in rickets we must have lime ingestion. In any case acute or florid rickets shows marked waste of both phosphoric acid and lime. It is believed that calcium triphosphate if combined organically with albumin is much better retained than when given alone. In regard to spasmophilia it has now been proved that the brain of a spasmophilic child is poor in lime in comparison with the normal child. The former also suffers from calcium waste. Certain other affections are no doubt traceable to lime deficit—constitutional eczemas and dyspepsias. The treatment is no panacea for the nursling but is held to be indicated in spasmophilia, rickets and acute disorders of nutrition in addition to eczema. Other synergistic measures are advocated.

Erythema Infectiosum.—Heisler states that this condition is quite distinct from scarlatina, measles, rötheln, and the "fourth disease" of Duke. Last spring the author treated a petty epidemic of 25 cases. As a rule there are no prodromes. A maculopapular efflorescence appears on the cheeks and becomes confluent, giving the face a swollen look, and a feel of induration. The color of the rash is bluish-red. The spread is along the extensor surfaces of the arms, neck and shoulderblades, but the rash becomes finer and without tendency to confluence. In two or three days large crops appear on the buttocks and external aspects of the thighs. The first outbreak may have been so fugacious that this location is the first to be noted. Again one rash may quickly vanish and be replaced by another. The victims were of any age up to 16 years, and the incubation period varied from 5 to 14 days. Contagion was very evident, but this is not of a high degree. The only forerunner, seen in some of the cases, was enlarged lymphnodes, at the angle of the jaw, back of the neck, etc. These were as large as almonds, sensitive and firm to touch. Fever was almost always present, seldom exceeding 37.8° C. In a few cases only there was an efflorescence in the mouth, chiefly on the hard palate.

The Cuti-Reaction in Pregnancy.—L. Verney calls attention to this reaction which was first described by Esch of Marburg two years ago. An extract of placenta when rubbed into the skin of a pregnant woman gives rise to a reaction which is similar to that obtained in the von Pirquet test for tuberculosis.—*La Clinica Ostetrica.*

Ligneous Phlegmon of Réclus and Ligneous Thyroiditis of Riedel.—Umberto Cavalli reports one case of each of these conditions. He concludes that in both instances the anatomy is identical, although the seat of disease may be different. The morbid agent is the diplococcus of Fränkel. The treatment should be conservative and should consist in simple incision and drainage.—*La Riforma Medica.*

The Medical College Library.—C. Frankenberger points out that the greatest advantage of such a library is that it places about the student an environment which has a tendency to inspire in him a desire to read and become acquainted with the literature of his profession so freely available. It gives the student the opportunity to keep in touch with the literature in the more important current medical periodicals, and to become acquainted with the recent books and monographs on special subjects. If there is only time to look hastily through them and to become sufficiently familiar with them to know that such a work has been written on that particular subject, it will be valuable knowledge that will prove helpful at some future time. To cultivate in the student the habit of reading in the odd moments and spare time of his medical course is to be encouraged and fostered in every way, for the possession of such a habit after entering in practice will be of estimable value to him. It is safe to say that many who do not acquire this habit during their college career never attain it after graduation. The great difficulty in endeavoring to encourage the acquiring of this habit by the student is the very limited spare time allowed in the already crowded curriculum.—*Journal of the American Medical Association.*

Insurance Medicine.

Medical Section of the American Life Convention.—The fourth annual meeting of this society will be held in Dallas, Texas, on Wednesday, October 7, under the presidency of Dr. James H. Stowell, The following papers will be read: "The Medico-Actuarial Investigation and Its Effects Upon the Selection of Risks," by H. A. Baker, M.D., medical director Pittsburgh Life & Trust Company; "The Influence of Heredity Upon Life Insurance Risks," by William F. Milroy, M.D., medical director the Bankers' Reserve Life Company, Omaha, Neb.; "The Heart in Life Insurance," by J. S. Lankford, M.D., medical director San Antonio Life Insurance Company, San Antonio, Texas; "Certain Aspects of Life Underwriting," by Mr. Franklin B. Mead, secretary and actuary the Lincoln National Life Insurance Company, Fort Wayne, Ind.; "Surgery and Life Insurance," by Marion Souchon, M.D., medical director Pan-American Life Insurance Company, New Orleans, La.; "Inspection of Risks," by E. J. Spratling, M.D., medical director the Empire Life Insurance Company, Atlanta, Ga.; "Some Observations in Physical Diagnosis in the Light of Recent Clinical Research," by E. W. Stevenson, M.D., medical director Standard Life Insurance Company of America, Pittsburgh, Pa. The secretary of the section is Dr. F. L. B. Jenney of Chicago.

Arteriosclerotic and Constitutional Psychic Anomalies.—Reckzeh deals with the estimation of these affections from the viewpoint of the medical insurance examiner and medical jurist. When a subject of late middle age previously free from symptoms begins to complain of vertigo, headache, failing memory, depression or irritability, insomnia or somnolence, diminished tolerance to alcohol, lowering of ethical standards, egoism—in other words a commingling of purely nervous and psychic disturbances—we have good reason to suspect cerebral arteriosclerosis. Analyzed these symptoms are due partly to deficiency, partly to irritation. At times we see speech defects—slow, difficult enunciation with participation of facial muscles; sluggish pupils; differences in the innervation of the facialis, heightened reflexes, spasms, paresthesiæ, and pains. At best, however, it is difficult to exclude here conditions purely nervous. Paresis may be simulated now and then if the mental state is sufficiently compromised. If to simple arteriosclerosis are added small areas of hemorrhage and softening we see vomiting, syncope, mental confusion, and various focal manifestations.

The symptoms may be transitory, and are of a character to be explained by the rigidity of the vessels and insufficient passage of arterial blood; here belong vertigo, confusion, and various speech disorders (also affections of the handwriting). A vasomotor element is no doubt present, to account for the transitoriness of the syndrome. When sleep disorders appear they are likely to persist, insomnia being the rule and somnolence the exception. There may be a long interval between the initial and the later severe symptoms, because compensatory activities may be present. In failing compensation, Reckzeh says, we very soon begin to notice rapid exhaustibility, persistent vertigo, amnesia, alcohol intolerance, and purely mental defects.

This affection, contrary to the customary belief, is no more inclined to attack the educated than the illiterate. Psychic shock may precipitate it. The possibility of syphilis must be borne in mind. The various psychoneuroses must be excluded. Sclerosis of the palpable arteries has some value in differential diagnosis.

Psychic anomalies may be so marked as to involve the question of responsibility and the subject of diminished earning capacity also claims attention. The response to treatment is of some importance, as these may improve under institutional care.

Advanced cerebral arteriosclerosis naturally rejects an applicant outright for life insurance. Beginning arteriosclerosis, on the other hand, if detected at an early period, simply adds hazard to the risk. The diagnosis should not be made until radiograms and the blood pressure have been taken.

The estimation of the constitutional psychopath involves the question of the insurability and responsibility of the born neurasthenic, the hypochondriac, the dysharmonic, the affect personality, the obsessive, the phobic, etc. Naturally no sharp lines can be drawn between the varied expressions of psychopathy. The latter may be manifested by swindling, lying, and criminality of the instinctive type, sexual aberrations, etc. In such cases responsibility must be fixed. In life insurance the tendency of psychopathy to suicide must be borne in mind; also the tendency to addictions. In health insurance the psychopath is somewhat predisposed to disabilities. Unless a psychosis is actually present, the psychopath is held responsible for infractions of the law. "Psychosis" includes imbecility.—*Zeitschrift für Versicherungsmedizin*, 1914, VII, July, p. 193.

Overweights as Surgical Risks.—Individuals of overweight are not good surgical risks, especially those with acute infectious processes. This is perhaps best demonstrated in gallstone disease. Dr. William J. Mayo says that of all the cases of gallstone disease operated on in the Mayo clinic, age for age, the patients average heavier weight than do the average patients with other diseases. It is known that gallstones are more common in women, and in women who have borne children. Aschoff shows that cholesterin, which is commonly a constituent of gallstones, is about four times as common in the pregnant woman as in a man. The particular type of overweight that goes with the consumption of alcoholic beverages is an especially bad risk from the standpoint of surgical operative work.—American Life Convention, March, 1914.

Habits of the Overweight.—The subject of food as well as drink with reference to the habits of overweights is all-important. Millman shows that many of these men live freely and are large eaters and should be restricted in that line. After they pass forty-five they should moderate their appetite and avoid all sugars, starch, and fats, just as they would alcohol. He thinks excessive eating of these forms of food makes a great difference in the longevity of these men. A good rule is to write and ask how many pounds the applicant has gained in the past five years and find out his mode of living. A man who is overweight should take considerable exercise. If these principles could be carried out, Millman says, there can be no doubt that many of these overweights would live longer than they do.—American Life Convention, March, 1914.

Book Reviews.

COLLECTED PAPERS BY THE STAFF OF ST. MARY'S HOSPITAL (MAYO CLINIC) FOR 1913. Octavo of 819 pages with 335 illustrations. Price, cloth, $5.50 net. Philadelphia and London: W. B. Saunders Company, 1914.

IN this volume we find all the articles published during the year 1913 by W. J. and C. H. Mayo and twenty-six of their associates. A very large range of clinical and experimental work is covered, and probably in no other single volume is recent progress along surgical lines more truly reflected. There are altogether 78 articles, of which 26 are found in the first section, devoted to the Alimentary Canal; 13 in the section on the Urogenital Organs; 15 in that on the Ductless Glands; 11 in that on the Head, Trunk and Extremities; 8 on Technique, and 5 under the caption General Papers. Some of these papers are based upon a very extensive clinical experience, as, for example, 1,800 operations for gastric and duodenal ulcer and gastric cancer within a period of six years, while C. H. Mayo's paper on the surgery of the thyroid is based upon observations of 5,000 operations. Many of the articles not only contain extensive references to the work of other surgeons and investigators in the text, but there is often a considerable bibliography appended for the benefit of those who desire to study the subject more thoroughly.

The illustrations are, as usual, models of perfection, the presswork of the highest class, and it is almost impossible to find an error, typographical or otherwise, that has escaped the watchful eye of the editor, Mrs. M. H. Mellish. It is almost needless to say that this book is practically indispensable to the surgeon who would keep abreast of the times and to those who appreciate the magnificent work that is being done in the field of surgery and its allied branches in our own country.

CHEMICAL PATHOLOGY. Being a discussion of General Pathology from the Standpoint of the Chemical Processes Involved. By H. GIDEON WELLS, Ph.D., M.D., Professor of Pathology in the University of Chicago and in Rush Medical College, Chicago; Director of the Otho S. A. Sprague Memorial Institute. Second Edition, thoroughly revised. Price, cloth, $3.25. Philadelphia and London: W. B. Saunders Company, 1914.

IN the seven years which have elapsed since the appearance of the first edition of this work, much has been done in the investigation of the more strictly pathological aspect of biological chemistry. Numerous studies have been made on the metabolism of the diseases in which the chemical aspect is important, such as diabetes and gout, and a large body of pure chemists have contributed to the investigation of the structure and chemical relationships of the special end products of metabolism. But in spite of all this research the subject is not yet in a form sufficiently co-ordinated so that it can be presented as a systematic whole. There are still great gaps in our knowledge, for example, of the process of the metabolism of uric acid, and even as to the nature of diabetes and the intermediary metabolism of sugar. During the period mentioned there has also sprung up a considerable knowledge on a subject almost untouched before, that is, colloid chemistry; and many of the well-known humoral reactions of the body, such as those between toxin and antitoxin are now considered not to be purely chemical, but to be of a colloidal nature. While the specialist has access to the large German handbooks which have appeared in recent years on the subject of biological and colloid chemistry, the average worker must be content to consult a review such as this work under consideration and to gain from it his knowledge of the subject. It is not unnatural that those subjects which the writer has made peculiarly his own by original investigations are somewhat emphasized, but still a careful examination shows that little has been omitted.

The structure and nature of the more elementary constituents of the cells occupy the first three chapters; then comes the chemistry of bacteria and animal parasites; the special toxins of snakes and poisonous insects, and the chemistry of the immunity reactions; after that the chemical changes which are known to occur in inflammation, in diseases of the circulation, in necroses, in degenerations, and in tumors are discussed; and, finally, the various diseases in which the metabolic aspect is dominant are taken up. The last chapter on the chemistry of diabetes has been written by Dr. R. T. Woodyatt, whose contributions on the subject are well known.

Many changes from the first edition are to be noticed; the work has grown considerably in size; and the references have been brought up to date. The reviewer has noticed very few slips or misprints and the work again takes its place in its revised form as the best presentation of pathological chemistry in the English language.

ISOLATION HOSPITALS. By H. FRANKLIN PARSONS, M.D. (Lond.), D.P.H. (Camb.), formerly First Assistant Medical Officer of the Local Government Board. Cambridge Public Health Series, Under the Editorship of G. S. GRAHAM-SMITH, M.D., University Lecturer in Hygiene and Secretary to the Sub-Syndicate for Tropical Medicine, and J. E. PURVIS, M.A., University Lecturer in Chemistry and Physics in their Application to Hygiene and Preventive Medicine, and Secretary to the State Medicine Syndicate. Price, 12 6. Cambridge: At the University Press, 1914.

THE subject of isolation hospitals comprises many problems in hospital administration and preventive medicine, all of which are admirably presented in this volume. The author, who died just as the proofs of his book were being passed through the press, had produced a work that cannot fail to be of distinct service to all who are interested in the establishment and management of hospitals for infectious diseases. The contents of this volume includes chapters on the following subjects: The history of isolation hospitals, utility of isolation hospitals; substitutes for hospital isolation; areas to be served by an isolation hospital, and combined areas; sites for isolation hospitals; design of isolation hospitals; details of hospital ward-blocks; movable hospitals and hospitals of more or less perishable construction; smallpox hospitals; port sanitary hospitals; removal of patients to hospital; measures for the prevention of cross-infection, "bed isolation," open air treatment; discharge of patients from hospital; staff required for an isolation hospital; infectious disease and the poor law; hospital system of the Metropolitan asylums board; cost of isolation hospitals; sanatoria for tuberculosis, and examples of isolation hospitals. One of the most interesting chapters is that which deals with the measures for the prevention of cross-infection. It is pointed out that the "cubicle" system of bed isolation is the one best adapted for the prevention of cross-infection. In hospitals constructed on the pavilion plan in which cases of the same infectious disease are treated in the same ward, it is necessary to maintain a distance of not less than twelve feet between each bed in order to minimize the chances of contact and of droplet infection from one patient to another. Even with this provision the isolation is not ideal, for, as the author points out, "there is reason to believe that in infectious diseases the primary infection is liable to have accompanying or supervening upon it other secondary septic infections, to which latter the severity of the resulting illness and the occurrence of complications are largely due; that these secondary infections may be different even where the primary infection is the same; and that therefore every patient suffering from an acute infectious disease should be regarded as requiring to be isolated—more or less completely according to the nature and stage of the disease—not only from healthy susceptible persons, and from persons suffering from illness due to other infections, but also from other cases which are classified as being of the same infectious disease." The "block" or "cubicle" system is the one to which considerable attention is being paid at the present day. There are three different systems varying in the degree of aerial separation between the compartments: (1) Each compartment is completely separated from any other and is separately entered from the open air under a veranda, as at the Walthamstow Hospital, England. (2) Each compartment is separated from any other by a partition reaching to the ceiling, but the compartments are all entered from one corridor, as in the Pasteur Hospital, Paris. (3) The compartments are all entered from one corridor and are separated from one another only by partitions not reaching to the ceiling. These partially separated cubicles are unsuited for the treatment of smallpox and chickenpox and of measles during the acute stage of the illness, and there is some risk in the case of septic scarlet fever, but scarlet fever not of a septic type, diphtheria, measles in the posteruptive stage, whooping-cough, mumps, influenza, typhoid fever, and probably typhus can be treated in such a cubicle without much risk to other patients in the ward.

THE MENTAL HEALTH OF THE SCHOOL CHILD. The Psycho-Educational Clinic in Relation to Child Welfare. Contributions to a New Science of Orthophrenics and Orthosomatics. By J. E. WALLACE WALLIN, Ph.D., Professor of Clinical Psychology and Director of Psycho-Educational Clinic, School of Education, University of Pittsburgh, Director-Elect of Psycho-Educational Clinic, St. Louis Public Schools. Price, $2.00. New Haven: Yale University Press; London: Humphrey Milford, Oxford University Press, 1914.

THE keynote of this book is the emphasis which it places upon what the author designates as "orthosomatics," or "the process through which malfunctioning physical organs may be made to function aright," and "orthophrenics," or the "process, mental or physical, of righting any malfunctioning mental power so that the mind may realize its highest development possibilities." The work deals largely with the physical and mental welfare of school children and comprises with some amplification a series of papers which have appeared in various journals, including the MEDICAL RECORD. One of the most interesting chapters is that which discusses the new clinical psychology, in which it is pointed out that in dealing with the development of a child one must regard it as having six ages: a chronological, a physiological, an anatomical, a socio-industrial, a pedagogical, and a psychological. The cases with which the clinical psychologist is concerned are grouped into two classes, those in which the mental variations are fundamental or primary, and those in which the physical deviations are fundamental or primary. The former class includes the feeble-minded children, the "retardates," of which there are estimated to be 6,000,000 in the schools of the United States; the speech-defectives; and the incipient psychotics. The author presents a critical analysis of the value of the Binet-Simon scale of graded tests, and discusses a number of current misconceptions in regard to the functions of this method of determining the psychological age of the defective child. Psychological examination demands more than mere stereotyped testing. "There is no royal road to psychological diagnosis." The Binet tests are not infallible, but an experience comprising a large number of cases leads the author to conclude that the tests "provide a fairly impersonal and uniform method by which to grade or classify, with a fair degree of accuracy, institutional or school cases relatively to one another." Among important chapters in this book are those dealing with individual and group efficiency, with the effects of dental treatment on mental efficiency, efficiency in school organization and the conservation of the mental health of children, and public school provisions for mentally unsound children. The author has written a convincing brief in favor of the scientific study and the specialized educational management of the defective child.

MATERIA MEDICA FOR NURSES. By A. S. BLUMGARTEN, M.D., Instructor in Materia Medica at the German Hospital Training School for Nurses, New York. Price, $2.50. New York: The Macmillan Company, 1914.

THE book is gotten up in excellent style, as regards its paper, printing, and binding. The author has included in the text a wealth of information pertaining to drugs both official and non-official. It is questionable, however, whether the average nurse can digest the material in the form in which it is presented. Of the five examples of prescriptions given, none is written correctly. For instance, the author presents the following as type prescriptions:

℞ Bismuthi Subnitr.....15.0
Mucilago Acaciae.....10.0
Syr. Simplex..... 5.0
Aqua Cinnamomi q.s. ad.....60.0
Misce et. Sig 5j q. i. d.

℞ Extracti Colocynthidis Compositi.....5ss
Rheii .....grs. xxiv
m. et divide in pilulae No. XII.
Sig. one o. n.

Ichthyol (page 60) is spelled "icthyol." It may be a far cry from prescription writing to definitions of mental activity, but one is tempted to quote the following: "Emotion is an act, whereby the brain modifies the action of the body, the consciousness and the motor impulses sent out from the brain." The author has a more intimate knowledge of drugs and of their action than of prescription writing and psychology. These are the only serious shortcomings of this work which may be used by the nurse for quick and usually accurate reference. The numerous tables scattered throughout the book are particularly useful. Of special value to the nurse are the rules for making up solutions of different strengths from stock solutions of known strengths.

TEXT-BOOK OF ANATOMY AND PHYSIOLOGY FOR TRAINING SCHOOLS AND OTHER EDUCATIONAL INSTITUTIONS. By ELIZABETH R. BUNDY, M.D., Member of the Medical Staff of the Women's Hospital of Philadelphia; Gynecologist, New Jersey Training School, Vineland; formerly Adjunct Professor of Anatomy and Demonstrator of Anatomy in the Woman's Medical College of Pennsylvania; formerly Superintendent of Connecticut Training School for Nurses, New Haven, etc. Third edition, revised and enlarged. With a glossary and 233 illustrations, 43 of which are printed in colors. Price, $1.75. Philadelphia: P. Blakiston's Son & Co.

THE third edition of this work is no longer a "text-book of Anatomy and Physiology for *Nurses*," but is frankly stated to be a "text-book of Anatomy and Physiology for *Training Schools and other Educational Institutions*." For some time past there has been a tendency on the part of writers of books for nurses to go beyond the requirements of that class and to cater to the supposed needs of social workers, "research" workers, and others. The volume is much the same as its predecessors, and there are still some slips to be corrected in future editions. Thus, we read that there are four bones in each ear called ossicles; that the pancreas is a ductless gland; that the pectoralis minor has its origin from the three upper ribs. On page 241 we are told that "Internal respiration will be studied under Metabolism," but we have not been able to find it, even with the aid of the index. There is no reference in the index to Proteids, Fats, Carbohydrates, Starches, Sugars.

DIE LEHRE VON DEN OKKULTEN BLUTUNGEN. Von Prof. Dr. T. BOAS. Leipzig: Verlag von Thieme, 1914.

IN this excellent monograph Boas gives a minute description of his important discovery of occult bleeding. The great clinician first describes in detail the best methods of procedure, and the precautions necessary for the detection of blood in gastric contents and feces, and then broaches the subject of the eminent diagnostic importance of this sign in various diseases. In gastric and duodenal ulcers occult blood is found as long as the ulcer has not cicatrized. After a dietetic cure the occult blood disappears. In cancer of the stomach and intestine occult blood is constantly found in the feces and does not disappear after prolonged dietary régimes. The absence of this sign speaks against a malignant disease of the gastrointestinal tract. Boas also lays great stress on the importance of occult hemorrhages for treatment. Whenever this sign is present the indication for the checking of the hemorrhage is given. The treatment will consist in remedies directed against the cause of the bleeding. If it is a mere ulcer a milk régime and rest abed are sufficient. In case it be due to a cancerous affection its radical removal must be aimed at. The little book is a valuable addition to medical literature.

ON DREAMS. By Prof. Dr. SIGM. FREUD. Only authorized English translation by M. D. EDER, from the Second German Edition. With an introduction by M. LESLIE MACKENZIE, M.A., M.D., LL.D., Medical Member of the Local Government Board for Scotland; Late Ferguson Scholar in Philosophy; Late Examiner in Mental Philosophy, University of Aberdeen. Price, $1.00. New York: Rebman Company, 1914.

FREUD'S ideas regarding dreams and their interpretation are even yet but dimly understood by a large number of educated persons in and out of the medical profession, although an understanding of them is absolutely necessary to a full comprehension of the modern theories of the part the unconscious plays in the mental life. In this little book Freud sets forth very clearly, if not convincingly, his theory of condensation and displacement in dream work and his psychoanalytic method of explanation of the dream phantasy. The book will be as interesting to the layman as to the physician, and will be instructive to those who seek to be informed as well as supplying the non-believer with much material upon which to base an intelligent criticism.

Society Reports.

AMERICAN PEDIATRIC SOCIETY.

Twenty-sixth Annual Meeting, Held in Stockbridge, Mass., May 26, 27, and 28, 1914.

(*Continued from page 485.*)

THE PRESIDENT, DR. SAMUEL MCC. HAMILL OF PHILADELPHIA, IN THE CHAIR.

The Caloric Value of the Diets of Sick Infants.—Dr. J. C. GITTINGS read this paper, in which he compared the caloric value of the diets in 125 cases with two standards: (1) The caloric needs based upon the admission weight. (2) The caloric needs of an infant of the same age but of normal weight. The caloric needs were calculated on the basis of the following allowances: 50 calories per pound of body weight during the first three months, 45 calories per pound of body weight during the second three months, 40 calories per pound of body weight during the remainder of infancy (up to two years). The cases were divided into the following classes: Atrophy cases, acute gastrointestinal cases, and miscellaneous cases, including pneumonia, bronchitis, typhoid fever, etc. The results corroborated the general impression that cases of acute gastrointestinal disease with fever, vomiting, or diarrhea received a diet more or less markedly deficient in caloric value, and that gain in weight, on the average, went hand in hand with the administration of adequate nutriment. The value of a conclusion based upon general averages could not always be applied to the individual case, and the danger of allowing theoretical consideration to outweigh careful clinical deductions must be emphasized. The estimation of caloric values of diets must not be considered as a compulsory dietetic indication, and due regard must be paid to the effects of diet upon digestion. On the other hand, it was undoubtedly true that marked caloric deficiency or excess, if persisted in, was reasonably sure to be followed by nutritive or digestive disturbances. The caloric value of the diet furnished at once the measure by which we could estimate the risk of starvation and weigh it in the balance against the risk of increasing indigestion.

DR. CHARLES HUNTER DUNN of Boston said that he had always felt from his clinical observations the fallacy of the minimum caloric requirement. They had tabulated the caloric diets of the infants in their wards and the results differed from those of Dr. Gittings in that the extremes were so great that no conclusion could be drawn from any system of averages that could be of value. Where the extremes were so wide the averages might be false for every individual baby. Some infants made no gain on the lower caloric values and gained when the calories were increased, and in others the minimum number of calories had to be doubled before the infants began to show a gain. The problem was complicated by individual differences in nutrition and in digestive power so that conclusions were not of value as a guide even in the average case.

DR. HENRY DWIGHT CHAPIN of New York said he was glad Dr. Dunn had made a protest. The value of the caloric method of feeding infants had been overestimated. It was the assimilation and nutrition and not the heat production that was of value. It must be remembered that the different food elements must be in proper proportion and that they were not interchangeable.

DR. CHARLES GILMORE KERLEY of New York said that wishing to test the accuracy of the estimated caloric requirements in growing children he had made observations on children and found that some children required considerably more than the estimated standard. It also seemed true in older children that the number of calories required depended on the activity of the child.

DR. FRITZ B. TALBOT of Boston said that in estimating the body surface he had started by getting shadow photographs and had calculated the surface from the perimeter. These children were observed when they were not doing any work unless the question of digestion was considered and that added about three per cent. to the minimum. In answer to Dr. Jacobi's question, one chart showed babies of the same weight and length, but of different ages, but all under weight. The eight and one-half months' baby was naturally thinner than the four months' old baby of the same weight and the heat requirement was greater in the older children in all instances, though the weight and body surface was the same. As had been observed clinically babies under weight were apt to be muscular because they cried a great deal and as they were more muscular more heat was required to maintain the body heat.

The Feeding of Mal-Nourished Infants with High Proteins and Carbohydrates and Very Low Fat Values.—Dr. D. J. MILTON MILLER of Atlantic City made this report, which he said was the result of slow convictions and clinical experience and dealt with no theories of malnutrition. The most successful method of nourishing these children was by human breast milk and too much time was wasted in seeking substitutes before wet nursing was resorted to. Buttermilk, *Eiweisse milch*, and Keller's malt food were applicable for a short period only. The low fat and high proteid and carbohydrate content was characteristic of all these preparations. Many infants having an intolerance for cow's milk became accustomed to it by beginning with very minute quantities and gradually increasing the amount. No infant should be kept long on a fat free diet and when the fat was reduced to minute proportions the carbohydrates should be increased. In their cases the percentage of proteids was never excessive. He had never been impressed by the injurious effects of sugar for if acidosis was produced it was not serious and might easily be corrected. Skimmed milk formed the basis of the formulæ used with one to one and three-quarters per cent. fat. Floured dextrine or dextromaltose was added. The children were not long kept on a fat free diet, though the percentage of fat might always be below that of the normal formula. Eleven children were fed on this principle with very favorable results.

The Good Result of Low Fats and High Proteids in Cases of Artificial Feeding in Infants.—Dr. PERCIVAL J. EATON and EDWARD B. WOODS of Pittsburgh, Pa., presented this communication, which was based on a small series of cases admitted to the Children Hospital in Pittsburgh and were typical of the feeding cases in infants whose heredity was not of the best and whose home environment was bad. Certified milk and gravity cream alone were used. The formulæ were all low in fats; the percentages did not exceed 2.5, and started generally considerably below this figure. The author emphasized the points made in a previous paper on the same subject. The most important being that babies fed according to this general plan, even in hospital work, were less inclined to be ill and had a more stable life as well as a very consistent growth. The formulæ should be adapted in quantity and quality as closely as possible to the individual infant, that is, the balance between the fat and proteid should be maintained for the given infant. These formulæ and practically all that they used nowadays were home modified mixtures, which Bowditch and Bosworth had shown to be more nearly correct than were laboratory mixtures, at least as a rule. Dr. Eaton called attention to a printed form which was filled out each time a new formula was prescribed. It was so simple and complete that any mother or nurse could carry out its directions.

DR. JOHN LOVETT MORSE of Boston said that these papers as well as all others speaking of a "method" in infant feeding were a distinct step backward; they had passed that period. Series of cases could be produced showing the good results of low fat and high proteids and others could be shown proving the beneficial effects of high fats and low proteids; series of cases could be brought forward to prove the value of a low percentage of sugar and others equally convincing could be exhibited which showed the advantages of high percentages of sugar. It was only by a study of the history, the symptoms, the examination of the stools, etc., that one could formulate a plan to meet the needs of the individual baby.

DR. ABRAHAM JACOBI of New York said he would like to disagree with the last remarks. Rules were not made for the individual, but for the general population. There was such a thing as an average health standard, and it was possible to be guided by the rule. Not every case had to be fed from the individual standpoint from the beginning; the general rule might be applied at first and when the individual baby did not develop properly under the general rule the physician might then show his shrewdness in meeting the special requirements of the individual. The remarks in the paper were correct and it was a question if they would have had to be repeated if the papers that had been written were read and then perhaps the new ones need not have been written.

Dr. Henry Dwight Chapin of New York said that the pendulum had swung too far the other way and they were going too far in the low feeding of low fat percentages. The children in institutions did not digest fats well and the remedy for this was fresh air. The children needed individual care and fresh air to assist in the oxidation of fats. It was to be feared that the feeding of low fat mixtures would be productive of a crop of rickets. The normal mother's milk was not low in fats and furthermore the proportion of the different food elements must not be interfered with. As long as they insisted on feeding large quantities of milk sugar they would see diarrhea and burning stools; there was plenty of milk sugar in all milk.

Dr. J. H. Mason Knox of Baltimore said he seldom saw intoxications that could not be attributed to sugar, nor was there much starch intolerance and there was not much starch in the stools. The treatment consisted in giving cereals and gradually increasing the quantity of scalded diluted skimmed milk and then gradually going on to whole milk.

Dr. Roger H. Dennett of New York said that when one could not decide from the history what was at fault one was apt to begin with a high proteid and low fat formula as described in the papers, until there was evidence that a change was needed, when one must select what seemed most applicable. Speaking of a method was certainly a distinct step backward. One might recognize every method as a measure to be used in certain individuals while waiting for finer methods of diagnosis so as to gain by the earlier selection of the most suitable diet for the individual.

Dr. Isaac A. Abt of Chicago said that he agreed that there was no method of infant feeding and that each individual was to be considered by himself. The baby must be considered from the standpoint of his tolerance for the food and as to how much it could do in the upbuilding of the baby, and also how much injury it could do. All progress must be made in learning how to meet the needs of the individual baby.

Dr. D. J. Milton Miller of Atlantic City said that he had never seen any but temporary injury from high percentages of sugar, and that acid burning stools could be rectified by cutting down the sugar, and they might occur when the child was on any one of the sugars. The ideas expressed in the paper were not designated a method, for he did not believe in a method himself, but simply tried to adapt the food to the baby's peculiarities by beginning with a definite percentage of fats and then increasing it according to the indications. The point was to increase the fats as rapidly as possible. Some marasmic babies did well on fats from the first.

Dr. Percival J. Eaton of Pittsburgh said that the children in his series were picked because they were miserable; they were the average babies met with in hospitals. He used the general plan at first and then modified it to suit the individual as he had stated in the paper. The children fed as he had outlined did well in not having bilious attacks or food poisoning. They all did better, however, on a diet containing comparative high percentages of protein and low fats.

Preliminary Report on the Chemical Analysis of Infants' Stools.—Dr. L. Emmett Holt of New York presented this preliminary report based on the analysis of 112 specimens, each being the twenty-four amount and not taking into consideration the number of movements. The observations were made on formed stools, moderately loose stools, and very loose stools. The results showed the output of nitrogen, water, and salts in each. The specimens were taken from the average hospital feeding cases of the better class, the children ranging in age from four to ten months. Charts were presented showing the average percentages of the different substances excreted in each of the above varieties of stools, but definite generalizations were not made.

Dr. Thomas S. Southward said that Dr. Holt's work was exceedingly interesting and he prophesied that if he persevered with it a great deal of good would result from the study of loose stools and formed stools. It might point to some method of bringing the intestinal digestion to such a condition that the intestinal contents would pass more slowly through the intestines. Just how this would be brought about he did not know, but so much depended upon whether the intestinal contents were hurried along without an opportunity for absorption and whether the early digestion split the food into irritant substances, which increased peristalsis and permitted their escape before the proper absorption took place, and he felt sure Dr. Holt's experiments would indicate some way of solving this problem. He asked Dr. Holt whether he had met with the paradoxical condition that children with constipation often lost weight and whether he had a theory to account for this paradoxical condition. One would expect a gain in weight in these cases.

Dr. Fritz B. Talbot of Boston stated that Dr. Holt had said that the carbohydrates did not appear as such in the stools and had not been estimated in his analyses. He had estimated them in a very crude way by titurating the acidity of the stools. He assumed that the sugars were split up into a variety of acids and he had isolated three of these acids and titurated them.

Dr. Charles Gilmore Kerley of New York said that the salts were a factor in the production of tetany and he would like to ask whether the production of diarrhea would relieve the symptoms of tetany.

Dr. L. Emmett Holt of New York said that his paper was only a start, but that he hoped that by following out the work information might be obtained that would be valuable in infant feeding. He said he could not answer Dr. Southworth's question. Constipated stools were almost always alkaline and loose ones acid. In reference to tetany, he believed that it was true that if diarrhea was produced the tetany was relieved. He had induced diarrhea and found that the children lost sodium and chlorine. The elimination of sodium and potassium relieved the nervous irritability.

One Hundred and Forty-one Cases of Recurrent Vomiting in Private Practice.—Dr. Charles Gilmore Kerley of New York presented this paper. He stated that all cases seen in consultation and all those in which there was any question as to the correctness of the diagnosis had been excluded. There were 70 boys and 71 girls. The family histories of these patients showed that there was rheumatism in one or both parents in 40 instances, sick headaches and bilious attacks in 40. The cases of recurrent vomiting occurred in the vast majority of cases in the offspring of those who had not been occupied for two or more generations with manual labor. Of the series 69 gave a history of having been difficult feeders. Recurrent colds were also present in 41 per cent. In 12 there was a definite history of eczema, six had a habit tic, 14 either had now or had had enuresis, and 13 had had rheumatism. The presence of acetone in the later attacks was noted with but very few exceptions. The onset of the vomiting occurred in 37 cases during the first year, in 24 during the second year, and in 21 during the third, while in the others it ranged from the third to the ninth year. In different individuals the duration of the interval between the attacks varied greatly, as did also the severity of the attacks. There was a rise of temperature in 90 per cent., ranging from 100° to 102° F. in the majority of the cases, though a few showed marked rises. In the vast majority of cases the recurrence could be controlled if the continued cooperation of the family could be secured. The association of recurrent vomiting with other forms of illness, such as eczema, spasmodic laryngitis, cyclic vomiting, and recurrent bronchitis and asthma was interesting. While two or more of these conditions were not ordinarily met with simultaneously in the same child, not a few suffered with a number of these conditions in alternation. In every instance the diet was a pronounced factor in influencing the susceptibility of the patient. Cow's milk, butter, and sugar were eliminated from the diet. One egg perhaps was allowed every third day. Saccharine was permitted as a sweetening agent. Three meals daily were allowed but nothing between meals. Red meat was given scantily three times a week. Poultry and fish were given at other times. In some cases skimmed milk was given, but never more than one pint a day. A grave error in our management of many children was the free use of cow's milk, butter, and sugar. The average child would be better off if given not more than one pint of milk daily after the fifteen months. Sugar was not a necessity; unknown millions had lived without it. The further treatment consisted in the internal use of salicylate of sodium or bicarbonate of sodium, independent or in combination as advised by Dr. Rachford. This drug treatment was carried on with rest periods for months or years, as the case might require. Exercise, a hot bath at night, and physical therapeutics also formed part of the treatment. During the acute attack a weak solution of bicarbonate of sodium was best retained in the strength of five grains of bicarbonate to eight

ounces of hot water. This was given freely. As a laxative the magnesium preparations were best retained. When the vomiting continued for from twenty-four to forty-eight hours the patient was given colonic flushings with bicarbonate of sodium, two drams to eight ounces at six or eight hour intervals. Nothing was gained by attempts at forced feeding. While not forgetting that anaphylaxis and reflex neuroses from various abnormalities were still to be considered as operative causes in such affections as asthma, recurrent vomiting, migraine, etc., he emphasized the fact that all were notoriously frequent in the children of gouty and lithemic ancestors.

Dr. Irving M. Snow of Buffalo said his ideas were at variance with those of Dr. Kerley, and cited the case of a child with recurrent vomiting and profuse gastric hemorrhages who made a complete recovery on a diet containing cream, butter, and bacon fat. Gastric analysis showed that the hyperacidity was reduced by this diet together with strong alkalies.

Dr. Charles Hunter Dunn of Boston said that in a similar series of cases seen in private practice and in association with Dr. Rotch he had been interested in the relation of acid intoxication to these cases. There seemed to be two types of cases, those of acid intoxication such as Dr. Kerley had observed, and a class in which large doses of bicarbonate of sodium did not seem to be of the slightest benefit. He had given up the use of bicarbonate of sodium because of the impression made on him by two cases of fatal hemorrhage, and now would not even risk using it by the rectum.

Dr. Alfred Friedlander of Cincinnati said that Martin Fischer and others who used the alkaline treatment in severe cases were now using a solution of dextrose 20 grams and sodium chloride 14 grams to the liter per rectum. The results thus far had been remarkably good; the profound exhaustion frequently present was not seen and the patients rallied more promptly. It was too soon to make definite statements about this treatment, but it ought to go on record because of the excellent results claimed for it.

Dr. Isaac A. Abt of Chicago said that the diet during interval seemed to have no effect on the attacks; they occurred about so often no matter what food was taken. Such things as a nervous attack or a mild infection might bring on the attack. In the treatment of these cases eight per cent. glucose in physiological salt solution had been recommended. He used bicarbonate and ice cold chloroform water, repeated frequently.

Dr. J. P. Crozer Griffith of Philadelphia said that years ago he had come to the conclusion that there were cases of recurrent vomiting that could be benefited by bicarbonate and again there were others that could not be helped by it. In some cases even treatment between the attacks had no effect. In his experience some patients had been helped by a change of diet and others were not helped in this way. He had found nothing as good during the acute attack as a hypodermic of morphine; it might be true that it stopped elimination, but it was also true that it sometimes saved life.

Dr. Henry Heiman of New York said that cyclic vomiting was a metabolic disturbance of fats as well as of proteids and induced the formation of acetone bodies. The acidosis was not fatal, but he had seen a case of eclampsia with a temperature of 108° F. and no treatment could have saved the child. The moderate cases responded to bicarbonate of sodium in peppermint water, which acted as a mild analgesic. One might also use bicarbonate in small amounts by rectum, by hypodermoclysis, or by intravenous injection. Intermittent treatment acted as a prophylactic.

Dr. John Ruhräh of Baltimore said they were confusing several different conditions. The proper management of the diet during the interval between the attacks did do good. If the condition was due to an excess of fats or proteids or carbohydrates, one certainly did some good by cutting out the offending substance. There were attacks due to reflex nervous conditions which recurred and it was difficult to say what was the basis of these.

Dr. Henry L. K. Shaw of Albany emphasized the danger of sudden fatality in some of these cases which seemed to give a favorable prognosis.

Dr. J. H. Mason Knox of Baltimore said that in certain cases in older children where there was hyperacidity atropine pushed to the physiological limit in connection with other measures would be found effective.

Dr. William P. Northrup of New York said that in connection with the favorable report given of the result of physical therapeutics in one discouraging case he wished to emphasize the beneficial effects of physical therapeutics in some of these cases in which other methods of treatment had failed.

Dr. Charles Gilmore Kerley of New York said that he realized that there was such a thing as carbohydrate starvation, but an excess of sugar brought about just as bad results as too little. He had found physical therapeutics a most valuable adjunct in the treatment of recalcitrant cases. These cases were not due to anaphylaxis but rather answered the description of accidents as it was accepted at the present time. He could not see why the diet in the interval would not be of benefit; the great difficulty lay in having it carried out.

Weights and Measurements of Infants and Children.—Dr. Rowland G. Freeman of New York, after pointing out the advantages of having such standards, stated that he had made an average weight chart of 278 children seen in private practice and for purposes of comparison had taken the weights and measurements of 1,000 children in the Roman Catholic Orphan Asylum in New York City. He had selected this institution because it was located advantageously overlooking the Hudson and the children were living under good conditions. He had also compared his series with the Dr. Holt's averages and with those of 69,000 school children. The first chart showed the weight of 120 well cared for children compared with institution children. There was a considerable difference after the first month. The breast fed children showed greater weight throughout the first nine months while the artificially fed kept fairly below. The well-cared-for children were almost all artificially fed after the first month and showed that the American method of feeding children seemed to compare favorably with the methods advocated in Germany. It was evidence of the excellent care given the asylum children that they averaged a quarter to a half-pound heavier than the school children. The asylum children averaged somewhat taller than the school children but were well below the well cared for children. Children that were under good control so far as diet, rest, and exercise were concerned showed a great advantage over the data at command concerning other children both in weight and height during the first twelve years of life, and at the twelfth year they surpassed the average by four pounds in weight and six inches in height.

Dr. Thomas S. Southworth of New York pointed out the importance of differentiating between the babies that were breast fed and those artificially fed at different periods during the first year. The normal breast fed baby grew more rapidly at first but slowed down later, while in the bottle fed infant the reverse was true, it gaining more rapidly during the latter part of the year. The breast fed baby showed a tendency to relax his gain at the age of three or four months when the maternal milk supply became relatively insufficient. At this time attention should be directed to increasing and improving the milk supply of the mother. During the last six months there was a relative insufficiency of breast milk which must be supplemented; it was therefore most important that every child should be carefully supervised during the first year as it was thereby possible to keep him gaining rapidly by adding to the food when there was a tendency to fall below the proper weight. Avoidance of infectious colds during the first year was important, since they might cause the delicate child to stand still in weight.

Dr. Godfrey R. Pisek of New York deplored the lack of statistics in regard to the weight and height of children from the ages of two to five years. He said he had been looking forward to the time when the Society would adopt resolutions requesting each member to contribute a series of measurements of children in his private practice. There should be such a collective investigation by the Society.

Dr. Henry L. K. Shaw of Albany, N. Y., said he agreed with Dr. Pisek and that in New York State under the new law every physician who examined a school child had to fill out a blank showing the weight and measurements he had taken himself. There were more than 98,000 children from which to draw an average. There was also a standard score card issued by the Women's Public Health Committee of the American Medical Association for the better babies' contests. If they did not take the form adopted by the Smithsonian Institution they might use those of the American Medical Association as they provided for full measurements and were easy to correlate.

Dr. Godfrey R. Pisek of New York thought that they could not accept the statistics of New York City as the measurements had been indiscriminately made and the figures they wanted would have to be based on an absolute standard like that of the Smithsonian Institute.

Dr. Rowland G. Freeman of New York said he would like to point out that in regard to the normal weights during the first year the average gain during the first three months was five pounds; during the second three months, three pounds; and during the third three months, two pounds.

Diseases Connected with Meckel's Diverticulum, with Special Reference to Diverticulitis.—Dr. J. P. Crozer Griffith of Philadelphia presented this communication. He stated that the complete history of the case was recorded in the Journal of the American Medical Association for May 23, 1914. The case was reported because the combination of clinical manifestations was so unusual, so unexpected, and so misleading. The patient was a child of nineteen months, who after slight indigestion, began to suffer from increasing anemia, and on one occasion from suppression of urine. There was a history of reddish colored stools which continued together with an increasing anemia and abdominal pain, gradually becoming very severe. There was also tympanites. Rectal and abdominal examination showed nothing abnormal. The final clinical diagnosis was that of secondary hemorrhage depending on hemorrhage somewhere in the intestinal tract. During the attack there had been a moderate irregular febrile reaction. The autopsy revealed what was probably a primary ulcerative inflammation of Meckel's diverticulum, which was the cause of the persistent leaking of blood from the bowel and of the anemia. This inflammation extended to the serous layer of the diverticulum, producing a secondary purulent peritonitis, localized by the matting of the coils of the ileum around the seat of suppuration. The severe abdominal pain was due to this peritonitis, and in part to the kinking of the intestine, making evacuation of the bowels difficult and accounting for the constipation. The nephritis appeared to have little part in the complex symptoms and fatal termination. The author discussed the various lesions of Meckel's diverticulum and gave statistics regarding their frequency, giving special attention to diverticulitis with reference to its causes, symptoms, and diagnosis. It seemed that no case had yet been correctly diagnosed during life.

The Sarah Morris Children's Hospital of Chicago.—Dr. Isaac A. Abt of Chicago gave a lantern-slide exhibition showing the floor plans, and special features of this modern children's hospital.

Anthropometric Methods, with Suggestions for Improvements Based on the Measurements of 540 Infants.—Dr. Henry L. Coit of Newark presented this communication. After calling attention to the lack of data relative to infants and young children and the deficiencies of those that they did have, Dr. Coit exhibited a number of tables showing the results of the measurements and comparisons made in his series of 540 infants. These measurements were very complete, including weights, height, length of limb, trunk, circumference of the head, etc. He had found a considerable difference in the sexes and had made a table of general averages for all infants, one for male, and a third for female infants. There were other factors, such as that of race, social condition, etc., which affected the value of averages and he hoped by further study and comparison to work out standards that would take these factors into consideration.

On the Artificial Cooling of Sick Rooms in Summer: A Preliminary Report.—Dr. Henry Heiman of New York reported the results of an experiment on the artificial cooling of a children's ward for enteritis at Mount Sinai Hospital last summer. He said that the etiology of gastroenteritis was in their opinion dependent on nutritional disturbance having a secondary bacillary basis which accounted for its prevalence during extreme heat. The temperature of the room that was cooled ranged from 63 to 74 degrees and was at all times from five to eleven degrees below that of the outside air. The relative humidity was very much the same as that of the outside air but the absolute humidity was diminished by cooling. Thirteen patients with gastroenteritis were selected and placed in this ward and the treatment given them differed in no way from that of any ordinary case of enteritis. There were comparatively few cases of this disease last summer so there were no cases in the open ward with which to compare these patients. While it was too soon to draw conclusions they had gained the impression that in this ward the children were more comfortable, cried less and looked less sick and parched. They did not wish to belittle other methods but to introduce this suggestion as a help in the treatment of gastroenteritis. This method was not applicable to moribund or premature babies but was suitable in all others.

Dr. Heiman showed lantern slides illustrating the apparatus and method of cooling.

Dr. Henry I. Bowditch of Boston said that there was one pitfall in connection with an apparatus of this kind to which he wished to draw attention. In Boston they had installed a similar plant at a great expense but the fan was a long way from the coil room and in consequence the ducts became clogged with dust and they had given up the use of the apparatus. The plant shown by Dr. Heiman had short ducts as it should have. A series of coils should be placed near the wards rather than a central plant a long way from the ward.

Dr. Fritz B. Talbot of Boston said Dr. Bowditch had forgotten to say that they had attempted to start the apparatus one day and the dust from it had given rise to infectious colds which affected 75 per cent. of the children and all the nurses in the ward.

Dr. B. S. Veeder of St. Louis said that they had a room which was cooled with refrigerating pipes all along one side wall and this cooled the room without the cold air being forced into the room.

Dr. Samuel S. Adams of Washington described a case in a private home in Washington in which he affected a lowering of the temperature of the room by directing a current of air from an electric fan over a large cake of ice, being careful to keep the patient out of the draft. The temperature outside was 90 degrees and by this contrivance the temperature of the room was kept at 75°F. When the temperature was permitted to rise the patient went into coma. It was finally decided to remove the patient to a cooler place and the change for the better in his condition when taken to an elevation in New York State was most striking.

(To be continued.)

Nervous Diseases of Elementary School-Children.—J. Priestley has made a study of the records of 62,236 children medically inspected during 1909 to 1911. The children were of the age groups 5 to 6, 8 to 9, and 12 to 14, one-fifth, approximately, being of the ages 12 to 14 and two-fifths each of the ages 5 to 6 and 8 to 9. There were 31,352 boys and 30,884 girls. There was no overlapping in the groups, *i.e.* no child figures twice over in virtue of having passed from one age period into another. The author found that in only two complaints, viz., chorea and headache, were more cases recorded against girls than against boys; and in chorea the predominance might depend upon the predominance of rheumatism among girls. In functional disorders boys and girls are approximately equal; but in every other nerve complaint, including all the serious ones—mental dullness and defect, stammering, paralysis, epilepsy—there is a marked preponderance among boys. An explanation of this unequal incidence of nervous disorders in boys and girls, as regards mental dullness at least, has been sought in the fact that the brain of girls ceases to grow in weight at about the age of seven, while in the case of boys it continues to grow until puberty. A still growing brain might be supposed to be more liable to derangement than one that has ceased growing. It is not improbable that this physiological difference of growth plays a part in the sex differences as regards nervous affections; but is it the fundamental course of difference? To put this to the proof one ought to contrast boys and girls at age 5 to 6 while the brain is still growing in both. The author was not in a position to do this fully, since children are not classified for dullness or mental deficiency until the are about 8 years old. But it is possible to contrast them in regard to all the other important nervous complaints. Headaches for obvious reasons should be left out of calculation; it is difficult to judge of headaches at the age 5 to 6; but taking all other cases of nervous disorder together, stammering and defective articulation of speech, spasmodic and paralytic affections of childhood, epilepsy, chorea, functional disorders and asthma, one finds that 12,837 boys of 5 to 6 showed 601 cases of disorder, or 468 per 10,000, while 12,437 girls of 5 to 6 showed 431 cases of the same disorders, or 346 per 10,000.—*British Journal of the Diseases of Children.*

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Diseases of the Labyrinth. By Dr. Erich Ruttin. Cloth; published by Rebman Co.; price, $2.00 net; 230 pages.

Lehrbuch der Ösophagoskopie. By Prof. Dr. Hugo Starck. Paper; published by Curt. Kabitzsch; price, 9 Mks.; 289 pages.

Beurteilung der mechanischen Arbeitslistung des Herzens. By Dr. Med. Friedrich Kraus. Paper; illustrated; published by August Hirschwald; price 5 Mks.; 107 pages.

Das Äerztliche Bern. Paper; illustrated; 77 pages; published by Geographischer Kartenverlag, Bern.

Zeitschrift für angewandte Anatomie und Konstitutionsleihre. By J. Tandler. Paper; illustrated; published by Verlag von Julius Springer; 396 pages.

The Treatment of Malignant Inoperable Tumors. By William B. Coley, M.D. Paper; illustrated; published by M. Wiessenbruch; 172 pages.

Report of the Commissioner of Education. Vol. II, cloth. Published by Government Printing Office; 693 pages.

The Art of Compounding. By Wilbur S. Scoville, Ph.G. Cloth; illustrated; 4th edition. Price, $3 net. Published by P. Blakiston's Son & Co.; 380 pages.

Clinical Examination of the Blood and Its Technique. By Professor A. Pappenheim. Cloth. Price, $1.25. Published by William Wood & Company; 83 pages.

Appendicitis. By Edmund Owen, M.D. Cloth. Price, $1.50. Published by William Wood & Company; 207 pages.

Practical Points on Syphilis. By R. B. H. Gradwohl, M.D. Paper. Published by Medical Publishing Company; 32 pages.

Diseases of Bones and Joints. By Leonard W. Ely, M.D. Cloth; illustrated; published by Surgery Publishing Co.; price, $2.00; 220 pages.

Guiding Principles in Surgical Practice. By Frederick Emil Neef, M.D. Cloth; published by Surgery Publishing Co.; price, $1.50; 180 pages.

Atmospheric Air in Relation to Tuberculosis. By Guy Hinsdale, A.M., M.D. Published by the Smithsonian Institution, Washington, D. C., 1914.

The Ophthalmic Year-Book. By Edward Jackson, M.D. Cloth; Vol. X; published by Herrick Book & Stationery Co.; 460 pages.

The Problem of the Nations. By A. Corbett-Smith, M.D. Cloth; published by Paul B. Hoeber; price, $1.00 net; 107 pages.

Auricular Flutter. By W. R. Ritchie, M.D. Cloth; illustrated; published by Paul B. Hoeber; price, $3.50 net; 144 pages.

Sclero-Corneal Trephining in the Operative Treatment of Glaucoma. By R. H. Elliot, M.D. Cloth; illustrated; 2nd edition; published by Paul B. Hoeber; price, $3.00 net; 187 pages.

The Ileo-Cæcal Valve. By A. H. Rutherford, M.D. Cloth; illustrated; published by Paul B. Hoeber; price, $2.25 net; 63 pages.

I. K. Therapy. By W. E. M. Armstron, M.D. Cloth; published by Paul B. Hoeber; price, $1.50 net; 83 pages.

The Therapeutic Value of the Potato. By Heaton C. Howard, M.D. Paper; published by Paul B. Hoeber; price $0.50 net; 31 pages.

Collected Papers from the Research Laboratory Parke, Davis & Co., Detroit, Mich. Paper; Vol. II; 590 pages.

Diseases of the Throat and Nose. By Cornelius G. Coakley, M.D. Cloth; illustrated; 5th edition; published by Lea & Febiger; 615 pages.

Diseases of the Eye. By Dr. Chas. S. May. Cloth; illustrated; 8th edition; published by William Wood & Company; $2.00 net; 440 pages.

Hand Book of Fevers. By J. Campbell McClure. Cloth; published by Shaw & Sons; 443 pages.

The Question of Alcohol. By Edward H. Williams, M.D. Cloth; published by The Goodhue Company; price, $0.75; 121 pages.

Therapeutic Hints.

Intravenous Injections of Chloral in the Treatment of Tetanus.—M. Roch and Mlle. E. Cottin report the case of a boy aged 13 years in whom this method of treatment was successfully employed, in addition to the administration of chloral by the mouth and by the rectum. The patient weighed 23 kilograms and in the course of 20 days received 156 grams of chloral, of which 7 were administered by the mouth, 112 in suppositories or in enemata, and 37 in intravenous injections. The effect of this method of treatment was a remarkable control of all the spasmodic phenomena. As regards the proper solutions of chloral when these are given intravenously, the author states that they should not be of greater concentration than 5 per cent., and should be allowed to flow into the veins very slowly.—*Gazette Médicale de Paris.*

Treatment of Cardiac and Nephritic Ascites.—Goodhart and Still recommend the following as useful diuretics in children:

℞ Tincture of digitalis, ʒj
Solution of acetate of ammonia, ʒjss
Spirit of nitrous ether, ʒij
Syrup of tolu, ʒss
Caraway water, ad ʒiij

M. et Sig. One teaspoonful every two or three hours.

℞ Tincture of digitalis, ʒj
Theocin sodium acetate, gr. xx
Spirit of chloroform, ♏xxx
Glycerine, ʒiij
Peppermint water, ad ʒjv

M. et Sig. Two drams every six hours may be given to a child eight years old.—"Diseases of Children."

The Use of Diuretics in Nephritis.—W. Langdon Brown notes that caffeine, theobromine, theocin sodium acetate, and diuretin act as direct stimulants to the renal epithelium, and for this reason should not be used if this epithelium is damaged. The use of these drugs should be restricted to those cases in which the kidneys are not organically diseased. An exception is made in the case of theocin sodium acetate, which in doses of 2 grains twice a day seems to render the kidney more permeable. Digitalis should be used as a diuretic only in cases in which the heart is failing. A useful diuretic is Basham's mixture which also corrects the secondary anemia.—*Clinical Journal.*

Bier's "Substitution Therapy" in Ophthalmology.—J. Ferrux states that this method of treatment is applicable in cases of external inflammation of infectious origin, in which the local use of antiseptics does not suffice to relieve the intensity of the process. The method consists in the production of counterirritation, the secondary leucocytosis that is evoked in the inflamed area being effective in combatting the infectious process. Schaub has employed this method with success in the treatment of trachoma, and in various other types of chronic ophthalmia.—*Gazzetta Medica di Roma.*

Belladonna in Gastric Ulcer.—E. Müller recommends the following powder in the treatment of the pains of gastric ulcer:

℞ Extract of belladonna, 0.02 gram.
Bismuth subnitrate, 0.2 gram
Calcined magnesia, 0.4 gram

This should be given three times a day.—"Die Therapie des praktischen Arztes."

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Original Articles.

THE SURGICAL MANAGEMENT OF PERICYSITIS.*

BY EUGENE FULLER, M.D.,

NEW YORK.

To the general practitioner the word cystitis seems fairly satisfactorily to describe an abnormal condition of the bladder. To the genitourinary specialist, the term unaccompanied by some descriptive adjective, conveys little meaning. This, of course, is due to the differential diagnostic studies of inflammatory vesical conditions. Before the day of the cystoscope, much had been learned, and since the general use of that most valuable instrument further great and progressive strides have been made. Still it seems that perhaps the cystoscope may have indirectly led to error, and if so it is a fault confined to those who specialize too narrowly. That error lies in considering all cystites to be phases of intravesical disease; in other words, in basing diagnoses wholly on the visual appearances presented by the cystoscope.

Where the primary focus and source of disease is extravesical, as in most instances of pericystitis, it is natural that the diagnostician who so bases his opinion should be grievously mistaken. The mistake in diagnosis generally means the commencement of serious trouble for the patient, since most cases of pericystitis are greatly aggravated by the palliative and operative treatments found useful and curative in other forms of the affection. While in the female, septic foci connected with the womb and tubes account in most instances for the primary source—the inflammatory processes extending therefrom to and through the bladder wall—in the male the primary source in most instances lies in the seminal vesicles.

In a paper entitled "Operative Cure for a Hitherto Unrelieved Class of Cystites," read before the American Urological Association in 1906 (*Am. Jour. of Urology*, December, 1906), I first called attention to this condition, and remarked as follows: "In the early performance of seminal vesiculotomy, the operation was undertaken for the relief of the usual symptoms, chiefly of a sexual nature, which accompany chronic inflammatory involvement of the seminal vesicles. In the study of the results in these cases, I found incidentally that in a number of them symptoms of cystitis which had coexisted with those of a sexual nature spontaneously disappeared after convalescence from the operation. This fact led me to make a careful cystoscopic study of the bladder in a series of cases of seminal vesiculitis, I found, as a result, that in those of them where the bladder was involved the lesion was confined to the base of the organ, in fact, to that part of the structure lying over the seminal vesicles. In some of them, where the inflammation about the seminal vesicles had been extensive, I found, likewise, that the inflammation invading the base of the bladder had been extensive and had extended further than the underlying portions of the seminal vesicles. In all these cases, the other portions of the bladder were normal, or nearly so, in appearance.

"From these cystoscopic studies, it seemed reasonable to infer that the lesions of the vesical bases accounting for the cystites were really peripheral ones, the center foci for which were the infected seminal vesicles, the germs in the bladders having penetrated the intervening tissues from the cavities of the seminal vesicles. In other words, I classed the bladder inflammations as localized pericystites. In mild cases, the cystoscope showed the vesical mucous membrane of the area involved to be red, infiltrated, and edematous, while in the severe types granulation tissue had in large measure taken the place of the mucous surface. Here and there on these granulations would be pus flocculi, films of inflammatory exudate, and spots of hemorrhage. In some of the advanced cases, the least instrumental contact with the surface granulations was sufficient to provoke a fairly free hemorrhage. On one of them a triple phosphate crustation had formed.

"As a result of these investigations, I felt confident that a cure for this form of pericystitis would follow spontaneously after the operative elimination of the chronic infection in connection with the seminal vesicles. Acting on this conviction, I have cured, through seminal vesiculotomy, a number of these cases, all, in fact, on which I have so far operated."

This article concluded with the clinical report of four cases wherein complicating pericystites had been cured through the elimination of the primary septic foci from the seminal vesicles. Since that time my further experience in this direction has been extensive and wholly in confirmation of the conclusions expressed in the first article, just quoted. Whereas in those early reported cases the pericystites were, as is usual, localized and confined to the bladder floor lying directly over the seminal vesicles, I have found from my further experience with more aggravated conditions that the secondary vesical lesion need not necessarily be so localized, but that it may extend so as to involve the entire fundus of the bladder, including the lower ureters, and that it can even be pan-vesical, the entire organ being involved. It is this more recent discovery of the pan-vesical pericystitis which may ensue from a very severe grade of infection of the seminal vesicles, which has prompted me to make this contribution.

Before proceeding to the main object of the

*Read June 19, 1914, at Philadelphia before the American Urological Association.

paper, which lies in the clinical recitals, the subject of diagnosis will be briefly mentioned, together with the inefficient or baneful effects of the treatments to which these sufferers have so frequently been subjected.

In making a diagnosis, the clinical story should first be considered. In all cases the complaint of frequent urination occurs. Although the frequency is more marked, as a rule, during activity, still sleep is always very much interrupted. Pain is generally associated with urination, to a marked degree. Suprapubic or perineal discomfort usually compels precipitate urination. There may be, and often is, a scalding sensation during the act, while painful—often severe—vesical tenesmus marks its completion. Although the urine may be fairly clear, bacteria in abundance form a usual feature, and with them pus and occasionally blood in varying degrees. Although the flow of urine may be and as a rule is free, still in the severe cases there frequently will be a record of attacks of retention, generally associated with febrile disturbance. Incontinence, or a condition approaching that state, is a feature where the vesical involvement is extensive. If the lower portion of the ureter is involved, the usual evidences of obstruction in that part are present. If the patient be questioned, some of the various symptoms, sexual in character, associated with inflammation of the seminal vesicles, will usually be revealed. Rectal examination shows extensive inflammatory involvement about the seminal vesicles. Oftentimes this surrounding involvement entirely fills the post-prostatic space, extending backward well beyond the reach of the fingertip and forward into the prostatic capsule, soldering, as it were, that gland to the mass of inflammatory exudate. If a catheter be introduced into the bladder after urination, little or no residuum is usually found; and should the bladder be distended its capacity will be shown to be limited in all cases, while in those where the pericystitis is extensive, from two ounces to a drachm only can be forced in. If the attempt then be made to inject more than the indicated capacity, a painful vesical expulsion will be provoked which will force out violently not only all the fluid injected but the catheter as well. Should there be a suspicion that nervous or painful intolerance, rather than limited vesical capacity, might be the accounting factor, sufficient chloroform could be administered to produce primary anesthesia. If the former conditions prevail, it would be found that more fluid could then be injected, whereas the anesthetic state would not in the least alter the vesical capacity when dealing with pericystitis. The intravesical findings revealed by the cystoscope in cases where limited areas of the vesical base are involved have already beeen mentioned. In cases where greater areas are affected, the same appearances are more extended, while in extreme instances of pan-pericystitis the cystoscopic lamp illuminates a cavity the size of an English walnut, or much smaller. Such cavities show surfaces of granulation tissue and deep serrated folds caused by the contracted state of the organ.

Although in the great majority of instances of pericystitis the primary factor is extravesical, still one should always be alive to the fact that the origin of trouble may be intravesical, the inflammatory process having extended through the muscular walls of the bladder, finally reaching and involving the surrounding fibrous structures. This, indeed, appears to be the idea generally accepted by the profession when the question of an accounting cause is raised. It is a well-known fact, however, that the mucous lining of the bladder has, to a marked degree, the quality of resistance to the submucous extension of an inflammatory process. The one inflammatory process which meets the least resistance is tuberculosis, and in vesical tuberculosis pericystitis generally occurs as a late complication, the mucous surface having been previously destroyed. The only other cases illustrative of this form of extension are those wherein the mucous vesical lining has been so destroyed or injured by caustic or highly irritating applications or by traumatisms that it can no longer offer a successful resistance to the progress of an infection. Stone, foreign bodies, neoplasms, and intravesical injury represent traumatic causes. Very frequently, even in this latter class of cases, tuberculosis will be found as a complicating cause, its coexistence being the reason why the crippled mucous wall has made so feeble resistance to the other existing infection.

The prevalent routine treatments for pericystitis have in all instances been ineffectual. While in some cases the ineffectual treatments have been simply negative, oftentimes their results have been actually harmful, and occasionally distressingly so. In most instances the distressing results follow misconceived operations. The ordinary routine treatment is vesical lavage. If very mild nonirritating fluids are used, no ill results follow; while stimulating agents, such as nitrate of silver, and the various astringents, increase discomfort and do harm. Attempts have been made to overcome the vesical contraction, thus increasing the capacity of the organ by the forcible injection of fluid—the object being to stretch the bladder wall, vesical gymnastics, so-called. Such treatment, besides having been found ineffectual is dangerous, since it causes a reflux into the kidney pelves, and oftentimes ascending renal infection. Treatment with the opposite purpose—that of securing bladder rest through the operative drainage of the organ—is still a surgical favorite. It has, however, the strong disadvantage of always leaving the patient far worse than he previously had been. The bladder, being opened and relieved of its function, contracts still further, so that by the time the surgical opening into it has closed its capacity is much diminished, the consequence being that urinary frequency and urgency become greater than before operation, and as pain is provoked by urination, that symptom also—*ipso facto*—becomes more frequent and more distressing. So thoroughly rooted, however, is this surgical fallacy that certain ones who have failed in so operating seem to have learned nothing, but have apparently been led to adopt the motto: "If at first you don't succeed, try, try again." This, I take it, accounts for the cases of pericystitis coming under my observation, wherein there is a history of multiple cystotomies—in one instance, as many as five. The usual story told by the patients being that first a perineal opening had been made, and then—that primary procedure accomplishing nothing—a suprapubic one had been tried. The only reason a patient can usually give for subsequent openings is that they were made in the hope of finding and correcting something intravesical which had previously been overlooked.

The worst and most baneful treatment to which these sufferers are exposed occurs when they are subjected to prostatectomy, on the supposition that

their troubles depend on disease in that quarter. Such prostatectomies rob the individual of a normal organ, besides greatly aggravating and increasing the pericystitis.

The only efficient treatment, and that can be applied to those cases of pericystitis wherein the primary focus of infection is extravesical, lies in the drainage of such foci through extravesical surgical operation, as advocated in my first article, already quoted.

The following clinical recital records the author's method and results in dealing with advanced pericystitis. Three illustrations are given, the first being perhaps the most important, as it represents an instance of pan-pericystitis. The two others, however, should be of clinical interest, as they emphasize the effects of misdirected antecedent surgical procedures.

Case I.—A young man twenty-three years old, admitted to my service at the City Hospital. His complaint was that he could never hold his urine longer than ten or fifteen minutes, while most of the time the vesical tenesmus was so constant as to cause incontinence. Any exertion brought about the incontinent state. The pains associated with the vesical tenesmus were severe and practically ever-present, corresponding with the urinary frequency. They were referred to the urethra and end of the penis—also to the suprapubic, perineal, and rectal regions. The patient strove to keep as quiet as possible, any jar or exertion greatly increasing his discomfort. There was marked emaciation and some temperature, together with a history of chill from time to time, which indicated that periods of exacerbations of temperature were frequent. The urine, though acid, was loaded with bacteria and pus. It also contained sufficient red blood corpuscles to cause a slight discoloration. At times there was blood present in sufficient amount to be very noticeable, and on a few occasions clots had been passed. The odor was offensive.

The patient was very weak, nervous, and despondent. The story was that four years previously gonorrhea had been contracted, before which time he had been well and vigorous. Since then he had never been well; in fact, increasingly worse. The bladder symptoms occurred shortly after the infection and became more intense until the present status developed. These extreme vesical symptoms had been present for a year. During that time, however, there had been such a marked lowering of general physical condition that it seemed probable, should the existing state continue, a fatal termination would be not far distant. The patient had been in numerous hospitals here and abroad. As long as there had remained any vesical capacity the treatment he had received apparently consisted largely of vesical lavage. The patient had a horror of the treatment, as he felt it had done him much harm, especially when nitrate of silver or harsh agents had been employed. During the first two or three years of his illness there had been much priapism as well as other symptoms pointing toward a disturbed condition of the sexual function. At the present time these latter symptoms had either subsided or become masked through the prominence of the symptoms relating to the bladder.

Rectal examination showed the postprostatic space filled with a sclerous exudate which embedded both seminal vesicles and extended backward beyond the reach of the finger. Bimanual palpation, the free hand pressing against the hypogastrium, provoked great tenderness and had to be discontinued until later when chloroform had been administered. Then, such manipulation revealed the bladder as a firm mass, somewhat larger apparently than a billiard ball. A large blunt sound passed into the bladder revealed no urethral lesion. The capacity of the bladder, even while the patient was under chloroform, was hardly more than a drachm. The cystoscope illuminated a small chamber, the walls of which consisted of luxuriant granulations. The question of tuberculosis was raised and investigated, with negative findings. My diagnosis was that the case was one primarily of septic seminal vesiculitis, and that the pericystitis which had involved the entire bladder was the secondary outcome of that extravesical infection.

Although I had little hope of materially benefiting the patient, and so told him, I decided to perform a seminal vesiculotomy to drain the primary focus, and at the same time to extend my dissection well beyond the seminal vesicles so as to drain the entire postprostatic area as fully as possible. This was accordingly done. The operation gave prompt relief in ridding the patient of the painful tenesmus, the result being that the frequent voidance of urine was no longer disturbing. The appetite came back and general conditions began to improve. The patient was discharged from the hospital two months after operation, having gained ten pounds, and with a vesical capacity of two ounces. Now—a year and a half after operation—the patient has a bladder capacity of four ounces, can hold his urine for two hours, and voids without pain or tenesmus. He is twenty pounds heavier than at the time of operation, and is stout and vigorous, so that he works regularly at his trade. His sexual function also is in satisfactory order. The urine, though free from odor, still contains some pus secreted from the intravesical granulations, which appear pale and shrunken. Even though no further increase in the vesical capacity occurs, the operation has been a brilliant success.

Case II.—A man, forty-seven years of age, was sent to me with the expectation that prostatectomy was indicated. Two months previously, during an interval of retention, suprapubic cystotomy had been performed and a suprapubic fistula established.

When first seen, the bladder was contracted and the urine escaping suprapubically was very foul. The clinical history showed that the first gonorrhea had been contracted about twenty-five years previously. Since that time, urethral discharge had been a feature of the case. How many times such discharge had represented fresh infections and how many times relapses in connection with existing lesions was debatable. Questioning revealed the past existence of various sexual symptoms indicative of a disordered state of the seminal vesicles. For a considerable number of years, urinary frequency and urgency had been present. Although, as a rule, it had been an easy matter to start the stream on urination and the following flow had been free, still at times it had been difficult, and on a number of occasions complete or threatened retention had occurred, necessitating the introduction of the catheter. As far as could be learned, the amount of urine drawn off by catheter during retention had not been great. The vesical capacity—owing to the suprapubic opening—could not, of course, be tested. The fact that the patient was only forty-seven years old, together with the further fact that the vesical symptoms complained of had been present for certainly over fifteen years, made it, to my mind, very improbable that prostatic hypertrophy was the diagnostic cause for the trouble.

Rectal exploration showed the entire postprostatic space filled with inflammatory exudate which embedded both seminal vesicles and extended to the prostatic capsule. There was no stricture. The suprapubic opening precluded the use of the cystoscope.

Feeling that the extensive lesion in connection with the seminal vesicles accounted for the patient's condition—the bladder symptoms being due to a resulting pericystitis—a seminal vesiculotomy was performed, associated with peripheral dissection so as to drain the entire postprostatic space as thoroughly as possible. After this operation the suprapubic fistula was allowed to close, and it spontaneously did so by the end of three weeks, when full and natural urination was reestablished. At first the act was frequent, not over an hour's interval elapsing between the voidings. In this case a complete recovery resulted. A year after the operation the patient wrote me that he was in better health than he had been since his first gonorrhea. He held his urine for normal intervals and voided naturally, without any discomfort. He was also in order sexually.

This was not a case like the preceding one, wherein the pericystitis had entended so as to envelop the entire bladder, though from the clinical history and the findings at operation the process must have been fairly extensive.

Case III.—A man, forty-five years of age, came to my hospital service suffering from urinary incontinence associated with painful sensations of vesical tenesmus. There was continuous fever and a history of frequent exacerbations of this condition, which were often accompanied by chills. There was constant pain and tenderness in the right renal region. At times the renal discomfort became so severe as to demand opiates.

The chills and febrile exacerbations were apparently often coexistent with the exacerbations of renal discomfort. The urine was loaded with pus and bacteria. The patient had now been sent to the hospital with the expectation that the right kidney would be removed.

The clinical history was that the man had been generally well and able-bodied until one year before, when following some alcoholic excess, sexual strain, and exposure to weather, retention had suddenly occurred. In this condition he had been taken to a general hospital where a prostatectomy had been promptly performed, on the theory that therein lay the cause for the retention. Much fever followed the operation. That feature, together with the symptoms already detailed, had persisted ever since the prostatectomy, although earlier they had encountered greater systemic resistance than at the present time.

The clinical history previous to the retention was that there had been, years before, several attacks of gonorrhea, a relapsing gleety discharge, and intervals of vesical irritability and urinary frequency. There had also been periods of sexual irritation and excitability. The treatment employed for these symptoms had been the occasional passage of large sounds, vesical lavage, and urethral injections.

Rectal examination showed the entire postprostatic space filled with a firm, inflammatory infiltrate, very tender to pressure. Any attempt to inject fluid into the bladder caused marked pain and a prompt urethral expulsion alongside the catheter. Under chloroform anesthesia, two and a half ounces could be injected and retained, allowing a cystoscopic view to be taken. The interior surface of the bladder was then shown to be granular, edematous, and interspersed by deep folds. In places there were thick adhesions, catharral deposits, and areas of punctate hemorrhage. The case was certainly a complicated one. There were evidently two septic foci, one in connection with the seminal vesicles and one in connection with the right kidney. The kidney infection was apparently the secondary one, due —it seemed to me—chiefly to urethral obstruction resulting from periureteral inflammatory exudate which before involving the lower ureter had caused an extensive pericystitis. There was also, in all probability, an element of direct ascending infection from the bladder. The vesical incontinence resulted more from the prostatic operation than from the pericystitis—it seemed to me—since although there was enough pericystitis to account for great urinary frequency, still there was some bladder capacity and had there remained a vesical sphincter there should have been periods showing temporary control.

On considering treatment, I determined, as a first step, upon a seminal vesiculotomy combined with an extensive incision into the postprostatic tissues so as to accomplish the freest possible drainage. I hoped that this operation would not only relieve the pericystitis, but would also, by removing the periureteral inflammation, restore an unobstructed flow from the right renal pelvis. If the right kidney involvement were not too extensive, I figured a spontaneous cure of the renal lesion would result. If this did not follow, then the proper time had arrived for operation on the kidney.

The result from the seminal vesiculotomy was most satisfactory. The kidney complication spontaneously resolved itself after a few weeks, and with it the last vestiges of sepsis disappeared. The bladder capacity returned, so that by the time the patient left the hospital five ounces could be injected. While lying in bed there was then a fair degree of vesical control, though on moving about there was still incontinence. Physical vigor returned with the elimination of the sepsis. Aside from the incontinence—a sequel to the prostatectomy—the patient's outlook on leaving the hospital was wholly satisfactory.

252 Lexington Avenue.

Osteoperiostitis of the Tubercle of the Tibia.—C. Woodward reports the case of a girl aged 11 years who had complained of pain over the tubercle of the left tibia for six months; as she tired the pain grew worse. There was an obvious swelling over the tubercle and tenderness was especially marked on the inner side. The skiagrams showed the condition described by Schlatter and others.—*Proceedings of the Royal Society of Medicine.*

INSANITY AMONG JEWS.*

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Ever since modern psychiatry came into existence it has been understood that the Jews have contributed more to insanity than any other race. Indeed, when one consults the works of such eminent observers as Kraepelin,[1] Krafft-Ebing,[2] Weygandt,[3] and others, one finds that they all agree that the Jewish race is disproportionately afflicted with insanity. Krafft-Ebing states: "Statistics have been collected with great care to show the percentage of insanity in various religious sects, and it has been shown that among the Jews and in certain sects the percentage is decidedly higher." Kirchoff[4] maintains that "perhaps the Jews exhibit a comparatively greater predisposition to insanity." According to Kraepelin, "in Germany and likewise in England the Jews are markedly higher predisposed to nervous and mental diseases than the Germans." "The Jewish race," says Weygandt, "seems to show a greater tendency to insanity than any other race." Buschan[5] claims that the Jews contribute from four to six times as much to insanity as non-Jews. However, the opinions expressed by these and many other authors are not fully shared by other investigators. Thus Reiger[6] thinks that there is not sufficient evidence to prove that the Jews contribute to insanity a higher proportion than the non-Jews. Ziehen[7] expresses himself in a similar manner: "The attempt to account in numbers for a larger degree of psychic morbidity as to a certain nationality or race or a special climate have in most cases failed." Sioli[8] states: "All nervous and mental diseases familiar to us occur among all nations of the earth, but we are unable as yet to draw any definite conclusions concerning the frequencies and most manifold appearances of the same." The United States Department of Commerce and Labor[9] asserts that "on the contrary, facts from which deductions can be made point rather to a comparatively smaller amount of insanity among the Jews than among people of several other races."

Sichel's[10] careful investigations, based on the records of the Frankfort Hospital for the Insane, showed that although there were relatively more Jewish inmates than the corresponding percentage of the Jewish population in Frankfort, yet this could only be demonstrated in reference to certain groups of mental disorders. However, the other types revealed a smaller percentage than the non-Jewish population. To quote his figures:

	Jews, %	Non-Jews, %
Dementia præcox	31	31
Manic-depressive insanity	31	5.2
General paralysis	9.5	

He also found that the Jews contribute a very small percentage to the alcoholic psychoses.

Similar deductions have been reached by Kirby,[11] who examined the admissions of the Manhattan State Hospital from October 1, 1907, to September 30, 1908. He says: "The figures for the Jewish race bring out several interesting facts. One notices first of all that the Hebrews are practically

*Read before the N. Y. Neurological Society, April 7, 1914.

free from alcoholic psychoses. The figures 0.32 per cent. (cf. author's statistics) represent a single case which occurred in a series of 182 cases of alcoholic insanity. I must also add that this particular patient, a man, is still under observation, having been over a year in the hospital, and certain features in the development of the psychosis, as well as the course of the disorder, suggest the possibility that the case may, after all, belong to the paranoid dementias. We notice the further interesting fact that the absence of alcoholic insanity in the Hebrew is accompanied by the lowest figure for senile dementia and psychosis with organic diseases. The most noteworthy fact gathered from the second column is that the Hebrew race shows by far the greatest percentage of manic-depressive cases (28.43) and the Jew also stands highest in the psychoneuroses and constitutional inferiorities and in involution melancholia. In dementia præcox, with the exception of the English people (28.57 per cent.), the Hebrews are again foremost (27.47 per cent.). In the undifferentiated depressions they are next to the highest. We thus see that in the large group of the so-called functional psychoses, by which we mean those disorders in which certain endogenous or psychogenetic factors seem most important as upsetting causes, the Jewish people outnumber enormously any race."

Pilcz[12] states that adolescent dementia (dementia præcox) and dementia subsequent to acute psychoses and psychoses depending on hereditary and degenerative bases are more frequent (periodic insanity, 28.8 per cent.; secondary dementia, 33.3 per cent.) among the Jews than non-Jews; he, too, found that alcoholic insanity is very rare among the Jews. Thus he quotes Seckinger as saying that in his six years' service in the Allgemeine Krankenhaus in Vienna, he observed only one case of delirium tremens in a Jew, and that in his experience alcoholism plays no role in the etiology of other forms of insanity among Jews. His statistics of Jewish paretics are 18.75 per cent.

It is also interesting to note the reference of some authors concerning the various types of mental diseases among Jews. Hoppe[13] saw only two Jewish cases out of many hundreds of paretics during his twelve years' service in the Allenberg Hospital. Papoff[14] asserts that syphilis is five times as frequent among Russians as among Jews; that tabes is five time as frequent among Russians as among Jews, and that general paresis is six times as often among Russians as among Jews. Similar observations concerning tabes, and paresis, were made by Kajewnikoff,[15] Minor,[16] and Korsakoff.[17] On the other hand, Baedel[18] found over 21 per cent. of general paresis in Colney Hutch, London, and Hirschl[19] 20 per cent of general paresis among Jews.

Spitzka[20] made a careful survey of the various forms of mental diseases in different races; his results were based on the material from Manhattan State Hospital for the years 1874, 1875, 1876, 1877 and a part of 1878. He only dealt with male patients. The total number of admissions for the years mentioned were 2,997.

His conclusions are as follows: "On the whole the different forms of insanity occur in nearly the same proportion in the Anglo-Saxon, Teutonic, Celtic and Hebrew races; paralytic insanity is most common among the Anglo-Saxons and least common among negroes; melancholia is most common among the Germanic people; the tendency to terminal dementia is greater in the Anglo-Saxon than in the German or Celt; and the forms dependent upon hereditary taint are most common among the Hebrews. With these it is in accord that since termination in dementia and the influence of heredity are the factors which chiefly cause an accumulation of the insane population, that the Hebrew and Anglo-Saxon should have the highest proportions insane of their respective populations."

Many other observers could be quoted, but it is not our object to review here the statistical literature concerning insanity among the Jews. It is worthy of note that most of them were compiled in accordance with the old classification of mental diseases, and besides insanity proper, idiocy, imbecility, neurasthenia, etc., were included. The latter does not enter into the discussion of this paper. Moreover, a great many of these statistics were compiled and interpreted by men without psychiatric training.

From the observations mentioned, one can readily see that the sweeping statement that the Jew is disproportionately afflicted with insanity has not been conclusively demonstrated. In the present state of our knowledge one can say that the Jews, like any other race, contribute a higher quota to certain forms of mental diseases.

With the object of throwing some light on this question, we examined the statistical data of the admissions to the Manhattan State Hospital for four consecutive years, beginning October 1, 1908, and ending September 30, 1912.[21] The total number of admissions was 5710 (2803 men and 2907 women), of which there were 1203 Jews (588 men and 615 women). The Jews thus constitute 21 per cent. of the total admissions.

The following table shows the diagnostic grouping of the patients:

TABLE 1

Psychoses	Men	Women	Total
Manic-depressive insanity (manic)	85	133	218
Manic-depressive insanity (depressed)	8	30	38
Manic-depressive insanity (mixed)	14	33	47
Allied to manic-depressive insanity	42	62	104
Dementia præcox (hebephrenic)	16	21	37
Dementia præcox (katatonic)	19	15	34
Dementia præcox (paranoid)	58	41	99
Dementia præcox (simple)	19	7	26
Allied to dementia præcox	22	33	55
Depression undifferentiated	32	66	98
Depressive hallucinosis	4	0	4
Paranoic condition	16	12	28
General paresis	114	25	139
Psychosis accompanying organic brain disease	15	11	26
Constitutional inferiority	38	40	78
Imbecility	9	8	17
Epileptic psychosis	11	9	20
Senile psychosis	20	26	46
Hysterical psychosis	0	1	1
Involution melancholia	0	2	2
Alcoholic psychoses	8	0	8
Infective-exhaustive psychoses	15	28	43
Toxic-gas poisoning	1	2	3
Morphine and cocaine psychosis	1	0	1
Unclassified	21	10	31
Total	588	615	1203

Table No. 2 shows the percentage of Jewish classified admissions when compared with the non-Jews of the same group.

Judging by the figures of these tables one can plainly see that the predominating psychoses are of the functional type. Thus, the highest percentage is found in the Manic-depressive group, second in order, is the Undifferentiated Depressions, the greatest majority of which probal ly belongs to the Manic-depressive class, and third in order is the Dementia Præcox group. The relatively high percentage of the imbecility and constitutional inferiority groups may be explained by the fact that

these diagnoses are only too often made when a foreign Jew is examined by a physician who is unfamiliar with his language and racial characteristics. Moreover, the total number of imbeciles was only 39, 17 of whom were Jews, and of the 234 constitutionally inferiors there were 78 Jews.

TABLE 11—PERCENTAGE OF ADMISSIONS (HEBREWS) CLASSIFIED UNDER THE VARIOUS PSYCHOSES.

Psychoses	Men	Women
Manic-depressive psychoses	29	32
Allied to manic-depressive	10 0	31.3
Dementia præcox	30 2	24.7
Allied to dementia præcox	23 1	26
General paresis	23 7	16.5
Alcoholic psychoses	2 5	0
Senile psychosis	12 5	11.4
Depression undifferentiated	29 9	37.5
Paranoic condition	23 2	8.8
Organic brain disease	10 9	11.2
Infective-exhaustive psychoses	28.5	20.6
Epileptic psychosis	13 4	14.5
Depressive hallucinosis	16 7	0
Drugs and other toxic psychoses	20	13.3
Constitutional inferiority	38.8	29.4
Imbecility	50	38.1
Involution melancholia	0	11.2
Hysterical psychosis	0	33.67
Unclassified psychoses	15.7	9.6
Number of admissions for four years	2848	2954
Percentage of Hebrews	28.6	20.8

The relatively high percentage of the Infective-Exhaustive groups in men may be partially attributed to the poor hygienic conditions at home and in sweat-shops. It should also be remembered that the number of cases is entirely too low for deductive purposes. It is interesting to note that the general paresis group shows a comparatively high percentage. This condition was also found by Hirschl,[19] Pilcz,[12] Benedikt,[22] Beadle,[18] and others whose material comes from large cities. The Russians, however, found a very low percentage of cases of general paralysis among Jews. The explanation lies in the fact that in Russia the Orthodox Jews are in the majority and owing to their rigid religious tenets and early marriages they lead a pure sexual life. The senile and epileptic insanities and psychoses accompanying organic brain diseases show a relatively low figure and the alcoholic psychoses represent only 2.5 per cent. of the male alcoholics. There were none among the female admissions. This concurs with the results found by other investigators.

If we compare the number of insane Jews to the entire Jewish population and to the corresponding number of non-Jews, the results are still more striking.

In order to correlate our data, we have obtained the official estimate of population for the Boroughs of Manhattan and the Bronx, as given by the New York Board of Health for the years 1909, 1910, 1911, and 1912, and compared the same with the total insane population of the Psychopathic Pavilion of Bellevue Hospital for the corresponding years. It is to be noted that the insane admissions to Bellevue Hospital are drawn from the Boroughs of Manhattan and the Bronx.

POPULATION AS ESTIMATED BY THE HEALTH DEPARTMENT ON THE BASIS OF 1905 AND 1910 CENSUS FIGURES

	Manhattan	Bronx
1909	2,294,520	399,853
1910	2,341,383	439,567
1911	2,389,204	483,224
1912	2,438,001	531,219
Total	9,463,108	1,853,863

By the courtesy of the Federation of Churches we obtained the number of Jews for the two Boroughs mentioned for the year 1910, and by taking the average of the total population for the four years and subtracting the number of Jews we found the following results:

Average total population for one year, 2,829,243.

Jewish population for 1910, 807,801, or about 29 per cent. of the total population.

Non-Jewish population for one year, 2,021,442.

The insane population for four years as taken from the records of Bellevue Hospital is as follows:

Non-Jews	10,766	Average	2,691 per year
Jews	3,062	Average	765.5 per year

The relative percentage of the insane population is .0013 for non-Jews and .0009 for Jews, or about 13 insane for every 10,000 non-Jews and 9 insane for every 10,000 Jews, or 1 to 751 non-Jews and 1 to 1053 Jews. In this connection it will be interesting to compare these figures with the statistics taken from Die Sozialen Verhältnisse der Juden in Russland,[23] a work on the Russian Jew. According to this pamphlet—edited in 1906—there are 5,215,803 Jews in Russia, constituting 4.2 per cent. of the whole Russian population. In 1906 there were 4980 insane Jews (2905 men and 2075 women). The percentage of insane to every 10,000 inhabitants was as follows:

Poles	8.51
Russians	9.54
Jews	9.84
Lithuanians and Letts	13.75
Germans	15.04
Rest of population	9.35

This shows that the Jewish quota of insane is slightly higher than that of the Poles and Russians, and considerably below the Lithuanians, Letts and Germans, especially the latter.

It can be readily seen that these figures show about the same proportion as those given by us. In other words, despite the trials and tribulations that the Jew undergoes in changing his environment, he does not contribute a greater quota to the mental diseases than he does in his native Russia.

In this connection it would be interesting to allude to Dr. Hyde's[24] paper. His material was obtained from the Manhattan State Hospital East from all the admissions beginning December 13, 1871, and ending November 17, 1900. His patients include the male sex only. The total number of admissions was 17,135, out of which 1,722 were Jews, that is making 10.05 per cent. of the entire insane population. Indeed, this investigator's conclusions are in accord with ours.

Another author who discusses insanity among Jews in New York City is Dr. Fishberg;[25] he bases his interpretation on Dr. Hyde's paper, but in doing so he commits several gross errors. In the first place, Hyde's material did not represent the "asylums of New York City" as Dr. Fishberg maintains, but it came from a hospital representing one-half of the insane population of the Metropolitan District. It should be recalled that in Dr. Hyde's time there were two Manhattan State Hospitals—Manhattan State Hospital East and Manhattan State Hospital West—under two separate managements. It was not until 1905 that these two hospitals became amalgamated, Dr. E. C. Dent being the first superintendent of this institution. Indeed, Dr. Hyde stated specifically that his material came only from the male division of Manhattan State Hospital and to quote him—"The notes of this paper are made only on the male Hebrew insane.

inasmuch as the females are committed to Manhattan State Hospital West."

Secondly, the insane of Greater New York are harbored in four institutions: the present Manhattan State Hospital, Long Island State Hospital, Kings Park State Hospital and Central Islip State Hospital, in all representing about 14,000 patients.

In explaining the relative small percentage of Jewish insane as presented by Dr. Hyde, Dr. Fishberg falls again into error when he states that "perhaps the care taken by the Immigration Authorities to exclude defective aliens has some influence." It is a fact that the actual mental examination of aliens at the Government Immigration Station at Ellis Island, N. Y., had not begun until 1905 or 1906. Hence, Dr. Fishberg's interpretation cannot be very well applied to Dr. Hyde's paper.

In brief, after investigating the literature on the subject, we were forced to the conclusion that the prevailing belief that the Jew contributes more to insanity than any other race has never been substantiated by statistical data. With the exception of a few investigators, notably Sichel, Kirby and Pilcz, no real effort was made to settle this question. Our own findings, based on four years' statistics from the largest Jewish city in the world, shows that the Jew is not disproportionately insane. We agree, however, with Pilcz, Sichel and Kirby that the Jewish race contributes a rather high percentage to the so-called functional form of insanity, especially the manic-depressive and dementia præcox groups. In this respect, however, the Jew does not differ from other races; there seems to be a certain selectiveness even in abnormal reactions which shows itself in definite forms of insanity. Why the Jew should show a preference for those particular psychoses will form the thesis for our next investigation.

In conclusion, we wish to express our indebtedness to Drs. William V. Mabon and M. S. Gregory for their courtesy in allowing us to utilize their material.

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A RATIONAL DIET FOR TYPHOID FEVER,

WITH A REPORT OF TWO HUNDRED CONSECUTIVE HOSPITAL CASES IN WHICH IT WAS USED.

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A RATIONAL diet for typhoid fever should aim to meet in their totality the dietetic indications presented by that disease, and should avoid favoring particular indications at the expense of others. What are the dietetic indications which must thus be met by such a rational diet?

One group of these indications relates to the *quantity of the food.* The basis for the estimation of that quantity is naturally the minimum health ration for age, sex, and activity. The writer has been led by observation and experience to the opinion that the minimum health ration for a man of medium size lying in bed quietly should supply not far from 60 gm. of protein and fuel of a value of about 1600 calories. Modifications of these quantities in both directions seem to be called for by the conditions in typhoid fever. The fever and the increased metabolism constitute an apparent indication for more fuel if not more protein, while the lesions in the intestines, the depression of the glandular functions due to the toxemia, and the disturbance of metabolism generally from the same cause, seem to make more than ordinarily difficult the utilization of excess food. Clinical experience in this and other diseases favors the proposition that the ability to utilize food should be the determining factor rather than the theoretical requirement for an excess over the minimum health ration. It seems to be a natural instinct for all animals to diminish their intake of food when ill. This instinct shows itself strongly in man during the earlier stages of typhoid fever. But in that case, the instinct to diminish food is usually so disturbed by the toxemia of the disease that it becomes an unreliable guide, and to a certain extent forced feeding is required in the early part of the disease, that is, the patient needs to be fed more than he wants; while in the later stages he may require to be fed less than his hunger calls for. But in the latter period of the disease, and especially during convalescence, it is desirable and usually possible to exceed by a considerable amount the minimum health ration, for there is waste to repair; and in the febrile period it is desirable to give a quantity of food a little in excess of the minimum health ration if the patient shows ability to utilize it, which is often the case; though frequently the conditions of the disease call temporarily for a reduction in the quantity of food.

Another group of these indications relates to the *consistency of the food.* If clinical experience of many years, even centuries, has taught anything in regard to the diet in continued fevers, it is that a fluid diet is the best; and not sufficient to nullify the teaching of this extensive clinical experience, is the fact that a few hundreds or even thousands of cases of typhoid fever have recovered after receiving a diet which included bread, meat, hard boiled eggs, and vegetables. Not only is the well nigh universal clinical testimony in favor of a fluid diet for typhoid fever during the febrile period, but what seem to be obvious contraindications to any but a fluid or semifluid diet are found in the local condi-

tions in the intestines, viz., ulceration and catarrh, as well as in the toxemia and the conditions dependent on it.

Another group of these indications relates to the *digestibility of the food.* With an ulcerated intestine and digestive organs more or less depressed in their functional power by severe and continued toxemia, it is obvious that only the most easily digestible articles should be given, and, since we are restricted to fluids, only the most easily digestible fluids or semifluids. Milk is an ideal food in most respects, but in its whole state it is found to be difficult of digestion by many adults; and whole milk should not be given to typhoid fever patients. Fortunately milk can be modified so as to be made easily digestible, and so modified it can enter with advantage and largely into a rational typhoid diet. Thin cereal gruels and strained fruit juices are digested with ease, and are consequently eligible on that count for admission to the typhoid dietary.

Another group of these indications relates to the *fermentability and putrefiability of the food.* The unstable conditions in the alimentary canal render excessive fermentations there more than usually disturbing; and the unhealthy condition of the intestinal walls and the functional depression of the overworked liver and kidneys render highly undesirable the introduction into the alimentary tract of free purins or the production there of a large amount of putrefaction poisons. Cane sugar, egg albumin, and animal broths are contraindicated. The indication for animal broths in small quantities as medicinal agents to stimulate the digestive secretions is entitled to a brief notice; but that is not a dietetic indication, and as a therapeutic indication it is not a strong one nor one of extensive significance. If animal broths are given, they should be given strictly as drugs possessing toxic properties, with due regard to the harm they can do as well as the good.

Another group of these indications relates to the *food salts.* Man cannot live by protein and fuel alone. Absolutely essential to normal physiological functioning are the food salts. These, with the exceptions of sodium chloride, are secured in health almost wholly from the ordinary articles of food in the conventional mixed diet, particularly articles from the vegetable kingdom. In devising a rational diet for typhoid fever provision must be made for these salts. This can be accomplished easily and safely by including in the dietary the juices of certain fresh fruits and by adding a small quantity of sodium chloride, and perhaps also of a calcium salt.

Another group of these indications relates to the *water ration.* Indications for a large water ration are found in the toxemia and the desirability of free elimination through the kidneys and skin. Contraindications to a large water ration are often present in weakness of the myocardium and perhaps also in a degenerated condition of the kidneys. A rational conclusion in regard to the water ration would seem to fix it at a fairly liberal but not extraordinarily large amount.

Another group of these indications relates to the *palatability of the food.* Palatability should be regarded in any diet, but it is not a sufficiently powerful indication to counterbalance such indications as difficulty of digestion, fermentability, putrefiability, possession of a large purin content, or ability to produce irritation of a diseased intestinal mucosa.

A final group of these indications relates to the *complications which may arise in the course of the disease.* Complications in the gastrointestinal tract are most common, and may call for extensive modifications of the diet. These modifications usually consist in diminishing the amount of food, giving only the most easily digestible articles, or stopping all food temporarily.

In the light of the dietetic indications which are suggested in the foregoing brief discussion, the writer has devised the following plan of feeding in typhoid fever, which is formulated in three dietetic prescriptions, with modifications.

PRESCRIPTION 1.—*For the Febrile Period.*

6 A. M.—Give 8 ounces of a two-to-one mixture of milk and barley water, to which has been added 4 grains of sodium chloride.

8 A. M.—The same as at 6 A. M.

9 A. M.—7 ounces of orangeade made with the strained juice of one orange, one ounce of milk sugar, and water.

10 A. M.—The same as at 6 A. M.

12 M.—The same as at 6 A. M.

1 P. M.—The same as at 9 A. M.

2 P. M.—The same as at 6 A. M.

4 P. M.—The same as at 6 A. M.

5 P. M.—The same as at 9 A. M.

6 P. M.—The same as at 6 A. M.

8 P. M.—The same as at 6 A. M.

At any time during the day or night give water to drink, but not more than enough to bring the total fluid ingested to 110 ounces, unless the weather is very warm and the patient desires it. If the patient has a weak heart the fluid should not exceed 90 ounces.

This prescription supplies daily about 50 grams of protein and fuel of the value of about 1,350 calories. It serves as a basic diet, which should be modified so as to give the patient a larger quantity and a greater variety of food, according to the following schema:

Modifications of Prescription 1.

A.—The same as 1, with substitution of artificially soured milk in place of the milk and barley water feedings at 8 A. M., 12 M., 4 P. M., and 8 P. M.

B.—The same as 1, or 1A, with the addition of half an ounce of predigested cereal food to the milk and barley water mixture.

C.—The same as 1, 1A, or 1AB, with the addition of one ounce of cream to four of the milk and barley water feedings.

D.—The same as 1, 1A, 1B, 1C, 1AB, 1AC, 1BC, or 1ABC, with the addition of two feedings of the milk and barley water mixture during the night.

E.—The same as 1, or any of the above modifications, with the substitution of peptonized milk for the milk in the milk and barley water mixture.

F.—The same as 1, or any of the above modifications, with reduction of each feeding to 6 ounces.

G.—The same as 1, with substitution of barley water alone for the milk and barley water mixture, and omission of the orangeade.

H.—The same as 1, or any of the above modifications, with the addition of 10 grains of calcium lactate dissolved in 5 ounces of water at 7 A. M., 11 A. M., and 7 P. M.

The first four modifications of Prescription 1, viz. A, B, C, and D, if all are given, which is desirable, produce considerable variety in the diet and bring up the total quantity to more than the minimum health ration. Prescription 1, thus modified (viz. Prescription 1ABCD) supplies daily about 75 grams of protein and fuel of the value of about 2,200 calories. The last four modifications, viz. E, F, G, and H, are given to meet special indications which may arise in the course of the disease.

PRESCRIPTION 2.—*For the Transitional Period.*

6 A. M.—Give 8 ounces of a two-to-one milk and barley water mixture, to which has been added one-half an ounce of a predigested cereal food, one ounce of cream, and 4 grains of sodium chloride.

7 A. M.—7 ounces of orangeade, as in Prescription 1.

8 A. M.—7 ounces of well-boiled rice, cream of wheat, or similar cereal, with 5 ounces of milk and 4 grains of sodium chloride.

10 A. M.—8 ounces of artificially soured milk, or, if preferred, the same as at 6 A. M.

11 A. M.—The same as at 7 A. M.

12 M.—The same as at 8 A. M.

2 P. M.—The same as at 10 A. M.

4 P. M.—The same as at 6 A. M.

5 P. M.—The same as at 7 A. M.

6 P. M.—The same as at 8 A. M.

8 P. M.—The same as at 10 A. M.

This prescription supplies daily about 70 grams of protein and fuel of the value of about 2,100 calories. It can be given in the average case between the fifth and seventh day after defervescence.

Modifications of Prescription 2.

A.—The same as 2, with the addition of two feedings of the milk and barley water mixture during the night.

B.—The same as 2, or 2A, with the addition of a poached egg on toast to the 12 M. feeding.

C.—The same as 2, 2A, 2B, or 2AB, with the addition of a scraped beef sandwich to the 8 A. M. feeding.

Prescription 2B or 2AB can usually be given on the sixth or seventh day after defervescence, and Prescription 2C, 2BC, or 2ABC can usually be given on the ninth day. If there is no reaction to the meat poisons, shown by a rise of temperature, the patient is usually ready for a gradual resumption of ordinary diet. If there is a rise of temperature or other disturbance after the meat sandwich or poached egg, return should be made to 2 or 2A. Prescription 2ABC supplies daily about 90 grams of protein and fuel of the value of over 2,500 calories.

PRESCRIPTION 3.—*For the Convalescent Period.*

7:30 A. M.—Give 8 ounces of well-boiled cereal, with butter, milk, or cream; 2 slices of dry toast, with butter; the juice of one orange, plain, or as in prescription 1.

10 A. M.—8 ounces of artificially soured milk, or 8 ounces of the milk and barley water mixture described in prescription 2.

12 M.—8 ounces of a milk soup (cream of corn, celery, potato, carrot, or spinach), or 8 ounces of artificially soured milk; 2 ounces of lean boiled, broiled or roasted beef, mutton, lamb, or chicken; 6 ounces of boiled macaroni or rice, with butter, milk, or grated cheese; 2 slices of toast with butter; fresh fruit juice, viz., of orange, grapefruit, grape, or pineapple, to the amount of 4 ounces.

4 P. M.—The same as at 10 A. M.

6 P. M.—16 ounces of milk in which has been crumbled 6 ounces of old bread or toast; or four slices of toast with butter, 2 ounces of cream cheese or pot cheese and 8 ounces of the milk and barley water mixture, described in prescription 2.

10 P. M.—The same as at 10 A. M.

Orangeade, as in the preceding prescriptions, or similar fruit juice preparations, may be given freely at any time.

This prescription supplies daily about 90 grams of protein and fuel of the value of about 2,500 calories. It serves as a standard convalescent diet, which can be modified by additions and substitutions as convalescence progresses. It can usually be given on the twelfth day after defervescence. The fruits and vegetables should be added cautiously, especially those containing much cellulose.

The plan of feeding in typhoid fever above described was employed by the writer in a series of 200 cases of that disease which were treated by him in the Williamsburg and Norwegian Hospitals between June 15, 1910, and August 12, 1914. This series is a continuous one, and includes all the cases of typhoid fever treated by him in those hospitals during that period.

The number of deaths in this series of cases was eighteen, and the mortality was 9 per cent.

Following is a resumé of the fatal cases:

Case 1 entered the hospital with a double lobar pneumonia and died three days after admission.

Case 2 was taken from a ship in the harbor in the third week of the disease, and died of intestinal hemorrhage five days after admission.

Case 3 was taken from a ship in the harbor, probably in the third week of the disease, with pronounced signs of myocardial degeneration.

Case 4 entered the hospital in a moribund condition and died two days after admission; was in the eighth month of pregnancy.

Case 5 entered the hospital with lobar pneumonia.

Case 6 entered the hospital in the third week of the disease with pronounced signs of myocardial degeneration.

Case 7 entered the hospital in the fourth week of the disease; developed bronchopneumonia.

Case 8 was an ambulant case; walked into the hospital in poor condition; developed perforation of the intestine.

Case 9 was an ambulant case; walked into the hospital in poor condition; developed lobar pneumonia.

Case 10 entered the hospital in the third week of the disease and died of lobar pneumonia six days after admission.

Case 11 entered the hospital in the fourth week of the disease, and died of pneumonia seven days after admission; was 56 years old.

Case 12 was taken from a ship in the harbor, probably in the third week or later of the disease, with pronounced signs of myocardial degeneration, and died five days after admission.

Case 13 entered the hospital in a moribund condition, with pneumonia and intestinal hemorrhages, and died two days after admission.

Case 14 entered the hospital in a moribund condition, with meningitis, and died three days after admission.

Case 15 entered the hospital in the fourth week of the disease; developed perforation of the intestine.

Case 16 was an ambulant case; entered the hospital in the third week of the disease; died of intestinal hemorrhages three days after admission.

Case 17 was an ambulant case; entered the hospital with pronounced signs of myocardial degeneration and died three days after admission.

Case 18 entered the hospital in a moribund condition, with pericarditis, and died two days after admission.

An analysis of these eighteen fatal cases shows the following facts:

At least nine of them were in the third week or later of the disease when they were admitted to the hospital. At least six more were moribund on admission to the hospital. One other had pneumonia on admission. The remaining two were walking cases who entered the hospital in poor condition, and developed, respectively, pneumonia and perforation of the intestine. The average duration of life after admission to the hospital in eleven of the fatal cases was 3.5 days.

It will be seen from this analysis of the fatal cases that practically all the deaths occurred in patients who were unfavorable subjects for treatment when they entered the hospital.

It regularly happens that a certain proportion of the cases of typhoid fever entering general hospitals are unfavorable cases for treatment on account of previous neglect. This fact establishes an irreducible minimum mortality which is apt to be particularly large in hospitals which serve districts inhabited by the poorer and more ignorant classes of people. Both of the hospitals in which the cases reported in this paper were treated serve such districts. The Norwegian Hospital, in which three-fourths of these cases were treated, receives a large proportion of its patients from the water front of South Brooklyn and the adjacent tenement house districts, and also from ships in the harbor, many of which come from the tropics, and the Williams-

burg Hospital receives most of its patients from poor tenement house districts.

The treatment other than dietetic of the 200 cases of typhoid fever, whose report forms the basis of this paper, was conservatively symptomatic. For high temperatures, cold or tepid sponge baths were given during the first three years of the period, but not during the last year; during the last year no attempts at reducing the fever were made, either by cold water or other agents. For gastric irritability, changes were rung on the modifications of Dietetic Prescription 1. For diarrhea and tympanites, the diet was reduced to barley water alone, or water alone, or all food was temporarily discontinued. For intestinal hemorrhage, the diet was reduced to barley water alone, or all food was temporarily discontinued, and opiates were given, and usually calcium lactate or chloride also. For perforation of the intestine, all food was discontinued, and the case was referred to the surgeons for operation. For restlessness and delirium, bromides were given, rarely opiates. For myocardial weakness, strychnine and strophanthus were given in small doses. For constipation, a simple or soapsuds enema was given every second day.

The following clinical observations were made on the cases in this series:

1. The proportion of cases showing severe types of the disease, taking into account the entire period of over four years and the whole number of cases, appeared to be about the average found in general hospitals with public services in poor parts of the city.

2. Tympanites was practically unknown in this series of cases. If a patient came into the hospital with tympanites, unless he was moribund, it soon disappeared. This was one of the most striking observations made in connection with the use of this diet. It is interesting and instructive to compare with this series of 200 cases, in which tympanites practically did not occur, a series of 100 cases treated by the writer in the same two hospitals between July 8, 1906, and August 31, 1908. In that earlier series of cases, which were treated essentially in the same way as the present series with the exception of the diet, tympanites was a prominent symptom, occurring to a notable degree in nine cases; and the mortality in that earlier series was 14 per cent., as against 9 per cent. in the present series.

3. Intestinal complications were less frequent than was to be expected from the average severity of the cases in this series. Intestinal hemorrhage was noted in nine of the 200 patients, of whom three died, and perforation of the intestine occurred in two, both of whom died. In the earlier series of 100 patients cited above for comparison, who were fed on a different diet, intestinal hemorrhage was noted in seventeen, of whom ten died, and perforation of the intestine in two, both of whom died.

4. High fever and delirium, and also extension of the febrile course to four or more weeks, occurred with unusual frequency in the epidemic of the last of the four years which this series covers, yet the mortality in the cases of that last year was less than in those of the preceding three years; only two patients died out of sixty who were treated between June 15, 1913, and August 12, 1914, and both of those were moribund on admission to the hospital, dying, one in two days of pericarditis, and the other in five days of myocarditis. It is interesting to note that during this last year the use of cold water applications to reduce the fever, which previously had been a routine procedure, was discontinued. The patients seemed to do better without the antipyretic treatment; cases showing severe types of the disease were common, but they were unusually free from complications.

5. Marked emaciation was not a prominent symptom, except temporarily in cases with extreme toxemia. Twelve patients who were admitted to the Norwegian Hospital between September 10, 1913, and October 25, 1913, were weighed when they were discharged from the hospital, which was as early in convalescence as could be considered reasonably safe. These twelve patients were not selected cases, but were taken in regular order, with exception of two who escaped from the hospital before they could be weighed. They showed, on the whole, a rather severe type of the disease, a type which prevailed largely in the epidemic of 1913, and was characterized by a prolonged febrile course: the fever in these twelve cases, including recrudescences in two cases, averaged in duration 34.5 days. The average weight of these twelve patients when discharged from the hospital was 138 pounds, and their average height was 5 feet 6½ inches. Seven of them were able to tell what was their regular weight in health; it averaged 144 pounds, and their average weight when discharged from the hospital was 137.5 pounds.

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OIL-ETHER COLONIC ANESTHESIA.

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ANY new method of anesthesia must be placed in immediate competition and comparison with the best methods of to-day. Certainly, no one method (or anesthetic) will ever replace all others. However, if it finds a permanent place of usefulness it has accomplished all that may reasonably be expected. Is oil-ether colonic anesthesia worthy of such a place?

Luke,[1] using an imperfect technique, as shown by the tardy recovery of his patient, after three cases, offers many theoretical objections to the method, and reports the first death attributable in a measure to the anesthetic.

Let us study this case. "A fairly vigorous man of about fifty years; never really recovered from the anesthetic, and was in a most profound state of narcosis for nearly six hours. Six ounces of ether and two ounces of olive oil were administered in the usual manner, and both before and after the operation was completed the colon was repeatedly irrigated without apparent benefit. Operation, jaw resection. Patient died with an aspiration type of pneumonia twenty-two hours after operation."

The technique, as outlined, was faulty, in as much as no mention is made of chloretone or some other hypnotic (in addition to the hypodermic of morphine), which I have mentioned in every article I have written upon the subject.[2] The object of the chloretone solution is two-fold: (1) It diminishes the amount of oil-ether solution required; (2) it assists materially in gauging the susceptibility of the patient to this particular form of anesthesia.

The fact that "the colon was repeatedly irrigated without apparent benefit" indicates that too much of the anesthetic was given in the first place, and that the irrigation should have commenced even before the operation. As a last resort, an intraven-

ous saline injection of about 1,000 to 2,000 c.c. should have been given.

When an aspiration pneumonia occurs, it is partly due to the assistant's not keeping a clear airway by sponging or using a suction apparatus.

Eight ounces of a 75 per cent. solution of ether in oil will keep a patient weighing 160 pounds or over in surgical anesthesia for three hours, and no longer, provided a clear airway is maintained. This has been demonstrated repeatedly, twice in my own practice. A "six-hour profound narcosis" indicated an overdose or imperfect airway, or both.

It would be unfortunate if any one should be misled by theoretical considerations based upon faulty technique. The theoretical objections can best be answered by saying that the fundamental principles have been thoroughly worked out, both upon animals and in chemical laboratories, and, finally, in the Bureau of Laboratories of the Department of Health of New York City.

In order to determine the therapeutic value of oil-ether in ophthalmology, rhinology, dermatology, and other branches of medicine, tests are now being conducted by distinguished clinicians. Results will be reported later.

Clinical Findings.—The fundamental principles enunciated above have been carried out in over 500 cases in the New York Post-Graduate Hospital, People's Hospital, Columbus Hospital, Smith Infirmary, and by Drs. Foote, Meeker, Lumbard, Arrowsmith, Cantle, and myself, besides many others.

Condensing the experience gained from these 500 cases, it may be stated positively that:

1. This method compares favorably with any other method of administering ether, when the proper technique is employed.

2. The experience already gained justifies a continuation of the method.

3. The limits of safety are wider than with any other method, as shown by the difference between the dosage for surgical narcosis and for toxemia. This is well illustrated by the case of a patient who received four times the required amount of preliminary medication and two-thirds more of the mixture than is necessary, as we now know it, yet made an uneventful recovery.

The preparation of the patient is not different from the ordinary technique, with the exception of an irrigation until the return is clear, on the morning of the operation. Some surgeons employ this method whether rectal anesthesia is used or not.

The crux of the present situation resolves itself into the following proposition: Is there any class of patients whose lives are better safeguarded by the employment of oil-ether anesthesia? This can be answered emphatically in the affirmative.

I. It is *especially* indicated in the *very obese*. Here any inhalation method is attended with risk; spinal and local anesthesia are difficult; intravenous anesthesia is less objectionable than the others named, but is not so easy of application as with other patients. With rectal anesthesia, however, these patients go to sleep like babies and wake up as from a natural sleep. In every instance with this class of patients the nausea is negligible. This is well illustrated by the following cases:

Case I.—A patient weighing 250 pounds, in the Massachusetts General Hospital of Boston. In this case, Dr. Allen, the anesthetist, stated that he dreaded giving the patient any inhalation anesthetic.

Case II.—A patient weighing 240 pounds, in the New York Hospital for Ruptured and Crippled, operated upon by Dr. Walker, Drs. Coley and Gibney being present.

In both these cases the operation was for umbilical hernia. Relaxation was perfect, and the anesthesia was all that could be desired.

Case III.—A private patient operated upon by Dr. Forbes Hawkes, the patient weighing between two and three hundred pounds. As in all private cases, the nurses preceded us and followed our directions in regard to administration, our duty being to supplement withdraw, deepen, or lighten the anesthetic according to the indications. The result, as in the other cases, was ideal.

Many similar cases could be cited, but these should be sufficient.

II. Another class in which this method is especially indicated is composed of neurotics and those in whom the psychic element predominates. Two illustrations will suffice for this class.

Case IV.—An insane patient was brought to New York City for a surgical operation. The possibilities of trouble were very great, if the patient became aware of the proposed operation. A nurse administered the mixture, as directed; the patient fell asleep quietly, was placed upon the operating table, the operation was successfully performed, and the patient returned to bed without ever seeing a doctor.

Case V.—A boy, eight years of age, fell upon the ice and broke his arm. He was highly wrought up over the occurrence. In this instance, the surgeon, Dr. Harold Meeker, gave the mixture to the mother of the child who administered it to the little patient while he was lying on a sofa, the surgeon being in the next room. The child had no preliminary medication or preparation. He dropped to sleep quietly, the anesthesia being entirely satisfactory.

III. Dr. Arrowsmith of the Brooklyn Eye and Ear Hospital reports fifty cases, ten of which were esophagoscopies. He considers the method ideal for this class of work.

Undoubtedly, deaths will occur with this method as with all others if administered when contraindicted, or with faulty technique, and in fairness it should not be administered in borderline cases unless the physiology is thoroughly understood.

The anesthesia is completely under control at all times. If a lightening of the anesthesia is desired, a Connell breathing tube will give the necessary dilution of air. If the anesthesia is too light, a towel placed over the mouth and nose of the patient will deepen it. If the patient shows undue susceptibility to the ether, part or all of the mixture can be withdrawn immediately, if necessary, or at any time later. The *judgment* of the anesthetist as to the proper amount, in the first place, and if this be faulty, its immediate correction, etc., by the addition or withdrawal of the mixture, is the principal factor in making this a perfectly safe method.

The following cases from the Mary Gates Hospital, Port Arthur, Texas, will illustrate this idea. All three were borderline cases, and the anesthesia was a problem.

Case VI.—Female, weight less than one hundred pounds, incomplete abortion of three weeks standing; pulse 150. As a preliminary, morphine, gr. 1/8, atropine, gr. 1/150, chloretone, gr. 10; anesthetic, ether-oil, 75 per cent., oz. 4. Patient completely anesthetized in ten minutes. Patient did not vomit, and three hours after the operation asked when the doctor was coming to operate. Left the hospital four days later.

Case VII.—Woman, weight 70 pounds; panhysterectomy. Morphine, gr. 1/8; atropine, gr. 1/150; chloretone, grs. 10; anesthetic, ether-oil, 75 per cent., oz. 4. Was not under the influence of the anesthetic in twenty minutes, so was given two ounces additional, and in five minutes was completely anesthetized. When brought into the operating room the patient was too deeply narcotized, so two ounces were siphoned off. The operation lasted two hours and forty-five minutes. In coming out the respirations were unsatisfactory, and

patient was given, by hypodermic, cocaine, 1/2 gr. Patient did not vomit nor ask for water and made an uneventful recovery.

CASE VIII.—Female, weighing 165 pounds. Operation for gallstones. Almost imperceptible pulse. Preliminary: Morphine, gr. 1/4; atropine, gr. 1/150; chloretone, gr. 10; anesthetic, ether-oil, 75 per cent., oz. 8. Pulse improved immediately. After establishing ether tension, the patient seemed a little too deeply under, so three ounces were siphoned off before the operation began; supplemented with chloroform when operating on gall-bladder. Operation lasted one hour and thirty minutes. Patient reacted immediately upon irrigation, and made an uneventful recovery, without vomiting.

The anesthetist should know that with this special form of anesthesia the breathing is quiet, *as in natural sleep;* the reflexes, especially the lid reflex, may be quite active, and yet the patient be in a state of deep surgical anesthesia. Cyanosis and stertor should be checked by the use of a breathing tube. We would further suggest that previous articles on this subject be carefully read before one attempts this method of anesthesia.

With these suggestions in mind, we have no hesitation in submitting an abstract of the technique, by Dr. Charles Gordon Heyd, former resident house surgeon, New York Post-Graduate Medical School and Hospital, for the benefit of those who may wish to use this method.

I. Preparation of Patient.—(*a*) A mild laxative the night before operation, avoiding all purging. On the following morning an ordinary "soap-suds" enema is given to assist the evacuation of the bowels. (*b*) Irrigation of the colon until the return is clear, three hours before the operation.

II. Indications.—(*a*) Especially indicated where the element of fear is in evidence, as in goiter cases. (*b*) In the very obese. (*c*) Bronchoscopy and gastroscopy. (*d*) All operations upon the respiratory tract, head, neck, and chest.

III. Contraindications.—(*a*) Whenever ether is contraindicated, *except* where the patient had been ill from a previous administration. In these cases it can be given with impunity. It can also be given in bronchitis, asthma, etc. (*b*) Pathological conditions of the lower bowel, colitis, hemorrhoids, fistula, etc. (*c*) When the patient complains of considerable rectal pain upon the introduction of the oil-ether solution.

IV. Apparatus.—(*a*) A small catheter and a funnel for the introduction of the oil-ether solution. (*b*) A Gwathmey rectal tube with which to flush or withdraw fluid from the rectum.

V. Administration.—(*a*) One hour before operation visitors should be excluded, the room darkened, and quiet maintained. The patient should not now be left alone. Then give per rectum: Chloretone, gr. 5-20; ether and oil, aa. dr. 2-4. Or a suppository: Chloretone, gr. 5-20, or some other hypnotic of equal value.

(*b*) Half an hour before operation, by hypodermic injection: Morphine, gr. 1/8 to 1/4; atropine, gr. 1/200 to 1/100.

(*c*) Twenty minutes before operation, give the oil-ether as follows: (1) Mixture for adults, olive oil, oz. 2; ether, oz. 6. (2) Mixture for weak, anemic patients, olive oil, 45-35 per cent.; ether, 55-65 per cent. (3) Mixture for children, ether-oil, 50 per cent.

Patient in bed in the Sims position. The catheter is well lubricated and inserted 4 inches within the rectum. The mixture is poured slowly into the funnel, at least five minutes being consumed in its introduction. Introduce one ounce of oil-ether solution for every twenty pounds of body weight, except for obese persons. The eight ounces should never be exceeded with any patient. *If patient goes to sleep before required amount is given, stop.*

VI. Danger Signals.—(*a*) *Loss of lid reflex.* (*b*) *Stertor or embarrassed respiration.* (*c*) *Approaching cyanosis.*

If any of the above signs are present, immediately withdraw two or three ounces of the mixture from the rectum. If the breathing is regular, with reflexes active, the patient will be relaxed and in surgical narcosis.

VII. Post-operative.—Immediate irrigation of the rectum with cold soap-suds, at the same time massaging the colon quietly from right to left, thus expelling any liquid which may be left. Then introduce two to four ounces of olive oil and one pint to one quart of cold water. Withdraw tube from rectum.

Further after-treatment, the same as after other forms of anesthesia.

Latest Technique.—Recently the technique has been still further improved by diminishing the amount of the oil-ether mixture one-third to one-half. This has been accomplished by using paraldehyde as the preliminary. Paraldehyde has been employed as an hypnotic in many hundreds of thousands of cases in insane institutions and general hospitals. When employed in connection with ether it intensifies the action of the anesthetic, giving more complete relaxation without in any way affecting the pulse or respiration.

The prescription for this preliminary is as follows: Morph. alkaloid, gr. 1/8; paraldehyde, dr. 1; ether and olive oil, aa, dr. 3½.

This one-ounce solution should be administered per rectum one hour before the operation instead of the chlorestone. When this preliminary is given, the technique as outlined above should be followed, except that instead of a hypodermic this dose should be repeated for athletes, alcoholics, and patients weighing over 160 pounds. For the average patient do not repeat the dose.

One dram of paraldehyde used in this way is equivalent in anesthetic value to two ounces of a 75 per cent. oil-ether mixture. We now give six ounces of the oil-ether mixture where we formerly used eight. When the paraldehyde is repeated, for the cases mentioned, we give four ounces instead of eight. This procedure is so satisfactory that we never use more than two drams of paraldehyde for any patient. This paraldehyde mixture, when used as a preliminary to nitrous oxide and oxygen, renders any further addition of ether by inhalation unnecessary; gives a greater relaxation, and the ether and paraldehyde are not noticeable to the patient.

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40 EAST FORTY-FIRST STREET.

Ossiculectomy.—E. D. Davis reports the case of a man aged 36, with chronic attic suppuration of the left ear, treated by intratympanic syringing, etc., with no improvement. There was required a submucous resection, and with the same anesthetic ossiculectomy was performed. The patient had arrested pulmonary tuberculosis.—*Proceedings of the Royal Society of Medicine.*

INFECTION OF THE MIDDLE EAR WITH BACILLUS TUBERCULOSIS AND BACILLUS COLI.

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JOLO, MORO, P. I.

On January 8, 1909, Mr. D. J. B. presented himself at my office for treatment and gave the following history: He is an American, 39 years old, of medium height and stocky build (weight about 200 pounds) and of a fair, florid complexion; married; by occupation a farmer.

His *family history* showed nothing bearing upon his case.

Personal History.—At six years of age he suffered from earache, and at this time a discharge from his left ear was noticed. From that time to this the discharge has persisted, more or less free, and with short intermissions from time to time. Since 1882 this discharge has had a very foul odor, so much so that he feels himself to be almost an outcast from society on account of it. At times there is a slight pain in the ear, but it is never severe. He has a continual, hacking, unproductive cough, and feels weak, tired, and nervous a good deal of the time. There has been no noticeable loss of weight. His kidneys act regularly and freely, but his bowels are constipated most of the time.

The general physical examination showed a large, well-nourished man, inclined to stoutness, with a rather sluggish, florid skin, but presenting no evidences of general disease. Examination of the throat showed him to be suffering with a moderately severe, subacute follicular pharyngitis.

Uranalysis.—Total quantity in 24 hrs., 1,300 c.c.; color, amber (clear); odor, aromatic; sediment, very slight, flocculent; specific gravity, 1,018; total solids, 54.6 gm.; acid index, 30; acid units, 39,000; indican, none; total urea, 13.0 gm. (1 per cent.); albumin, none; sugar, none. Examination of the ear was unsatisfactory, as the external canal was entirely filled with a dark-red, spongy-looking mass, through and around which oozed thin, greenish-yellow pus, having an inexpressibly fetid odor. The microscopic examination of the discharge was made in the bacteriological laboratory of the Indiana State Board

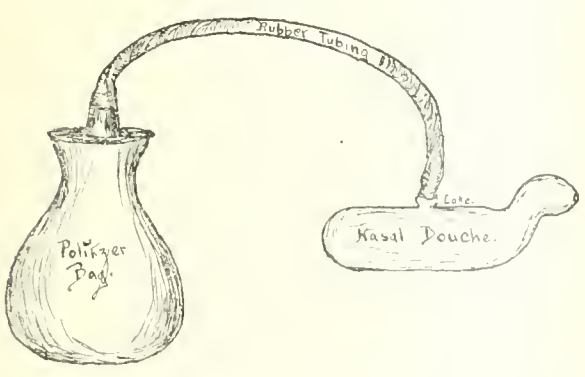

Fig. 1.

of Health, and the following report was rendered: "The specimen of discharge from the ear of D. J. B. contains remarkably large numbers of tubercle bacilli. It is rather rare, of course, that these organisms are found in the discharge from a tuberculous middle ear, and the finding of such large numbers makes the case rather unusual."—J. P. Simonds, M.D., State Bacteriologist.

A specimen of sputum was sent to the same laboratory and reported upon as follows: *B. tuberculosis*, none; streptococci, numerous; pneumococci, numerous; pus cells, many.

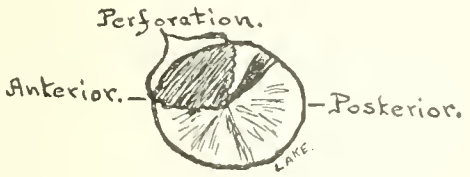

Fig. 2.

Treatment and Subsequent History.—The case was accepted with a very guarded prognosis, and the treatment, pending the receipt of the bacteriological reports, was tentative, consisting of remedies for the relief of the pharyngitis (including a thorough cleaning of the bowels with calomel and magnesium sulphate), and douching the ear as well as possible with mild alkaline antiseptic solutions.

After the receipt of the above reports the patient was placed upon vigorous antituberculous treatment of a general character, although a von Pirquet test, made on March 10, with 1 5per cent. strength of Koch's old tuberculin, was negative.

On March 4, 1909, a polypus 1 cm. in diameter was removed from the posterior wall of the left external auditory canal, which, when submitted to bacteriological examination, was reported upon as follows: "The section of aural polyp from the ear of D. J. B. shows no evidence of tuberculosis. It is made up of cells quite similar to those found in nasal polypi, namely, large cells containing material that appears to be mucoid in character. In addition to these cells there are areas of various sizes, many of them relatively large, made up of small round cells. No giant cells were found. Some time ago you sent us a smear of the discharge from Mr. B.'s ear, which showed remarkably large numbers of an acid-fast bacillus which resembled, morphologically, the tubercle bacillus in every respect. Of course it is possible that the tuberculous process and the polyp might have been coincident and more or less unrelated conditions in the ear, or the presence of the large amount of round-celled infiltration in the polyp itself may indicate that it is really due to the infection of tubercle bacillus, in spite of the fact that the condition was not typical of tuberculosis, in that it contained no giant cells and no areas of coagulation necrosis."—J. P. Simonds, M.D., Bacteriologist.

Following the removal of the polypus the patient received, twice weekly, in addition to the general treatment, injections into the ear of Beck's bismuth paste (bismuth subnitrate 33 parts, vaseline 67 parts). The above treatment was continued for about six weeks, during which time the patient's general condition improved, and the aural discharge diminished in quantity and in offensiveness, although, on March 13, a specimen of the discharge was reported to contain many tubercle bacilli.

During the month of May, 1909, the patient was careless about reporting for treatment, and as a result the discharge became more profuse and fetid. Treatment was resumed with regularity about the first of June, consisting, in addition to the general dietetic and hygienic treatment, of washing the ex-

ternal auditory canal with various antiseptic solutions (1 to 2,500 bichloride of mercury, 1 to 3 solution of hydrogen peroxide, liquor antisepticus, and various others were tried), and injecting the bismuth paste under pressure.

Once more the symptoms rapidly improved, but the ear still presented an abnormal appearance, and on June 28 a second polypus was diagnosed and several attempts made to engage it in a snare and remove it. These were unsuccessful, both on this and several other days, and it was finally decided to destroy the polyp with silver nitrate fused on the end of a probe. After several treatments the growth began to disintegrate, and the lunar caustic was applied, once or twice a week, until the first of September, when the external canal was practically clear.

The general treatment was continued, and also the local treatment to the ear. The patient's general condition improved markedly during this time, and when the local treatments were regular the ear was much better, but when a treatment or two was missed the discharge increased and became more foul.

A specimen submitted November 10, 1909, was reported on as follows: "The examination of the specimen of aural discharge received November 10 shows no tubercle bacilli. On March 13 we received a specimen of aural discharge from this same patient in which we found many tubercle bacilli. Whether the absence in this case means that the tuberculous process has entirely subsided or whether, for some reason, the bacilli have suddenly become so few in number that they could not be found, it is impossible for me to say just from examining the specimen. There is still a rather severe mixed infection, however, for the specimen contained many pus cells and great numbers of all sorts of bacteria."—J. P. Simonds, M.D., State Bacteriologist.

The case continued in about the same status throughout the winter, and spring found both physician and patient well nigh discouraged. However, having had some very encouraging results from the use of bacterial vaccines during the winter, I decided to see what could be done with them in this case, and early in April, 1910, I sent a specimen to the laboratory of H. K. Mulford & Co. for examination, which was reported upon as follows: "—— I beg to report to you that there were a number of different bacteria in the culture and it is hard to tell just which are contaminations. The smears you sent, however, showed a bacillus to be rather prominent and a bacillus morphologically similar grew in the cultures. This bacillus seems to have some of the characteristics of the *B. coli*, although we have not had time to work it out. I have given instruction to have an autogenous vaccine made—50 millions of these bacilli per c.c.————"

Signed: A. Parker Hitchens,
Director Biological Laboratories.

The vaccine arrived early in May, and on the 12th of that month treatment with it was begun, and 13 doses were given, as follows: May 12, 50 million killed bacteria; May 18, 75 million; May 25, 100 million; May 31, 125 million; June 8, 150 million; June 20, 175 million; July 2, 200 million; July 10, 250 million; July 17, 300 million; July 31, 350 million; August 7, 375 million; August 14, 400 million; August 20, 425 million.

About the time the vaccine was started the general treatment was suspended, as his condition was good. The local treatment to secure cleanliness of the ear was continued.

Having read, somewhere, the very rational suggestion that, in using bacterial vaccines in the treatment of local affections, better results followed when the parts were occasionally rendered hyperemic, thereby insuring the contact of larger amounts of the antibodies with the diseased areas, I searched the instrument catalogues for an apparatus to produce hyperemia of the middle ear. Failing to find what I wanted, I devised an apparatus with a Politzer bag and a Birmingham nasal douche, which worked very well (see Fig. 1). This was used each time an injection of vaccine was given.

On July 10 normal cerumen appeared on the applicator for the first time, and by the end of the month, there being at that time no discharge and no odor, the patient felt that he could resume social intercourse with his neighbors without embarrassment.

The treatment was, however, continued until the end of August, at which time his tympanum appeared as shown in Fig. 2, and his ear was, save for the scars of battle, to all appearances a normal ear. The patient felt that he was cured and refused further treatment.

In September I left the town for new fields of labor, but, being much interested in the case, I wrote to the patient two years later to learn what his condition was, and, under date of October 31, 1912, received a letter from which the following is a quotation: ———"about the ear. It is not well, but better than it was before treatment. There is some discharging yet and that offensive odor, but not so bad as it was. I believe that if we had continued the serum treatment that I would have been cured. ————"

The patient had evidently discontinued all treatment after my departure, but I agree with him in thinking that, had the vaccine treatment been followed up, there was a reasonable prospect of a complete cure, in view of the fact that more was accomplished by this form of treatment in four months than had been achieved by other methods in twenty-eight years, at least one year of which treatment I can certify was painstaking and thorough.

A study of this case seems to warrant a few suggestions.

1. One cannot treat middle-ear affections satisfactorily until the external canal is rendered as nearly normal as possible.

2. Beck's bismuth paste is a remedy which should be given a trial in most cases of localized tuberculosis which are accessible to it.

3. When one cannot buy an instrument one needs one can often extemporize a substitute from materials at hand which will do the work very satisfactorily.

4. If one has not a thoroughly equipped laboratory and the skill to use it to the best advantage, he should always avail himself of the facilities afforded by the laboratories of the various State Boards of Health, or those in the cities which do such vaulable work for the country practitioner at very moderate fees.

5. Local measures alone in chronic middle-ear infections bring little satisfaction to the patient or honor to the physician, no matter how diligently applied.

6. In any local, chronic, infectious process which is caused by an organism that can be grown in the laboratory, the use of autogenous bacterial vaccines should never be forgotten or neglected.

ABDOMINAL ANEURYSM AS A CAUSE OF LEFT-SIDED ABDOMINAL PAIN.*

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In this paper, attention is called to aneurysm of the abdominal aorta as a hitherto undescribed cause of left-sided abdominal pain. This variety of aneurysm is rare in comparison with aneurysm of the thoracic aorta, only 16 cases being seen in 16 years among 18,000 admissions to the Johns Hopkins Hospital, the ratio of abdominal to thoracic aneurysm being about 1 to 10.

The incidence, however, seems to vary in different localities. In Vienna, of 19,300 necropsies, there were only 3 cases among 222 cases of aneurysm. Of 468 cases of aneurysm at St. Bartholomew's Hospital, there were 23 of the abdominal aorta (1 to 20). In Guy's Hospital, of 18,678 autopsies, there were 325 aneurysms and of these 54 were of the abdominal aorta. (Osler, *Lancet*, October 14, 1905.)

As far as the recognition of the condition is concerned the obscurity of its symptoms renders its correct diagnosis very difficult. Bryant states that of the 54 cases in Guy's Hospital, only 18 were correctly diagnosed. When of the anterior wall of the aorta, the most obvious feature of the disease is a palpable expansile tumor, while aneurysms of the posterior wall are difficult to diagnose inasmuch as their chief symptom is pain, with absence of tumor. Any light which can be thrown on this difficult diagnostic problem therefore, is to be warmly welcomed.

Rare as abdominal aneurysm no doubt is, I have met with three cases during the past year, an unusually large experience considering its infrequency. The first case was not correctly diagnosed until operation, while diagnosis in the second case was confirmed at autopsy and that of the third was corroborated by the *x*-ray examination. The second and third cases were diagnosed on the left-sided pain alone, after excluding the usual causes of pain in the left hypochondrium. (Flatulence, surgical disease of the kidney, adhesions about an enlarged spleen, cancer of the splenic flexure of the colon.)

Case I.—Adler Brown, colored, aet. 46, fish cleaner. Admitted to Philadelphia Hospital (service Dr. Allyn), September 29, 1913, complaining of pain in left side of abdomen, which he says has been present only six weeks. He states that he becomes weak on exertion. Pains gradually became more severe until admission. The patient has used alcohol moderately, and has had a Neisserian infection. On examination, the abdomen was negative except for vague areas of tenderness. Heart negative. On October 10, 1913, the patient complained of steady pain in the abdomen. Since admission, patient has been kept in bed. On October 27th he was allowed to get up, but he developed so much pain in the left side that he had to go back to bed. On October 29, 1913, while straining at stool in the toilet room, he was suddenly seized with an agonizing pain in the left side of abdomen. This was so severe that he fainted and fell on the floor. I saw the patient about two hours after this accident, and found him to be suffering a great deal with pain in the abdomen, particularly on the left side of the abdomen midway between the ribs and the pelvis. The left hypochondrium was markedly hyperesthetic, the slightest touch seeming to give great pain. The abdomen was distended and on account of the tenderness deep palpation was impossible. Temperature was 100; pulse 120. Respiration 26. Leucocytes 23,400. Based on the sudden onset, the left sided pain, the pulse rate and the leucocytosis, a diagnosis of diverticulitis was made.

The patient was operated on by Dr. Carnett about five hours after the onset of the trouble. At the time of operation there was a bulging of the abdomen on the left side about the level of the umbilicus. Incision was made over this area and revealed large blood clots extra peritoneally. The peritoneal cavity was filled with masses of clotted blood. Palpation of the aorta disclosed a ruptured aneurysmal dilatation of the aorta at about the level of the diaphragm. The patient rallied after the operation but died early the next day (October 30, 1913) suddenly after vomiting large quantities of blood.

Owing to failure to secure a timely permission for an autopsy the body was removed from the hospital before an autopsy could be performed.

Case II.—Matthew Jackson, 39, laborer, colored. Admitted to Philadelphia Hospital (Service of Dr. Allyn), October 19, 1913, complaining of misery across chest, small of back and between shoulder blades. History of present illness: In January, 1913, he began to have pain in the left loin which would come on about once a week, and would persist for several days. The pain was described as dull and steady in character and was very severe, although not severe enough to prevent him from working. From January until the second of September, 1913, the pain persisted in the left loin, but at this time the patient began to have pain in the left chest and shoulder, radiating down the left arm. At times these pains are anginal in character, and occasionally wake him from a sound sleep. At these times the patient has great difficulty in getting his breath, but otherwise dyspnea is not a prominent symptom. Digestion is poor, appetite poor, belches a good deal, bowels very constipated, often not moving for four or five days. Micturition, frequent-dribbling. No nervous symptoms. Social history: The patient is a stevedore; alcohol moderately; cigarettes to excess. Had measles in childhood, acute articular rheumatism in 1907. Chancer, 1907. Tonsillitis, 1910.

Examination: Patient is a large well developed negro, electing to lie on the left side with legs drawn up on abdomen. Pupils are equal. Pulses equal. The patient is very tender over the left chest and over left side of abdomen and there is hyperesthesia of the skin over this area. Posteriorly tenderness extends from angle of scapula down. There is dullness over middle of chest anteriorly at level of the third rib extending slightly to right of sternum. Posteriorly there is a slight visible pulsation between the scapula. Heart enlarged, no murmurs.

In addition to the above, a subsequent note states that there is an area of dullness along the vertebræ at about the lower thoracic vertebræ, at which point there is marked tenderness. On November 1, 1913, the diagnosis was made of aneurysm of the lower thoracic or abdominal aorta. The main sign in this man's case was marked pain and tenderness over the left side of abdomen and lower chest. An *x*-ray showed a large aneurysm of the arch of the aorta, and on November 24, an *x*-ray taken for aneurysm of the abdominal aorta, confirmed the clinical diagnosis of this condition. *X*-ray report says: "There is evidence of a mass in upper left abdomen which may be an aneurysm if stomach was empty at time of exposure." Wassermann reaction strongly positive. Patient died suddenly December 19, 1913.

Autopsy 21 hours after death (Dr. Funk): Left-sided hemothorax. At a distance of 5 centimeters above the aortic orifice there is a small saccular dilatation communicating with the main trunk by an orifice which measures 1.5 centimeters in diameter. Just at the beginning of the descending portion is a dilatation which is directed backwards and is adherent to the vertebral portion of the 4th, 5th, 6th ribs. The 4th rib is involved in the erosion for a distance of 24 millimeters, the 5th for 70 millimeters and the 6th for 50 millimeters. The sac has also eroded portions of the corresponding vertebræ. Another dilatation appears at the level of and involving the 8th, 9th, and 10th thoracic vertebræ. Here again is a saccular dilatation which is directed backwards and which does not have a communication with the previously described sac, but the walls have become adherent to each other and their line of contact. This sac, posteriorly, is adherent as already mentioned to the 8th, 9th, and 10th thoracic vertebræ and also involves the adjoining ribs. The vertebræ show marked erosion of bony structure, but

*Presented before the American Gastro-Enterological Society, June 22-23, 1914.

no involvement of the intevertebral discs. There is an opening into the sac at the level of the 5th rib posteriorly through which protrudes a mass of partly organized blood clot. The abdominal aorta shows a slight thickening of the aorta.

Pathological Diagnosis: Multiple aneurysms of arch, ascending and thoracic aorta with rupture of one (lower thoracic). Congestion of liver and kidneys. Fatty infiltration of the liver. Atheroma of aorta. Partial atelectasis of left lung. Adhesive pleuritis. Caseous peribronchial lymph nodes. Hypertrophy of mesenteric and retroperitoneal lymph nodes.

Case III.—At present under my care, is a woman 70 years of age, who has been complaining of pain in the left side for the past three months. The pain seems to start in the left side of the back and runs anteriorly to the abdomen about a hand's breadth below the left costal margin. The pain is not continuous, at times she scarcely notices it and at other times it is severe. It is described as a dull, heavy, boring pain. It is referred to the left iliac fossa at times. Physical examination was negative except for tenderness in the left side and a systolic murmur in the epigastrium.

Having in mind the two cases previously described, I suspected abdominal aneurysm, as all other causes of the pain could be excluded. An *x*-ray examination, also a fluoroscopic examination was made March 10, 1914, by Dr. Pancoast, and revealed the presence of a moderate sized aneurysm of the abdominal aorta, or lower thoracic aorta. The *x*-ray plate is not defined enough to permit of reproduction.

There was in this woman's history nothing which might be considered an etiological factor in the production of an aneurysm (exertion, alcohol, syphilis). On closer questioning the patient stated that she had been in a railroad accident about a year and a half previously. The coach in which she was sitting went over an embankment, and she suffered severe injuries, fracture of left clavicle, fracture of left scapula, contusions of back, left side and leg, besides experiencing a serious nervous shock. This accident, with its resultant external violence without a doubt furnishes the most important etiological factor.

After having seen these cases of pain and tenderness in the left hypochrondrium, the records at the Philadelphia Hospital were searched for similar instances. Only one was found in which there was a sufficiently clear history with postmortem note. The other cases lacked autopsy control or the histories were too vague to be of any help.

Case IV.—Archibald MacDonald, 64, cooper. Med. C 656. Admitted Philadelphia Hospital (service Dr. Tyson), August 11, 1909. Died August 19, 1909. Chief complaint: Pain in left side of back and abdomen, radiating to left thigh. For the past eight months patient has been complaining of the above. Pain is continuous but becomes more intense at times and has been more intense for the past seven days. On examination a pulsation is present over the left side of the abdomen, being most marked at a point about midway between spine of the ileum on the left side, and the lowest rib of the same side. There is a slight amount of rigidity and palpation or percussion elicits pain. No mass can be felt. Impossible to lie on left side. In the left lumbar region patient is also tender. A diagram affixed to the history shows an area of pain and tenderness on the left side, between the ribs and the crest of the ileum. *X*-ray: "No characteristic shadow is visible."

Autopsy. (Dr. Wieder): The aorta when traced from the arch downward shows general dilatation of the lumen with thinning of the coats, in addition to a general fatty atheroma. Shortly after it pierces the diaphragm the continuity of the wall is broken for a space about 7 centimeters on the posterior aspect. The defect widens out in a very large thin-walled sac, which extends to the left of the median line all the way down to the brim of the pelvis. This is filled with a brownish organized blood clot. The bones of the 12th dorsal, and of the first and second lumbar vertebræ are extremely eroded. The lower portion of the abdominal aorta shows atheroma without calcification and no particular dilatations.

Pathological diagnosis: Ruptured saccular aneurysm of abdominal aorta. Fusiform dilatation of arch and thoracic aorta. Atheroma of aorta and of coronary arteries. Unfortunately the hospital notes are very incomplete and no record of course of illness during stay in hospital is given. Details concerning death are also lacking.

Osler (*loc. cit.*) quotes at length in his series of 16 cases the history of two patients, both of whom complained of pain in the left side of the abdomen. In Case III, the pain dated from 20 months previously when he had first a sharp stabbing pain in the left side. The pain had various qualities but radiated chiefly to the back and there was tenderness over the left side of the back and abdomen. In Case XVI the onset occurred six months previously with constant, dull, aching pain in the left flank. In both these cases, however, the diagnosis was facilitated by the finding of a large pulsating abdominal tumor.

According to Murray ("Reynolds' System of Medicine," 1879, Vol. V, p. 56) if the aneurysmal sac spring from the anterior aspect of the aorta, it will protrude in front, forming a considerable pulsating tumor, while if it spring from the posterior aspect, it will be bound down by fasciæ or other structures and protrude but little. These posterior aneurysms, although they pulsate and protrude but little, lead to serious results by pressing on important deep-seated parts. Nervous pains form the chief symptoms of aneurysm, and it is important that one should know the anatomical relation of anterior and posterior aneurysms to the nerves in which the pain is chiefly seated. An anterior aneurysm which springs from the anterior aspect of the aorta and protrudes forward, will compress the ganglia, plexuses, and branches of the abdominal sympathetic system, while a posterior aneurysm presses on the roots or branches of the spinal nerves as they issue from the intevertebral foramina. Hence it is that posterior aneurysms excite paroxysmal and radiating as well as continuous pains in the back and loins in a large number of cases; while anterior aneurysms excite pain in the epigastrium in a large number of cases, and pains in the loins with paroxysmal and radiating pains in but a small number of cases. In other words anterior aneurysms press on the sympathetic nerves of the abdomen, while posterior aneurysms press on the spinal nerves and their branches.

While posterior aneurysms frequently produce erosion of the vertebra, and anterior aneurysms produce erosion but rarely, no doubt relationship can be established between pain and erosion. Habershon and others have shown the truth of this statement, for cases are recorded in which there was pain of the most acute nature in the loins, and after death, the vertebræ were found to be free from erosion, and a painless illness has frequently been known to precede death when the vertebræ were found to be extensively destroyed.

In all three of my cases the aneurysmal dilatation was on the posterior wall of the vessel (absence of pulsating tumor character of pain). In Case I an autopsy was not performed so we are uncertain as to erosion of the vertebræ. In Case II, however, erosion was very marked. In Case III, now living, erosion is unlikely at the present writing (negative *x*-ray). Case IV exhibited a pulsating tumor with the characteristic left-sided pain and it is probable that there was dilatation of both the anterior and posterior walls.

The pain in the left side between the ribs and the crest of the ilium is described by the several patients as boring in character and may be continuous at times and at times intermittent. Case II describes her pain as involving the entire left flank, apparently radiating from a point in the mid-axillary line at the level of the umbilicus to the back. Case II had continuous pain, which some-

times moderated, but at times there were intense exacerbations of the same. A certain posture is assumed for relief. Case IV could not lie on left side, while Case II preferred this position. Case III is more comfortable when lying on the back or on the right side. In every case there was cessation from the pain at times.

Conclusion.—The diagnosis of abdominal aneurysm may be a matter of great difficulty. In the cases where the aneurysm springs from the anterior wall of the aorta, the diagnosis is materially facilitated by the finding of a pulsating tumor, but in dilatations of the posterior wall the customary signs of aneurysms fail. In all cases with obscure left-sided abdominal pain (with at times hyperesthesia over the painful area) for which no adequate cause can be found, and which fail to exhibit signs of abdominal disease, aneurysm of the abdominal aorta should be considered as a cause. A fluoroscopic examination with careful *x*-ray photographs is of valuable assistance in arriving at a correct diagnosis.

248 South Twenty-first Street.

THE COUNTRY PHYSICIAN AND CONGENITAL CLUB FOOT.*

By JOHN C. SCHAPPS, M.D., F.A.C.S.,

BUTTE, MONTANA.

The country doctor, master of emergencies, controller of conditions, is dismayed at the infant with the club foot. The foot, now cartilaginous, soft, plastic, will grow harder day by day. He is between the devil of an undertaking to which he feels he cannot do justice and the deep, cold sea of letting the days of opportunity slip neglected away. And it is not always in the early days only that the foot must be treated at home. A case must sometimes be carried through a long course of treatment to a successful finish or remain a perpetual discredit in the community. As a matter of fact, the cure, if commenced early and conducted according to a few simple working principles, is much easier than it looks. And it is my hope that in this brief and untechnical paper the physician will find something which will help him to meet this emergency with immediate confidence and ultimate satisfaction.

For brevity, I will deal with only that most common (and difficult) form of club-foot in which the toes point inward, the outer side of the foot is directed downward, and the heel is drawn up. The treatment naturally divides itself into three phases: the correction, the retention, and the release. The foot is not corrected until the deformity has been reversed and the foot remains or can easily be held

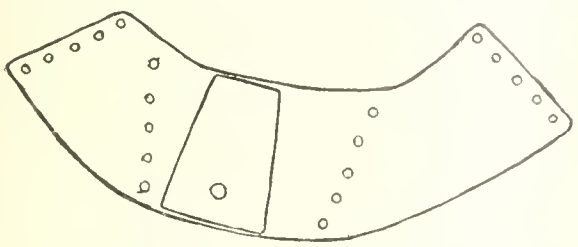

Fig. 1.—The author's club-foot holder.

so that the toes point upward and outward, the arch which was deeply concave has been obliterated or even replaced by a convexity, and, especially, the heel is well down. The soft young foot can be gradually but rapidly and painlessly bent into the desired shape by the Judson method which is described in most textbooks upon the subject by a

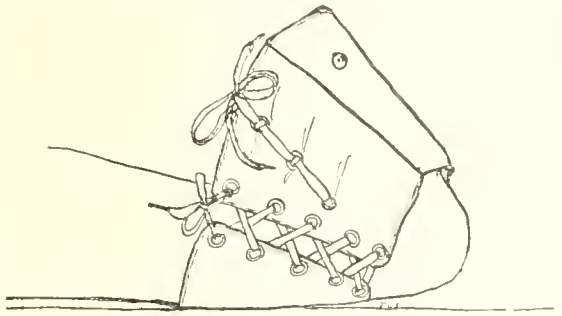

Fig. 2.—Club-foot holder applied.

series of plaster dressings or by some other means, the points being to well correct the lateral before beginning upon the anteroposterior deviation, to turn the feet quite out and up, to make the flexion at the ankle rather than at the middle of the foot, and to keep in close touch with the case. The correction is not difficult if made early, but the most thorough correction is useless if not followed by efficient retention.

The important central truth in both correction and retention is that a club-foot of this sort is not a foot which has been pressed out of shape by external force which ceases at birth, but a foot drawn out of shape by an internal process continuing and increasing after birth. The treatment is directed not against a deformty but against the tissue contraction of which the deformity is but the outward and visible sign. Failure to appreciate the distinction permits feet which seem beautifully corrected to relapse. The severity of a club-foot (for club feet, even those of the same child, differ greatly in severity) and the progress one is making in its treatment are estimated by the hand, not by the eye. The tendency to relapse is not overcome until the bones have acquired the necessary form and firmness to resist the deforming tension and the tension itself is relieved by the stretching of the shortened soft parts and the shortening of those that were stretched. The foot must be retained in the position of correction or in some safe modification of it until these structural changes have had time to take place.

Obviously, retention is the principal element in the treatment of a club-foot. All cases should be watched and most of them will require some degree of retention until the function of walking is well established. At this time a new element comes into the case and the efficiency of the preceding treatment will be severely tested. We have all probably been taught that the proximal is the fixed end of a muscle—that distal parts move upon proximal. This is true of the lower extremity in infancy when the foot is an appendage to the leg. But when the subject stands and walks, this action is reversed. The foot, especially the front portion, becomes the fixed part and the other parts of the body are adjusted to it by the muscles. Almost all the stresses of the body are transmitted to the feet. In walking, one foot and the heel of the other are raised and the whole body with perhaps a heavy burden is lifted and carried upon a few inches of forefoot. The strain upon this tiny base, the muscular force which acts from it, is enormous. At the time of

*Read at an annual meeting of the Montana State Medical Association held at Lewiston, Mont., July 9, 1914.

the performance of their physiological function, normal feet become markedly harder. The resistance which characterizes a club-foot if not overcome increases steadily from birth, but is at this time distinctly augmented. This impending change must be taken into consideration and forestalled by efficient retention from the beginning of treatment. While it is possible to produce a permanent overcorrection by retaining the foot too long, the danger of relapse from releasing it too soon is very much greater. The test is to leave the dressing off for an hour and then note the resistance of the foot to correction. If this is not increased, the experiment may be repeated and the time gradually extended. But whenever the unrestrained foot shows a new resistance to correction the retention must be renewed. A foot well flexed upon the leg can be held so with little force, but as it approaches the right angle position with the leg, the position of use, it is less under control, the deforming tension acts upon it at a mechanical advantage and at the time of use, this tension if it still persists, is increased. Body weight will not diminish the deformity. It will increase it. Feet which seemed super corrected usually walk themselves into excellent shape. For those which prove to have been inefficiently treated radical measures are now necessary and walking will have to be deferred until the feet have been prepared for it. It is not possible to correct very much a foot which is in use.

For both correction and retention, plaster of paris because of its peculiar softening effect is especially serviceable, and when removable apparatus seems inadequate to hold a foot, one has a comfortable feeling of having plaster to fall back upon. The plaster bandage is applied over several layers of sheet wadding bandage; and to turn the foot out, the knee is flexed and the plaster carried well up on the thigh.

The use of plaster means, however, complete immobilization; and, as exercise is advisable as soon as possible and as the foot must eventually assume the position of use, in a range of motion a few degrees each way from a right angle with the leg, some sort of removable appliance and one which will permit controlled motion is necessary. I have found this broad curved band of leather (Figs. 1 and 2) an efficient holder for cases which have been thoroughly corrected. When its ends are brought together, it forms a truncated cone to contain the lower part of the leg and the upturned foot, the heel being at the apex of the cone. The part in contact with the sole is stiffened by a sole plate of brass or sheet iron covered with leather and riveted on. The ends are laced together down the outside of the leg. The sides of the cone are drawn in by a lace passing in mattress-suture fashion through perforations in the leather and transversely across the top of the foot, between it and the leg. The perforations on the outer side are nearer the sole plate than those on the inner so that when the foot is pulled up by the tightening of the lace, the outer side is drawn up higher than the inner and the sole is tilted outward. A piece of felt under the lace protects the skin. Or a tongue may be attached just above the heel, pass forward under the foot between it and the sole plate, turn back over the toes and cover the top of the foot. This is desirable in walking cases. The variations possible with the front and side lacings allow quite a range of adjustment. For small feet I have the ends of the leather, instead of meeting at the side of the leg, overlap under the sole and to the width of the sole plate where they are sewed and the sole plate inserted in the pocket thus formed. This sort is not as adjustable as the other. Any shoemaker can cut the holder from a pattern made by the physician, and the cost is so trifling that several may be made if necessary to obtain a good fit. The foot, apparently cured, should be released experimentally and watchfully, and it is well to use a holder at night to maintain flexion beyond a right angle for several months after the treatment has been otherwise discontinued.

In some cases of club-foot the heel cord is so resistant that the dorsal flexion takes place at the middle of the foot instead of at the ankle and the foot is liable to be flat. This tendency must be watched for early in the case and can generally be prevented by making the flexing pressure at the middle of the sole instead of at the ball of the foot. Most club-feet which are flat when the child begins to walk will arch up after a while, some will require an arched sole plate, and a few will need section of the heel cord. This should not be performed until the foot has had time to correct its own flatness.

OWSLEY BLOCK.

Medicolegal Notes.

Proof of Medical Services Rendered to a Decedent—Books of Account.—In an action for medical services rendered to a deceased person against his estate, it was held that testimony of the plaintiff as to personal transactions with the deceased was prohibited by the New York Code of Civil Procedure, section 829, as to the competency of witnesses. The plaintiff's account books were also held to be inadmissible, in the absence of independent evidence, showing the course of dealing between the parties and the rendering of some service by the plaintiff to the deceased. The plaintiff's inability to produce competent proof was held to be no ground for sustaining a judgment on insufficient and incompetent evidence.—Titus vs. Spencer, New York Appellate Division, 145 N. Y. Supp., 40.

Liability of Local Authorities for Medical Services.—Indiana Burns' Ann. St. 1908, §9741 *et seq.*, providing for the support of the poor, and requiring the overseer of the poor in each township to care for all poor persons, and in cases of necessity to promptly provide medical attendance for the poor not provided for in public institutions, etc., repeals former laws on the subject, and a township is liable for medical attendance rendered a poor person in an emergency without opportunity to communicate with the overseer. A surgeon rendering services under an emergency demanding immediate medical attention is entitled to recover the reasonable value thereof.—Newcomer vs. Jefferson Tp., Indiana Supreme Court, 103 N. E., 843.

Hospitals' Liability for Negligence.—The rule adopted by the Texas courts as to the liability of hospitals, organized to minister to all persons of all creeds, for the negligence of physicians, nurses, and servants, who are said not to be agents of the institution, is that such hospitals are liable only when it appears from all the facts and circumstances that the institutions failed to exercise ordinary care in the selection and retention of such employees. In the application of the rule it is immaterial whether the patient upon whom the injury was inflicted be a beneficiary of the charity of the institution or one who is paying full consideration for his or her care and nursing. In a suit against such a hospital for injuries sustained by the plaintiff's wife, who, after an operation, was placed in a bed in which there was a water bottle so hot that it severely burned her, it was held that the selection of an inexperienced person, whose usual duty was to wash dishes and run errands, to perform the task was sufficient to sustain a finding of the jury that the hospital had not exercised ordinary care in the selection of its servants.—St. Paul's Sanitarium v. Williamson, Texas Civil Appeals, 164 S. W. 36.

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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New York, October 3, 1914.

PATHOLOGY AND DIAGNOSIS OF PYLEPHLEBITIS.

SEPTIC thrombosis of the portal vein occurs more frequently than is generally recognized. For this reason considerable importance must be attached to the clinical and laboratory study of this subject by H. Schottmüller (*Beiträge zur Klinik der Infektionskrankheiten und zur Immunitätsforschung*, Vol. 3, Nos. 1 and 2). Of course, in tropical countries dysentery is the most prominent cause of portal phlebitis, but in temperate climates the outstanding cause is appendicitis. Less common factors are inflammatory processes in the region of the rectum, abscesses in the spleen with thrombophlebitis of the splenic vein, disease of the biliary passages, and inflammatory processes in the liver with infection of a branch of the portal vein, as may occur with echinococcus.

In a case of appendicitis the indications for speedy operation are usually the danger of peritonitis or of a perityphlitic abscess. Rarely is the menace of a pylephlebitis thought of, although this menace is a real one. A case reported by the author strikingly illustrates this sequence. A nineteen-year-old girl was admitted to the surgical division of the Eppendorfer Krankenhaus with the diagnosis of appendicitis. The following day there was no longer any pain or tenderness in the appendix region and operation was accordingly deferred. But the next day there was a chill and one or more chills were repeated daily thereafter. The possibility of a pyelitis was then thought of. On the fourteenth day of the disease the patient appeared quite ill and presented a slight jaundice, chiefly of the conjunctiva. The sensorium was clear, the heart and lungs were apparently normal, and the abdomen showed nothing of moment except a slight distention, a slight enlargement and tenderness of the liver, and a moderate swelling of the spleen. The leucocyte count was 13,000 and the urine presented no evidence of pyelitis. On account of the wide daily excursions of the temperature and the above findings, the diagnosis was made either of a pylephlebitis or of a cholangitis. But the slight degree of icterus and the history of a recent appendicitis narrowed the diagnosis to that of pylephlebitis. In the fourth week of the disease the temperature was of a more continuous type and there was only one chill. The leucocytes numbered from 20,000 to 70,000 and the polymorphonuclear cells were relatively greatly increased. On the eighteenth day of the disease there appeared peculiar cutaneous changes, particularly in parts of the body exposed to pressure. These changes consisted in the appearance of tender edematous swellings, the size of a walnut, and with a dark red center. Gradually the skin in the affected areas presented a blush-red color, and there were the appearances of a subcutaneous necrosis. After the third week there was a clouding of consciousness which deepened into coma, and death occurred at the end of the fourth week. Bacteriological examination of the blood at different times during the illness showed the presence of Gram-positive bacilli resembling the E. Fraenkel gas bacillus, and fine Gram-negative rods, more delicate than colon bacilli; and at one time there was present the *Streptococcus putridus*. At autopsy there were revealed necrotic foci in the appendix vermiformis, widening and suppuration of the mesenteric veins in the region of the cecum, and widespread thrombosis and suppuration throughout the portal venous system.

The outstanding feature in this case was the occurrence of symptoms of portal phlebitis at almost the very outset of an attack of appendicitis. A second case is reported, however, in a man aged fifty years in whom an appendicitis was entirely masked by the symptoms of an acute gastroenteritis. The appearance of the patient suggested typhoid fever, but a septic temperature, a slight icterus of the conjunctiva, a marked swelling of the left lobe of the liver, and the results of a blood culture which showed the presence of numerous anaerobic bacilli together with colon bacilli, pointed to a portal phlebitis. This diagnosis was confirmed at autopsy.

In addition to the remittent temperature curve the bacteriological findings furnish the most important diagnostic criterion in this condition. Characteristic are the growth in the blood of anaerobic organisms, and the evidences of a mixed infection. The necrotic changes in the skin without the occurrence of suppuration are regarded as quite typical of the presence of anaerobic bacteria.

Schottmüller believes that some cases of septic thrombosis of the portal vein undergo a spontaneous recovery, analogous to the cases of puerperal thrombophlebitis. He also believes that many cases reported in the literature as instances of syphilis of the liver, in which a prolonged intermittent temperature and an enlarged liver had been present, really belonged to the category of pylephlebitis.

BULLET WOUNDS IN WAR.

THE medical and surgical experience gained by the British in the South African war of 1902 cannot fail to be of value in the present campaign. This experience was particularly rich in the treatment of the different types of bullet wounds. W. G. Tottenham Posnett, who had the opportunity of treating 1,000 cases of bullet wounds during the Boer War and the subsequent Zululand rebellion, is entitled to speak with authority on this subject. In the *Lancet*, September 5, 1914, he states that

the bullets at present in use are more pointed than those used in South Africa and have a considerably lower trajectory. It remains to be seen whether this will inflict a wound different from that seen during the Anglo-Boer campaign. The modern rifle bullet has great penetrating power at the middle distance, from 300 to 900 yards range, and wounds, even where bones are implicated, received at this distance are of a more penetrative character than those received at a closer or longer range. The smashing power of a bullet up to 300 yards is considerable, producing great comminution of bone. At 900 yards or over the smashing power of the bullet is again considerable, inflicting bone injuries of the most serious magnitude. The high velocity nickel-covered bullet is more or less aseptic. As a rule, the wounds of soft tissues are not of a serious nature, but if in its flight a bullet happens to hit a hard object and ricochets, the wound inflicted may be a large lacerated one. When a bullet strikes a bone in its course through the body or limb, if the wound be received at the middle distance, the bullet may pass clean through the bone without doing any serious damage, but if the wound be received at close range or over 900 yards, bones struck are shattered as a rule into many fragments and yet the exit wound may be of the same size as that of entrance.

A clean wound of the abdominal viscera in most cases heals rapidly and requires very little treatment; multiple abdominal wounds may demand operation but are best treated expectantly for a few days until symptoms of local trouble arise. There is often great initial shock when a bullet wound is received, particularly if the soldier goes into battle in a hungry condition and is more or less tired by marching. On the other hand, an empty stomach is frequently the salvation of a soldier who has been shot in the abdomen; a wound of the stomach or intestines seems to close rapidly without any trouble, provided there has not been any leakage of gastric or intestinal contents. If leakage does take place a localized peritonitis demanding laparotomy may be expected. Wounds of the bladder usually require a suprapubic cystotomy. Wounds of the soft parts are usually accompanied by local shock. The great velocity of the bullet shakes up the tissues for a considerable distance around the wound; there results a feeling of stiffness in the part for several days and there may be more or less neuralgic pain in the vicinity of the wound for a considerable time. Tissues in this condition are not favorable for operative attack. Posnett believes it is better, if possible, to wait a few days for the local shock to pass off before attempting operation.

CAUSES OF SUDDEN DEATH IN THE WATER.

None of the reasons heretofore adduced to explain sudden death in swimmers is completely satisfactory. One of these has never received the attention which it merits. In 1881 von Troltsch asserted that in a number of such accidents death was due to vestibular irritation as a result of the penetration of cold water into the ear. To offset this view, however, is the common observation that children with large perforations of the drum head swim and dive with impunity, and this despite the fact that otitis from bathing is by no means rare, and that old otitides are lighted up by the same exposure.

At a meeting of the Berlin Otological Society held last spring (*Berliner klinische Wochenschrift*, August 10), Güttich revived the view that sudden death can follow vestibular irritation in swimmers with perforated ear drums. In those under water caloric mystagmus is set up, and this is followed by Bárány's muscle reaction which renders the patient helpless—he can neither swim nor reach the surface. He makes motions, but there is complete loss of orientation. A second rotary reaction now occurs, the swimmer turning on his own axis. If these reactions are for any reason in abeyance, the patient may still suffer fatal collapse accompanied by vomiting.

While this accident menaces chiefly those with perforated ear drums, it could readily, in divers, follow an acute traumatic perforation in the water and perhaps occur exceptionally with intact drum head. Sudden helplessness in the water is better explained as a vestibular phenomenon than by the view of total or subtotal tonic cramps, affecting the respiratory muscles. However, if the patient first becomes helpless when his head is above water the vestibular explanation will hardly answer.

Dental Alopecia.

Owing to the common embryonal origin of the cutaneous appendages and the teeth, it does not surprise us to find them involved together in congenital malformations. The dentition may be defective in congenital absence of hair, and when the latter is very redundant, as in certain cases of familial hypertrichosis (dogfaced men), there may be very notable dental defects suggesting compensation. Attention has often been called to the coincidence of early baldness and early caries, and some years ago an attempt was made to isolate a distinct affection of the two systems under the name of Jacquet's disease. At a discussion last June on hair anomalies before the biological section of the Aerztlicher Verein of Hamburg (*Münchener medizinische Wochenschrift*, July 28) the condition "alopécie dentaire" was mentioned by two of the members. Plaut as a result of his own experience was inclined to hold the teeth responsible for the production of certain cases of alopecia areata. Very convincing was the fact that when springs were worn to correct the position of the teeth, baldness in spots often appeared, the hair growing in after the removal of the spring.

Postpartum Hemorrhage and Puerperal Infection.

The relationship between the acute anemia which follows postpartum hemorrhage and child bed fever seems never to have received due consideration. In the large maternities the incidence of both conditions has been greatly diminished. When hemorrhage does occur, as from retained placenta, manual extraction possesses possibilities of infection which do not depend on the blood loss. At the

annual meeting of the Medical Section of the Schlesische Gesellschaft für vaterlandische Cultur, Breslau (*Berliner klinische Wochenschrift*, August 3), Bondy made a statistical report on this important subject. In a series of 9,000 labors he found 120 cases in which the loss of blood exceeded 1,000 c.c. Of this number 24, or one-fifth, were associated with manual detachment of the placenta, and there were 10 cases of the latter uncomplicated by hemorrhage. An important distinction exists between spontaneous and assisted labor. In the former losses of blood even up to 1,200 c.c. were associated with but a slight increase of morbidity, but in losses beyond this limit a considerable increase resulted. Morbidity in instrumental delivery was notably higher than in spontaneous labor, first in losses up to 1,200 c.c., and second, proportionally, in greater losses. Manual detachment with great loss of blood causes a higher morbidity than the same with smaller losses. In general, notable blood loss is an indirect factor in puerperal morbidity.

News of the Week.

Postponed on Account of the War.—The International Congress of Hygiene, which was to have met in Philadelphia the last week in September was not held, as the European delegates were unable to attend. The meeting of the American Open Air Association which was to have taken place at the same time was also postponed.

Pellagra a Notifiable Disease.—The Greenville, S. C., Board of Health has added malaria and pellagra to the list of diseases all cases of which must be reported by the attending physician.

American Public Health Association.—The forty-second annual meeting of this Association will be held in Jacksonville, Fla., on November 30 to December 5, 1914.

The Southern Health Exhibition will be held in Jacksonville, Florida, November 27th, to December 6th, 1914, in connection with the Forty-Second Annual Meeting of the American Public Health Association. At this exhibition will be attractively shown material covering a wide range of subjects pertaining to health conservation which will appeal, not only to the sanitarians, but to the public at large. The exhibits will comprise the work of State and municipal boards of health and of private and semi-public organizations throughout the entire South, as well as the work of the United States Public Health Service. Almost every phase of health conservation work will be covered, such as rural sanitation, typhoid, hookworm, tuberculosis, pellagra, malaria, school construction and medical inspection, infant and child hygiene, midwifery, vital statistics, milk and water supply, food and drug inspection, habit-forming drugs, insect carriage of disease, fly eradication, plague prevention and rat extermination, and laboratory work, together with modern sanitary apparatus of every description.

Faculty Changes at Syracuse.—Dr. Oliver W. H. Mitchell, formerly of the University of Missouri, has been appointed professor of bacteriology at the College of Medicine of Syracuse University, and Mr. Ralph R. Simmons has been made his assistant. Dr. Edward D. Clark has been made assistant to Dr. F. M. Mead, assistant professor of preventive medicine, and Dr. Howard L. Van Winkle has been appointed instructor in this department. Several men have been added to the teaching force in the new dispensary, opened last June, and instructions will be given by them to seniors and juniors in the various departments.

The Health of New York.—The death rate in New York City for the first thirty-eight weeks of this year was 13.94 per 1000 as compared with a rate of 14.20 for the corresponding period of 1913. The mortality for the last quarter of the year, as a rule, is considerably lower than that of the other quarters, and the probabilities are strongly in favor of a death rate for the year considerably below 14 per 1,000.

American Doctors to Paris.—Seven physicians sailed from New York on Saturday for service on the staff of the American Ambulance Hospital in Paris, at the head of which is Dr. Joseph A. Blake of this city. They were Drs. Richard Derby, J. P. Hoguet, A. H. Dugdale, Mercer Blancard, Corry, Benjamin Joblons, and Lester Rogers.

Southwestern Iowa Medical Association.—The annual meeting of this society was held in Corning on September 10. The following officers were elected: *President*, Dr. J. F. Herrick of Ottumwa; *Vice-President*, Dr. George Mogridge of Glenwood; *Secretary and Treasurer*, Dr. Enos Mitchell of Weldon. The next meeting will be held in Glenwood.

The American Roentgen Ray Society.—At the fifteenth annual meeting of this society, held in Cleveland, Ohio, during the second week in September, the following officers were elected: *President*, Dr. Alfred L. Gray of Richmond, Va.; *Vice-Presidents*, Drs. A. Howard Pine of Montreal and D. R. Bowen of Philadelphia; *Secretary*, Dr. W. F. Manger of Philadelphia; *Treasurer*, Dr. Leonard Reu of Buffalo; *Chairman of the Executive Committee*, Dr. George C. Johnston of Pittsburgh.

Trichiniasis.—The Health Commissioner of New York calls attention to the alleged increased prevalence of trichiniasis in the city. A number of cases have been reported to the department during the past month. While the disease is not one of those the notification of which is required by the sanitary code, the department will welcome further voluntary reports of cases.

Personal.—Dr. S. Adolphus Knopf of this city has been commissioned first lieutenant Medical Reserve Corps, U. S. Army.

Dr. Laura Hunt has been elected professor of otology in the Woman's Medical College of Pennsylvania in succession to the late Dr. Emma Musson.

Dr. Edward Livingston Hunt of this city has removed to 41 East Sixty-third street.

Dr. Thomas H. A. Stiles of Scranton, Pa., has been appointed by State Commissioner of Health Dr. Samuel G. Dixon medical director of the new sanatorium for tuberculosis at Hamburg, Pa.

Dr. Arthur A. Stevens has been appointed visiting physician to the Philadelphia General Hospital in succession to Dr. Augustus A. Eshner, resigned.

Roof-Garden for Hospital.—The new roof-garden for the Allentown (Pa.) Hospital was opened on September 23. It will accommodate 20 patients, and it is intended for those suffering from pulmonary tuberculosis, pneumonia, and typhoid fever.

Charitable Bequest.—By the will of the late Francis Heyl of Philadelphia the sum of $500 is bequeathed to the Pennsylvania Hospital for the Insane.

Adenoids and Tonsil Operations at Children's Clinics.—The Department of Health maintains

four clinics for the operative treatment of adenoids and enlarged tonsils in school children whose parents are unable to afford the service of a private physician. Operations are all done now under anesthesia, and the children are kept at the clinics until the following day. Heretofore the operations were done only three days a week, but the large number of patients applying for treatment has necessitated daily operations. During the week ending September 5, 1914, 137 nose and throat operations were performed at this children's clinic. The average number of operations performed for the three weeks preceding the inauguration of daily operations was 77.

The American Association for Study and Prevention of Infant Mortality.—The fifth annual meeting of this association will be held in Boston, November 12-14, under the presidency of Dr. J. Whitridge Williams of Baltimore. The program will include sessions arranged by the committees on nursing and social work, pediatrics, vital and social statistics, obstetrics, and public school education. The subjects to be discussed will include: "Prenatal Care," "The Need for Increased and Improved Maternity Hospital Service," "Institutional Mortality," and "Continuation Schools of Home-Making." The session on nursing and social work and the joint session on pediatrics and vital social statistics will be held at the Harvard Medical School. All other sessions will be held at the Copley Plaza Hotel. Special clinics will be held on the opening day of the meeting at the Harvard Medical School and elsewhere, the exact time and place to be announced later. An exhibit will be held in connection with the meeting. The chairman of the committee on local arrangements is Dr. Hugh Cabot, 87 Marlborough street, Boston, Mass. Further information or circulars in regard to the work of the association can be secured from the executive secretary, Gertrude B. Knipp, 1211 Cathedral street, Baltimore, Md.

Obituary Notes.—Dr. JOHN MCGRAW WOODBURY of this city died at his country home, Southampton, L. I., of pernicious anemia on September 24. He was born in this city in 1856 and was graduated from the Bellevue Hospital Medical College in 1881. He served as surgeon with rank of major on the staff of Gen. James H. Wilson in the Spanish-American War and was appointed Medical Director General of Ponce, Porto Rico, when that island came under United States control. His successful work there showed him to be possessed of much sanitary skill and administrative interest and led to his appointment as street cleaning commissioner of New York City by Mayor Low in 1902. He was reappointed by Mayor McClellan, but resigned later when he was directed to remove a competent subordinate to open the way to a political appointment.

Dr. JAMES B. WARE died at Bridgeton, N. J., on September 8 at the age of 83 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1854.

Dr. JOSEPH H. LOPEZ died at Philadelphia on September 15 at the age of 69 years. He was graduated from Jefferson Medical College in the class of 1876. He was medical director and trustee of the Charity Hospital.

Dr. JOHN LANSON ADAMS of New York was killed by a fall from a window of his residence on September 25. We was born in Westport, Conn., August 9, 1860, and was a graduate of the College of Physicians and Surgeons in this city in 1886. He was attending surgeon at the New York Eye and Ear Infirmary, consulting ophthalmologist to the Lying-In Hospital and the Manhattan State Hospital, and director of the West Side German Dispensary and of St. Bartholomew's Clinic. He was president of the New York Clinical School of Medicine.

Dr. ARCHIBALD T. DAVISON died at his home in Cambridge, Mass., on September 19, after a long illness, in his 88th year. He was born in Nova Scotia and was a graduate of the Harvard Medical School in the class of 1871. He practised for many years in South Boston and afterward in Dorchester.

Dr. JAMES KOSSUTH KING, 64 years old, died at his home at Glen Springs, Watkins, N. Y., on September 20. He was born in Troy, N. Y., and was graduated from the College of Physicians and Surgeons in this city in 1877. Upon returning to this country after a long course of study abroad, he practised at the Clifton Springs Sanatorium until 1890, when he became one of the founders of the Glen Springs Sanatorium, of which he was the medical director for twenty years.

Dr. MORRIS LONGSTRETH, late of Cambridge, Mass., and formerly of Philadelphia, died at Barcelona, Spain, on September 19 at the age of 68 years. He was graduated from Jefferson Medical College of Philadelphia in the class of 1869, and he was later professor of pathology in that institution. He was also at one time physician to the Pennsylvania Hospital and coroner's physician for the city of Philadelphia. He was a member of the Medical Society of the State of Pennsylvania and a fellow of the American Medical Association. He was a non-resident fellow of the College of Physicians of Philadelphia and a member of the Pathological Society of Philadelphia and of the Association of American Physicians.

Dr. MAHLON H. BEARY died at Allentown, Pa., on September 18 at the age of 74 years. He was graduated from the College of Physicians and Surgeons of Keokuk, Iowa, in the class of 1880. He was a veteran of the Civil War, having served with the 128th Pennsylvania Volunteers.

Correspondence.

PARIS IN WAR TIME.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Among all the months of the year in Paris September is the most beautiful; the actual summer heat is gone, there is a bracing freshness in the air at early morn, and yet the city's great wealth of trees, grass, and flowers is still at its height. Truly it is lovely here just now, and you can safely take my word for the above statement—this is my thirtieth month of September in Paris!

And yet—there are certain features about the town this autumn that are not as they usually are. Have you ever arrived absurdly early at the opera, when the iron curtain was still lowered, the orchestra empty of its musicians, and not more than fifty spectators were scattered about the house? That is the way Paris looks now; the beautiful *cadre* is all here, but the "filling-up" is almost entirely lacking; and those of us who know what the opera-house looks like in the midst of a gala performance are overcome with a sadness unspeakable as we shudder at the thought of this criminal.

this monstrous war that is going on even within our faint hearing, and that forms such a revolting contrast to all the loveliness and quiet spread out before our eyes.

The point that first strikes you now in Paris is the emptiness of the streets; vehicular traffic is nearly entirely gone, and pedestrians are not many. All that crush of noisy motor omnibuses—vanished to the war; the endless taxis standing in sheds for lack of drivers; an occasional tram comes along, filled to overflowing, run by a man too old to serve, and conductored by a woman, wife of an employee with the army; and the city pedestrian, who usually hugs his sidewalk and refuge with an ever cautious eye, has now become as careless as his worst country cousin, and saunters heedlessly along in the middle of the street, buried in his newspaper, just as though such a thing as a reckless taxi driver had never existed.

The military note predominates, naturally; men in uniform on every side, and quantities of others with *brassards* on their arm, to indicate to which public service they belong. A man of military age without some distinguishing mark of this sort is liable to be stopped and have his papers called for. We foreigners have all to go about with a police document authorizing our residence in the *Camp retranché de Paris*. The British Tommy lends a strange note to the streets. Serious, clean-shaven, and with neat and serviceable khaki uniform, he certainly is well worth a look; the French soldier may be remarkable in many ways, but I need not tell most of you what he looks like! Profiting by the absence of other traffic the motors on military errands fly along at a pace that must make the Prefect shudder; the ordinary sergeant-de-ville doesn't even see them; he is far too busy discussing the latest rumor with some pal in uniform to bother about such little details as that.

Another feature that makes itself strangely felt about life in Paris just now is the unwonted, almost uncanny silence of the town during the day—not to speak of the night. In place of the never ceasing, muffled roar that has become so intolerable of late years since the introduction of the explosion-propelled vehicle, there has settled down on us the calm of a small, provincial, bourgeois chef-lieu-de-canton. A man in one of the papers summed the situation up very neatly in a few words: "Why," wrote he, "you can actually hear the church bells ring now, something I haven't experienced for years." Another one affirmed that he had heard roosters crow at dawn; but he was evidently carried away by his enthusiasm. This silence has been further intensified by a recent regulation putting a stop to the crying out by newsboys of the special editions of the papers—a very wise measure, as it served no purpose save to unnerve and exasperate the public, who wasted much money and received no news.

For a few days last week we had a ripple of excitement, and quite a noise, owing to the visit of German aeroplanes over the city and the promiscuous firing at them that went on from the various military posts. These airmen appeared several days in succession, dropped bombs indiscriminately among the civilian population, and then returned. These exploits—a particularly dastardly performance, as the airmen were in perfect safety, while their total victims were two elderly women—have now stopped. It was mere cowardly bravado, as such reconnaissances could have no possible military value.

But if the aspect of town by day is surprising, the look it assumes by night is positively extraordinary. Paris is essentially a *ville de nuit*, and I need hardly remind any one familiar with the city of the dazzling lights and unceasing movement on the boulevards and other frequented parts of town at night. But what do we see at present? Whole sections of the capital have no street lamps alight at all; thus the Avenue du Bois in its entire length, together with the streets running from it on either side, is left in absolute darkness at night. Even in the center of town, the rue de la Paix, Place Vendôme and rue Castiglione are practically dark. Other main thoroughfares, such as the Avenue de l'Opera, have a row of lights burning down the central line, but nothing on the sidewalks. All the gay electric advertisements are gone. All of the tables and chairs out on the sidewalks in front of the cafés are taken in by 8.30 P. M. and the establishments closed to all intents and purposes; just try to picture to yourself, O cosmopolitan *fêtard*, the café de la Paix, familiarly known as the center of the Universe, closed at 8.30 P. M.! You might as well be in a Maine prohibition village with a Moody and Sankey revival going on. All of one's favorite little restaurants around the corner—closed! I tried several in succession the other evening, with unbroken unsuccess, and finally had to fall back on a common Brasserie on the Boulevards. The Opera and all the theaters closed also—naturally. Along the almost silent thoroughfares moves an orderly, serious stream of people, many of them undoubtedly, like ourselves, there to see how the town looks under these impressive circumstances; while over the center of the way rush the dust-covered military motors containing French and English staff officers from the fighting line, now only a few miles from Paris—for the Germans have come as close as Chantilly, to the North, and this side of Lagny to the East—too near for comfort. Overhead flash and cross each other the unceasing searchlights that move slowly and inquiringly over their prescribed sectors—though just what they propose to accomplish is beyond my intellectual horizon; what Zeppelin would want to come to Paris at night, and if it chose to, what would the searchlight do about it! But in spite of entire quarters of town being steeped in utter darkness, the criminality of Paris is reduced to a remarkable minimum; a large portion of that amiable Parisian product, the *Apache-soutcneur*, is undoubtedly under arms, and the rest find the profession rather risky for the moment. Paris, being under military law, anyone caught in crime would have but very scanty shrift.

Life is particularly monotonous just now. The French government's policy is to tell the people nothing—it saves trouble. We are treated like babes-in-arms. Were it not for the London papers that manage to get through with unaccountable delays, we should know absolutely nothing. The fact is, we have become mere readers of newspapers; it is an actual impossibility to settle down to any kind of connected or serious reading. One peruses the first morning papers, and then starts out to see what others are to be bought, until such a time as the afternoon sheets begin to come out. Each one will contain a morsel or two, letters from men at the front in particular; and by putting all these fragments together we try and imagine what is taking place. About the only authoritative account of events we have is the weekly military summary in the *London Times*.

Material existence is tolerable. Prices have not risen much, and the greater part of the ordinary commodities are to be obtained. Gas is limited; coal and wood can be bought, but delivery is very slow, hardly under a week; salt, canned milk, dried vegetables and fruit were all exhausted recently. If this is the case already, in midsummer, and the war only begun, what will it be later on, in winter, and with the possibility of investment! The military governor has been taking a census of the people remaining after the huge emptying of the town that took place two weeks ago when the German initial rush was at its maximum, and we are still a good two millions; this census was for the purpose of establishing our ration-cards, and to the declaration papers of each family was affixed the signature of the party that was to draw the daily allowance from the authorities. This gave me a chill down the spine, as I had visions of horse-flesh and black bread; fortunately I had laid in a large provision of Spratt's biscuit for my dog, and I am assured that they are not half bad eating for human beings, when other articles of diet run short! An elderly lady who went through the siege of 1870 tells me that during the last few days of that period she practically lived off of cod liver oil! Curiously enough, during that war I was a boy at school in Germany on the Rhine, and I recollect perfectly visiting the large camp of French prisoners near Coblentz, and seeing others pass through Bonn by the trainload. C. K. Austin, M.D.

Paris, September 15, 1914.

OUR BERLIN LETTER.

(From Our Regular Correspondent.)

X-RAY TREATMENT OF CANCER—SUPERIORITY OVER TREATMENT BY MEANS OF RADIOACTIVE CHEMICALS—GREATER PENETRABILITY OF THE X-RAYS AND LESS HARMFUL EFFECTS ON THE TISSUES—TECHNIQUE OF X-RADIATION AND EFFICACY IN UTERINE AND IN MAMMARY CANCER—FAILURE IN OVARIAN CARCINOMA—GERMAN CENTRAL ANTITUBERCULOSIS COMMITTEE—PREVENTION OF INFANTILE TUBERCULOSIS—MUNICIPAL HOUSE INSPECTION IN THE CAMPAIGN AGAINST TUBERCULOSIS—AFTER-CARE OF PATIENTS DISCHARGED FROM TUBERCULOSIS SANATORIA—THE BERLIN HOME FOR CRIPPLES.

Berlin, August 15, 1914.

The cure of deep-seated carcinoma by means of *x*-ray applications to the surface of the body was the subject of one of the most important papers read during the past summer. This subject was presented before the Hufeland Society by Bumm and Warnekros. According to their experience the penetrating power of radioactive substances extends only to the depth of two to three centimeters. If a superficial cancer is treated by means of these substances it may be eradicated, but its metastases are not affected. The results in this respect are the same even if larger doses of the radioactive substances are used or if their action is prolonged. On the other hand the bad effects of this exposure in the production of suppuration and necrosis are thereby increased. In contradistinction to the above substances the *x*-ray tubes may be made to exert their influence upon greater depths and their harmful effects may be more easily avoided. Of the many experiments performed by the authors the following may be mentioned: In the vaginal fornix of carcinomatous women there were placed the sensitive strips of the Kienböck apparatus, and these were subjected to radiation from the outside of the abdomen. The strips turned brown in ten minutes, whereas they did not change when subjected to the action of 200 milligrams of mesothorium that had been placed on the abdomen. Only at the end of eleven hours was a slight change perceived in the strips, while the skin of the abdomen later presented a burn of the second degree. Besides, the measurements made by a series of electrical and chemical apparatuses showed unmistakably the great superiority of the *x*-ray tubes over the radioactive substances. It has been maintained that between the *x*-rays and the radioactive substances there is this important difference: the *x*-rays have a greater penetrability and have a greater elective affinity for the carcinoma cells. These opinions have not been substantiated. In fact, the clinical experience of the authors has shown that in the treatment of cancer only those rays are effective that actually reach the growth. Whereas in the case of superficial carcinoma 3-500 X doses of the *x*-rays are necessary for the eradication of the growth, the same dose is necessary if the growth is a deep-seated one. The same is true if the growth is up to ten centimeters deep. Since at this depth one-seventh of the superficial rays are effective, there must be employed rays having a seventeenfold strength; in other words, a strength of 3-500 X radiations. This is possible only with tubes having very hard rays, that are held at a considerable distance from the skin, and that are moved so as to emit the rays from different positions. The authors reported a series of cases of cancer of the uterus that as a whole were most favorably influenced by the *x*-rays. An example of these cases was the following: In a woman, aged 41 years, the portio vaginalis was surrounded by an everted growing carcinoma the size of a small saucer. During a period of thirty days the patient received on fourteen different cutaneous areas twenty exposures to the *x*-rays. In the course of this treatment the cervix returned to its normal form and the hemorrhage and discharge ceased.

In addition, fourteen cases of mammary carcinoma were treated by means of the *x*-rays. In twelve of these cases there were extensive inoperable growths with glandular involvement. With the exception of one case, a cure was effected even to the extent of the disappearance of the glandular metastases and the infiltrations. In one case there resulted from the irradiation a dissemination of cancerous nodules upon the integument, and the patient succumbed. A most extraordinarily good result was obtained by the authors in a case of extensive cancer of the left lung. Complete cure was obtained in this instance in six weeks. An *x*-ray picture showed a disappearance of the previously obtained shadow.

This method has as yet failed in the case of ovarian carcinoma, inasmuch as in this instance the growth attains a very great size and gives rise to early metastatic formation. The sole harmful effect in this method of radiation has been the irritation of the skin and the blistering, which disappears in three or four weeks and does not lead to deep necroses.

The meeting recently held of the German Central Antituberculosis Committee was the occasion for the presentation of a number of interesting papers. The first of these was the prophylaxis of infantile tuberculosis. The symposium was opened by Langstein, of Berlin, who stated that infants in

the first and second years are subjected to the danger of tuberculosis to an extent eight or nine times as much as adults. The best preventive is the removal of the child from the tuberculous milieu. This is, of course, but seldom possible. It has been shown by extensive investigation that children of tuberculous parents that have received institutional care, and that, therefore, live according to hygienic rules, are less apt to become tuberculous than children of tuberculous parents that have not had the advantage of such care. Measures designed to increase the child's resistance to tuberculous infection, such as the administration of antibodies through the mother's milk, have not been sufficiently tested. The best remedy as yet available is early isolation and the instruction of the parents.

That municipal home inspection can accomplish a good deal in the fight against tuberculosis was the keynote of a paper read by Seydel and Goldstein, of Charlottenburg. It was shown that the homes of consumptives are more densely crowded than those of other people. The more the disease has progressed the greater the overcrowding becomes, inasmuch as the diminished family income necessitates the taking in of boarders. The efficiency of municipal tenement house departments would, therefore, consist in the discovery and the prevention of such conditions. Home-nursing could be improved by the periodical visits of trained nurses, who would instruct the mistress of the home and who would provide for the care of the children. The cooperation of such home supervision and tuberculosis institutions can be readily brought about.

The committee meeting of the German Central Committee followed the general meeting. The new secretary read the annual report in which he stated that there are now in Germany 158 sanatoria for adults, with 15,877 beds, 32 sanatoria for children, and 23 sanatoria for cases of patients with bone and joint tuberculosis. The most important theme that came up for discussion was the after-care of patients discharged from sanatoria. Roepke stated that this care should depend upon the condition of the discharged patient and upon the results of the treatment which he has received. A change in occupation is necessary only when the previous occupation has favored the development of tuberculosis. However, it has not been proved that the good effects produced in any individual by sanatorium treatment are compromised by the later effects of occupation and milieu. Special supervision is required in the case of the female sex. Young girls who have been clinically cured should not enter into matrimony for at least two years. In the case of married women conception should be advised against for the same period. There are many valid reasons for the artificial interruption of pregnancy in this class of patients. That everyone who has had the benefit of sanatorium treatment should be excused from military service would be, on account of the hygienic value of military service, a mistake. The proposal to send the consumptives to the German colonies in Africa cannot be entertained. However, there is a great deal in favor of the recommendation that the patients discharged from sanatoria should be sent to work on farms or in some other healthful occupation in the country.

In the vicinity of Grünewald there has been erected an institution of somewhat novel type, the new Berlin Home for Cripples, the existence of which, under the initiative of the orthopedic surgeon, Biesalski, and a large number of other philanthropic individuals, has been rendered possible. The main building, erected in the form of a horseshoe, contains sleeping-rooms for 300 children, operating and dressing rooms, and a school. The last has three classes, an additional class for defective children, and two classes for advanced instruction. Besides, in the main building there are workshops for clay-modeling and orthopedic apparatus for the manual training of the patients, and also accommodations for the nursing staff. Of the other buildings there is an administration building and a disinfecting plant. In spite of the fact that the entire institution has been built in a handsome style and has been fitted out so as to serve every need of cripples, it has been possible to confine the expenditure to 5,000 marks per bed. This economy has been rendered possible by the free donation of the land and the gratuitous labors of the architect and others.

THE ARMY IN TROPICAL MEXICO.

(From Our Vera Cruz Correspondent.)

THE sanitary and medical problems which the Medical Department with the Expeditionary Forces of the United States Army in tropical Mexico is called upon to solve, are vastly different from those confronting the medical officers in home territory. Following the bombardment of the city of Vera Cruz by the United States Navy, all public offices, including the police and public health departments, were deserted, and the demoralization of the departments intrusted with public safety and welfare followed as a matter of course. When on April 29 (eight days after the first bombardment which commenced on April 21, 1914, and lasted about two days) the soldiers relieved the Navy from shore duty, they were confronted with the task of policing up a sadly neglected Mexican city. On account of the carelessness of the native inhabitants regarding person and habits, the work of restoring order and cleaning up the town was attended with certain difficulties. True enough, the dead had been cremated and buried, but the city waste and débris of every description that had been accumulating during the days of fighting, were not yet cleared away, and this state of conditions needed immediate attention. The Navy, which was primarily charged with the restoration of peace and safety, did its work, and did it well, but this duty exacted the time of the landing parties to such an extent as to leave no opportunity for the institution of civic improvements.

The news of the American occupation of Vera Cruz brought a great influx of people into the city from every part of the perturbed republic, and with the demoralized conditions existing throughout the country and no quarantine regulations in force, it was not surprising to discover that smallpox made its appearance in the occupied territory. The municipal water supply was inadequate, the working capacity of the filter beds had to be overtaxed to meet the increased needs of the larger population, resulting in a temporary scarcity and a poor quality of potable water. With only one ice plant in the city, which was almost totally disabled by the American shells during the second day's engagement, and without fresh food articles from the adjacent country on the market (their importation into the city being prevented by the retreating Mexican troops encamped in the vicinity and attempting to establish a food blockade from the interior), it can be

readily seen that means had to be devised at once for the proper care of the troops and for the relief of the citizens. Prompt action was taken by the Army authorities; a public health department was established with Major Theodore C. Lyster, Medical Corps, in charge, assisted by an able staff of officers of the Medical Corps of the Army and of the United States Public Health Service. As a result of their activity, supported by the efforts of the various other departments established in response to public necessity, the impending food and water famine was averted, general sanitation was greatly improved, and the threatening epidemics were soon under control. The various army and city health organizations are under the immediate supervision of the Chief Surgeon of the Expeditionary Forces, and by his instructions are regulated the work of the army surgeons and the activities of the health office.

Malaria, gastrointestinal disorders, tuberculosis, smallpox, cerebrospinal meningitis, typhus fever, and yellow fever are the diseases, their prevalence in the order named, to be feared by our troops in Mexico. The number of inhabitants of the city of Vera Cruz approximates the forty thousand mark. The rainy season commences in June and ends with October, averaging a monthly rainfall of eleven inches during this period. The topography of the country is not well adapted to natural drainage, and this unfortunate lay of the land permits the formation of pools of stagnant water which serve as breeding places for mosquitos, and which during the frequent rains of the present season cannot be effectively drained, notwithstanding the extensive ditching done by the Public Health Department for the purpose of abating the nuisance. Mosquitos are numerous everywhere but they especially abound in the suburbs where the outposts of the Army are stationed, and with human carriers and infected anopheles continuously present, malaria is very apt to be the most formidable disease menacing the health of our army in Mexico. The number of registered deaths in the city of Vera Cruz averages about two thousand annually. For 13 per cent. of this number malaria is estimated to be the contributory cause among the native population. Though the death rate from this disease is undoubtedly very high, there is some question as to the accuracy of the figures compiled by the local medical men, who do not appear to be very exacting workers, and that their statistics are not based on strictly scientific principles, is evidenced by the fact that previous to the arrival of the United States troops there was not a microscope in the city. It is impossible without the aid of a microscope to determine conclusively the presence and identity of plasmodium in the blood.

Foreseeing that malaria promised to be the greatest scourge to the health of the soldiers on Mexican soil, prophylactic measures were instituted promptly after arriving in Vera Cruz, even before the troops had left the ships. A prophylactic dose of six grains of quinine sulphate is given daily, the men are required to sleep under mosquito bars at night, and when necessary, to wear headnets and gloves for protection against mosquito bites. Soldiers suspected of suffering from malarial fever are promptly sent to the hospital; here they are placed under mosquito bar in a mosquito proof ward, and all precautions taken to prevent the dissemination of infection. The public health department cooperates with the army in the work of prevention by draining the localities that would afford breeding places for mosquitos, and by covering stagnant water with crude oil, where the former means are of no avail. Notwithstanding all sanitary precautions, there have been under treatment at the army hospital up to and including July 10, 1914, thirty-five cases of malaria, one quartan, five estivoautumnal, and twenty-nine tertian infections among the approximately four thousand soldiers stationed here.

Diagnosis of malaria is never made and no quinine medication is given until the parasite is found in the blood and the identity of the disease thereby conclusively established. In most cases plasmodia have been found in the blood upon first microscopic examination, while in others it has taken as long as a week before the cause of the disease, exhibiting malarial symptoms, was discovered. There were instances when only a single ring indicated the presence of malarial parasites. The difficulty encountered in finding the parasites in the blood of the patient can evidently be attributed to the quinine taken for prophylaxis, and for this reason it sometimes becomes necessary to keep the patient under observation without specific treatment for a period of time, until the drug has been eliminated from his system, in order to avoid a haphazard diagnosis.

Up to this date the treatment, as carried out at the field hospital, has proven satisfactory and effective. Immediately upon admission to hospital the patient is put to bed, and a physical examination is made for the elimination of other diseases from which he might be suffering. Blood smears are taken and sent to the field laboratory maintained in connection with the other medical and health institutions, and which is located in the hospital building; here the slides are at once examined under the microscope and a report made of the findings. Cold sponge baths (repeated every three hours if need be) are given if the temperature of the patient ranges above 103° F.; calomel at bedtime on the day of admission, followed by magnesium sulphate next morning, and symptomatic treatment is begun and continued until the diagnosis is confirmed; meanwhile the patient is kept on liquid diet. When malaria is found specific treatment, consisting of ten grains of quinine sulphate in liquid form every four hours, is commenced, regardless if the patient has fever or a chill, as the medication is not intended to relieve or shorten the chill but to prevent a subsequent attack, for which purpose quinine in its various chemical forms has proven of unequaled benefit. All cases, including the five of malignant type, under care at the army hospital, have readily responded to the described method of treatment. The patient is given regular diet as soon as the fever subsides and his condition warrants it, generally in a day or two after the first administration of quinine. The amount of quinine is reduced after the temperature has remained normal for about a week, and—as is often the case—the patient begins to complain of tinnitus. When after a week's treatment the temperature does not show any variations above normal, and the physical condition of the patient is satisfactory, he is sent back to his organization for duty, but as a precautionary measure to prevent the occurrence of a relapse, quinine treatment is continued for two or three months, or for longer periods, according to the benign or malignant nature of the case. Quinine in limited doses is given for this purpose twice

a week. Should it become necessary to cinchonize the patient more rapidly than is possible with the present treatment, the intravenous method will be resorted to by injecting about twenty-two grains of some soluble salt of quinine in normal saline solution, repeating the dose as may become necessary. The intramuscular method of injection is not considered with favor by the army surgeons in Vera Cruz, on account of its being painful, the site of injection prone to suppuration, and the absorption slow and uncertain.

Progress of Medical Science.

Boston Medical and Surgical Journal.

September 17, 1914.

1. Treatment of Hemoptysis in Pulmonary Tuberculosis. N. B. Burns.
2. The Treatment of Phthisis by Pulmonary Compression. C. Floyd.
3. The Present Status of Artificial Pneumothorax Therapy. J. A. Lyon.
4. Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis. H. D. Chadwick.
5. Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis. Should the Method be Used? F. T. Lord.
6. The *X*-ray as an Aid to the Diagnosis of Pulmonary Tuberculosis. P. C. Bartlett.
7. The *X*-ray as an Aid to the Diagnosis of Pulmonary Tuberculosis. H. W. Van Allen.
8. *X*-ray as an Aid to the Diagnosis of Pulmonary Tuberculosis. P. H. Cook.
9. Diagnosis and Treatment of Tuberculosis in Childhood W. C. Bailey.
10. Roentgen-Ray in Tuberculosis of Children. W. J Dodd
11. Tuberculosis in Children. R. M. Smith.

1. Treatment of Hemoptysis in Pulmonary Tuberculosis.—N. B. Burns points out that the indications call for absolute rest; the immediate lowering of the blood pressure; the determination of blood to parts of the body other than the lungs by means of the application of cold to the thorax; purgation of the intestinal tract; and the positive assurance to the patient that he is in no danger. Morphine is given with great reluctance and only in hopelessly advanced cases, where the sole indication is to preclude all possible suffering. When the hemorrhage is so extensive that the blood rushes into the bronchial passages of the well lung, causing dyspnea and cyanosis, it is best to turn the patient on his side with his head over the edge of the bed, allowing gravity to exert its influence in withholding the blood in the lung the worse diseased. Sodium nitrite and calcium sulphide each in one grain doses may be administered to the patient at three- to four-hour intervals for from twenty-four to forty-eight hours. Subsidence of streaking, as well as severe headache, call for the discontinuance of the sodium nitrite. The author usually gives two doses of one ounce each of magnesium sulphate, one soon after the initial attack, and another on the second day.

3. Present Status of Artificial Pneumothorax Therapy.—J. A. Lyon states that while the apparent clinical results following the intelligent, persistent, and discriminate application of artificial pneumothorax therapy in certain cases of pulmonary tuberculosis, are an improvement in the general health, a gradual fall in the evening temperature, the return of appetite, an increase in the body weight, a gradual lessening of the cough, and a reduction in the amount of sputum, one should not recommend the use of artificial pneumothorax therapy as an infallible remedy applicable to all cases. Indeed, the results are often contradictory and disappointing and there is still much to learn. Not only is the somewhat general dictum that "artificial pneumothorax therapy can do no harm even though it should fail to benefit," fallacious in the light of the author's experience, but also definite and serious damage may result from its careless or ignorant administration as in the case of tuberculin.

6. X-Ray Diagnosis of Pulmonary Tuberculosis.—P. C. Bartlett notes that many cases of tuberculosis come to a physician when the diagnosis of this disease is not difficult to make. In making a diagnosis of tuberculosis in an early case, there is needed all the help possible from every source. The *x*-ray when used by an expert is a help in the diagnosis of early tuberculosis. The *x*-ray examination should be a part of the complete examination of the patient, but should not replace the ordinary well-known clinical methods of making a diagnosis. There are several types of cases in which the *x*-ray may be especially helpful. Chief among such conditions are phthisis associated with emphysema and bronchial gland tuberculosis in children.

9. Diagnosis and Treatment of Tuberculosis in Childhood.—W. C. Bailey employs the following procedure: He inquires very carefully as to the presence of an infecting case in the family, and if one is found, makes a provisional diagnosis of infection. Then he tries the von Pirquet test and if that is positive he makes a physical examination for signs of intrathoracic or intra-abdominal tuberculosis for the purpose of finding out whether the case is one of infection only or of disease. If the well-known signs of mediastinal gland infection are elicited and if there is no active disease in the lung or abdomen, the facts should be carefully explained to the family, the case should be reported to the proper authorities, and the child should be given special hygienic care at an outdoor school. If active disease is found, the child should be treated in a sanatorium or in a special outdoor school. In the event of a negative von Pirquet test, with a history of contact, the child should be kept on the suspicious list, placed in an outdoor school if possible, and the von Pirquet test should be repeated at appropriate intervals. If there is a negative history of contact and a negative examination but if there is a positive von Pirquet test, the procedure should be the same as in the case cited above, a careful physical examination being made always for the purpose of detecting the active cause. A change in board of health regulations should be made so that a physician may report cases of tuberculous infection as distinguished from cases of tuberculous disease requiring sanatorium care, whether these be open cases or not. In the cases in which contact is proved, but the von Pirquet test is negative, the physical examination should be made in the same way and the von Pirquet test should be repeated several times. In any event the name of the child should be given to the health and school authorities as that of a suspicious case requiring supervision.

11. Tuberculosis in Children.—R. M. Smith emphasizes the distinction between tuberculous infection and tuberculous disease. Tuberculous infection occurs in many instances without symptoms sufficient to attract any attention and then goes on unrecognized. It may give no signs on physicial examination, but usually thoracic and abdominal gland tuberculosis is made evident by the local signs of enlarged glands. There may be chronic enlargement of the bronchial or mesenteric glands from infection with some other organism than the tubercle bacillus. It is necessary to have a positive von Pirquet reaction to make the diagnosis of tuberculosis. The von Pirquet reaction may be taken as a safe index to tuberculous infection. The instances in which a negative reaction occurs in the presence of a tuberculous infection are usually instances which can be explained according to well-known facts. Unless the tuberculous infection is active, it is not a source of immediate danger, either to the individual or to the community. A child with such an infection should be treated, not as a patient with active tuberculosis, but as

an individual to be watched carefully, fed properly and put under good hygienic surroundings in order that the disease may not become active. Tuberculous disease means an active tuberculosis. This condition in children starts as a glandular disease, but has a great tendency to extend beyond the confines of its original seat within the gland, and when such an extension occurs there is apparently little further tendency to localization. It becomes at once a generalized process, leading often to rapid death. After the age of ten years, tuberculosis assumes the characteristics of adult tuberculosis, but before that age the diagnosis must be made on different evidence. The symptoms are usually very indefinite. There is little or no cough and almost never any sputum. The temperature is frequently not greatly elevated, and not more elevated than occurs in infants and young children from a variety of causes. Physical examination in the early stage of the disease reveals nothing other than a child in poor condition with enlarged glands. When the disease extends beyond the glands into other parts of the body the physical signs become more definite. In the lungs they may be those of bronchopneumonia and frequently this diagnosis is made when there is no suspicion of tuberculosis.

New York Medical Journal.

September 19, 1914.

1. Hemophilia and Hemophilic Arthritis. M. Herrera Vegas.
2. Pains Anomalously Distributed in Cardiovascular Disease. H. L. Elsner.
3. The Treatment of Cancer by Electrical Methods. A. F. Holding.
4. An Interesting Case of Hermaphroditism. G. S. Foster.
5. Efficiency and the Quality of Life. C. A. Penrose.
6. Tuberculization and Immunization. M. Fishberg.
7. The Treatment of Sunstroke and Heat Prostration. I. Bram.
8. Dust. J. A. Guthrie.
9. Pulmonary Tuberculosis Complicating Operation for Appendicitis. A. C. Burnham.
10. Tyrosin Crystals in the Urine of a Normal Pregnant Woman. J. Rosenblum and W. E. Gardner.

2. Pains Anomalously Distributed in Cardiovascular Disease.—H. L. Elsner emphasizes the frequency with which pain in any of the anterior thoracic regions, usually in the precordium, is associated with myocardial weakness and degeneration, at a period often preceding by many weeks the positive and other subjective symptoms of this serious condition. Embryonal heart sounds in the adult, with associated dyspnea and pain, should arouse the suspicion of degenerative changes in the heart muscle associated with vascular anomalies. In aortic insufficiency the force with which the heart strikes the chest wall often adds an element of discomfort referred to the intercostal and pectoral muscles. The character of the pains associated with vascular lesions varies materially. At times the pains are severe, burning, boring, tearing, or even pulling, or there is a persistent pressure as if a weight is resting on the sternum. Painful tremor referred to the heart is not infrequent. In some cases there are areas of hyperesthesia. Irregular and intermittent hearts with cardiac tumult are frequently associated with pain, either in the region of the heart or at a distance. This pain often increases as hypertrophy of the organ progresses. Sudden, severe, and alarming pain in the precordium, occasionally in the neck, accompanies each intermission in some cases and makes the patient conscious of a halting heart. There is a class of cases in which the blood pressure is normal, and in which there are pain in the precordium, anemia with numbness, vertigo, a sense of weight rather than pain in the region of the heart, no murmur, a small pulse, and a rapid heart during a long period; later dyspnea occurs, aggravated by movement of the arms. In these cases there is myocardial degeneration. The diagnosis is not made until the disease is far advanced unless one is alert. There is a class of cases of myocardial degeneration associated with slight degenerative changes of a sclerotic nature in the smaller arteries of the heart, in which there are transitory dilatations of the left ventricle, giving rise to evanescent systolic murmurs. These may be associated with severe precordial distress at times, particularly if the cases are of specific origin. As the tone of the hear improves, the pains yield and the dilatation and the murmurs disappear. When these cases occur in young subjects they are of either toxic or specific origin. If not relieved they lead to marked muscular insufficiency and frequent attacks of angina pectoris, and are often associated with aortic disease. In hysterical young women there is frequently a complaint of painful pulsation referred to the abdominal aorta in the epigastrium. Sometimes there are vague neuralgic pains radiating from this point. Pain referred to the thorax with dyspnea, with or without physical signs, aggravated by movement of the arms upward, may be considered to be of cardiac origin in most cases, particularly if such movement increases dyspnea at the same time. Most of the author's cases of so-called pseudoangina, not neuroses, proved ultimately, if in young subjects, to be due to cardiac syphilis with arterial and consecutive myocardial degeneration; in older subjects, they were a true angina dependent upon coronary changes. The following is an interesting and important group, demanding consideration: (1) Cases in which arterial changes are mainly limited to the abdominal vessels with sensory symptoms referred to the abdomen and associated with marked digestive disturbances. This condition Ortner has named dyspragia intermittens angiosclerotica intestinalis. (2) Cases which simulate those above mentioned, in which there is so-called subdiaphragmatic angina pectoris due to coronary disease, without marked changes within the abdomen, either in the organs or in their nutrient vessels. (3) Cases in which there are associated changes of a sclerotic nature in the coronaries and abdominal vessels causing both thoracic and abdominal symptoms.

6. Tuberculization and Immunization.—M. Fishberg notes that in civilized countries, especially in industrial cities in which careful investigations have been made, the population is thoroughly tuberculized. On the other hand, primitive peoples who have not come into intimate contact with civilized and tuberculized humanity have no tuberculosis at all. Individuals free from tuberculous infection are very susceptible to the pernicious effects of tubercle bacilli. Even the strong and robust constitution of the average rural inhabitant is of no avail when he comes into a tuberculous milieu, and he succumbs more easily than those who have been raised in cities, as is the case among certain immigrants in the United States and among primitive peoples hitherto exempt from tuberculosis who meet white settlers in their native lands. Their strong and extraordinary vulnerability in contact with tubercle bacilli is to be considered a physiological trait of humanity irrespective of race, geographical position, and social or economic conditions. This acquired immunity of the tuberculous to tuberculosis is the greatest safeguard against superinfections and reinfections with new strains of tubercle bacilli, which are ubiquitous and cannot be avoided in modern large cities. Experience teaches that primary infection is most dangerous during infancy and in the adult, while during childhood mild tuberculous infections are in the vast majority of cases benign and, because the body is thus immunized against reinfection, even beneficial. The prophylaxis of phthisis is therefore to be directed along the lines of prevention of massive infections of children, es-

pecially infants, because these are infections apt to be the forerunners of phthisis in the adult.

9. Pulmonary Tuberculosis Complicating Appendicitis.—A. C. Burnham states that a cough occurring after operation should always arouse a suspicion of tuberculosis. Mild cases of this disease usually stand operation very well, but should not be subjected to operation when the symptoms may be alleviated by other means. Moderately advanced cases, except very chronic arrested ones, usually stand operation very poorly. If operation is necessary, delay only weakens the resistance of the patient. Accurate diagnosis of the condition of the appendix is of far greater importance in patients with pulmonary tuberculosis than it is in patients otherwise healthy. The purulent or gangrenous appendix should be removed as early as possible, while the catarrhal or mildly inflamed condition is better dealt with more conservatively.

Journal of the American Medical Association.

September 19, 1914.

1. The Heart in the Pneumonias. R. N. Willson.
2. The Use of Small Deep Skin Grafts. J. S. Davis.
3. Intrinsic Cancer of the Larynx. Complete Excision Apparently Effected by Endolaryngeal Operation. Sir St. Clair Thomson.
4. Sarcoid of Boeck. S. E. Sweitzer.
5. Neurasthenia and Tuberculosis. (Concealed.) G. D. Head.
6. Intrarectal Administration of Sodium Salicylate in Acute Rheumatic Fever with Satisfactory Results. L. G. Heyn.
7. The Use of a Series of Vaccines in the Prophylaxis and Treatment of an Epidemic of Pertussis. A. F. Hess.
8. A Note on the Preparation of Bacterial Vaccines. W. J. Stone.
9. Cancer of the Prostate. B. F. McGrath.
10. A Common Mechanism for Most Injuries of the Shoulder Region, Supported by the Results of Treatment, Including 49 Operations. T. T. Thomas.
11. A Substitute for Potassium Permanganate to Liberate Formaldehyde Gas from a Water Solution. S. G. Dixon.
12. Foreign Bodies in Stomach. Report of Unusual Case. J. L. Day.
13. Fracture of the Femur Into an Actively Tuberculous Knee-Joint with Healing of the Fracture. C. A. Parker.
14. A Case of Sporotrichosis. L. A. Dermody and C. McMartin.
15. Report of a Case of Cerebral Hemorrhage. W. W. Mott.

1. The Heart in the Pneumonias.—By R. N. Willson. (See MEDICAL RECORD, June 27, 1914, page 1190.)

2. Use of Small Deep Skin Grafts.—J. S. Davis calls attention to the value of very small grafts, especially those which contain more of the true skin than the superficial grafts advocated by Reverdin. The author has called these grafts "small deep grafts." It has been the author's experience in a large number of cases that the grafts which are somewhat deeper and contain more of the true skin give a more stable healing, and the final result is more like the normal skin in character than when the thinner grafts are used. The grafts may be placed on fresh wounds, but are usually applied to granulating surfaces. The success of small grafts depends to a large extent on the condition of the granulating wound, and it is most important that the granulations be clean, firm, rose pink in color, and not exuberant. Time is saved in the end by careful attention to this point. It is of advantage to place these grafts on a granulating surface, as there is no pain in the preparation of the surface, no danger of stirring up infection, and no loss of blood, which is an important point in cases already much depleted. On the day preceding the operation, all secretions and crusts are removed. The granulations are painted with tincture of iodine and dressed either with balsam or Peru and castor oil, 1:3, or with moist boric or salt gauze. The dressings are removed at the time of operation, and the wound is washed carefully, without causing bleeding, with sponges dipped in warm salt solution. The surface is dried thoroughly and a pad of dry gauze is placed over the wound; it is pressed down firmly on the granulations, and removed only when the operator is ready to apply the grafts. The surface to be grafted should be perfectly dry, as the grafts adhere much better to a dry surface and are less liable to be subsequently displaced. The simplest way to obtain these grafts is to pick up a bit of the epidermis with a straight intestinal needle held in an artery clamp. It is raised so that a little cone is formed and the base of the cone is cut through by depressing the blade of the knife. The graft, still on the needle, is transferred to the wound, with raw surface downward. The grafts are placed in rows, a space of not more than 5 mm. being left between the grafts. When two rows are in place, a strip of dry sterile rubber protective about 1.5 cm. wide is applied over them, so that the lower edge of the protective just covers the lower row of grafts. Then the protective is pressed down over the grafts firmly with a gauze pledget, and the edges of the grafts will uncurl and spread out evenly on the wound. The next row of grafts is placed close to the edge of the protective, and after two or three rows are applied they are covered with a second strip of protective, which overlaps the first piece about one-half its width. The protective is pressed down firmly, and the procedure is continued in this manner until the whole wound, or the part selected, is covered. The ends of the protective strips which extend beyond the wound edges may be fastened securely to the normal skin by means of a few drops of chloroform. Moist salt gauze over the protective strips secured by a bandage is a satisfactory dressing. The part should also be immobilized as far as possible. The area from which the grafts are taken may be dressed with boric acid ointment spread on a sheet of rubber protective, which is snugly strapped over the wound, or with silver-foil and dry gauze. The grafts are either round or irregularly oval. They vary between two and four mm. in diameter and should seldom be larger than 4 mm. They are thickest in the center and taper off toward the edges. With a sharp knife the size, contour, and depth can be judged quite accurately. The dressings should be removed on the second or third day, and any wound secretions should be carefully mopped up or washed off with a gentle irrigation by means of physiological salt solution.

3. Intrinsic Cancer of the Larynx.—Sir St. Clair Thomson concludes that cancer of the vocal cords in its early stages is a very slowly progressive and strictly limited process. Alteration of voice is the principal and may be the only symptom. Persistent hoarseness in any patient calls for a definite diagnosis. This is based chiefly on inspection of the larynx. Only in certain cases in which the growth is a superficial one and not an infiltrating one can it be confirmed by microscopic examination. The growth, even when it occupies almost the entire length of a vocal cord, can sometimes be completely removed by endolaryngeal operation in early cases. But this completeness can be ascertained only when, by laryngofissure, the remains of the vocal cord and adjoining soft parts have been removed and submitted to the pathologist. Laryngofissure is, therefore, the operation of choice in all cases of endolaryngeal cancer. The operation offers the very best prospects, because the disease remains for some time superficial and limited and because laryngofissure cannot be considered a dangerous operation. Statistical results show a lasting cure in 80 per cent. of cases, and if all patients presented themselves and cases were diagnosed early there is no reason why the results should not be even more satisfactory.

5. Neurasthenia and Tuberculosis (Concealed).—By G. D. Head. (See MEDICAL RECORD, June 27, 1914, page 1187.)

6. Intrarectal Administration of Sodium Salicylate

in Acute Rheumatic Fever.—By L. G. Heyn. (See report in the MEDICAL RECORD, Vol. 85, No. 26, June 27, 1914, page 1188.)

The Lancet.

September 12, 1914.

1. Dysentery. F. M. Sandwith.
2. The Principles which Govern the Ultimate Results of Hare-lip and Cleft Palate Operations. G. V. I. Brown.
3. Cases of Recovery from Detachment of the Retina. C. Higgens.
4. Persistent Low Arterial Blood Pressure in Carcinoma of the Tongue with Amyloid Disease. H. D. Rolleston.

1. Dysentery.—F. M. Sandwith devotes his second lecture on this subject to amebic dysentery. The large intestine of man is liable to infection by two distinct entamebæ. One of these *Entameba coli* is a harmless organism, living merely on the intestinal contents and never penetrating the mucous membrane. The second entameba, the *Entameba dysenteriæ* (*E. histolytica*, Schaudinn, or *E. tetragena*, Viereck), is a pathogenic organism which not only lives among the intestinal contents, but actually invades the tissues of the large intestine, leading to all the troubles and symptoms associated with amebic dysentery. The primary lesion of amebic dysentery is apparently an exudation into the submucous coat of the large intestine, first seen to the naked eye as red, slightly raised spots, not much larger than the head of a pin. When these congested spots grow in area a yellow central point appears, which is the earliest stage of ulceration, due to local necrosis of the mucous membrane. Amebiasis is a convenient name for specific lesions in various parts of the body—intestine, liver, brain, skin near anus, etc.—and amebic colitis has been proposed as a preferable term to amebic dysentery, because it includes the sporadic mild cases, even when accompanied by constipation, in addition to those characterized by frequent evacuations and the constant presence of tenesmus, blood, and mucus. The existence of tenesmus, often the symptom forcing the patient to seek medical aid, means that there are lesions in the proximity of the sphincter. If the lesions on the contrary, either in true dysentery or in bilharzial infection, are limited to the colon, there will be no tenesmus. The onset of amebic dysentery is usually sudden and always begins with diarrhea. Fever is not a marked feature, and when present is never high. The pain is intestinal, and is specially great before and during an evacuation. A higher degree of leucocytosis, tenderness over the colon, and thickening of the large intestine are all in favor of the amebic type. The cause of death in amebic colitis is generally perforation and consequent peritonitis, succeeding ulceration of the colon or appendix. Sandwith agrees with other writers on tropical diseases that the most frequent complication of amebic dysentery is abscess of the liver.

4. Persistent Low Arterial Blood Pressure in Carcinoma of the Tongue with Amyloid Disease.—H. D. Rolleston reports the case of a man aged 62 years suffering from an inoperable cancer of the tongue in whom a persistent low arterial blood pressure was presumably due to the general asthenia and the amyloid disease. This was unique in the author's experience, as he has not seen a blood pressure as low as 70 mm. Hg., except in cases of advanced Addison's disease and in cardiac failure shortly before death. In otherwise healthy persons during the fever of pneumonia the author has seen a systolic blood pressure of 80 mm. Hg. In the above case, the diastolic blood pressure taken by the auscultatory method ten days before the final collapse, was 35 mm. Hg., with the normal difference of 30 mm. between the systolic and diastolic pressures.

British Medical Journal.

September 12, 1914.

1. Discussion on the Etiology and Treatment of Carcinoma of the Tongue. Introduced by W. G. Spencer.
2. A Method of Opening the Abdomen for Appendicectomy. G. H. Edington.
3. Potts's Disease in Cervical Region with Methods of Bony Splinting. A. Don.
4. Discussion on the Diagnosis of Chronic Pulmonary Tuberculosis in Infancy and Childhood. Introduced by D. B. Lees.
5. On Some Conditions Simulating Chronic Appendicitis. J. Morley.
6. An Unusual Case of Appendicitis. E. W. M. H. Phillips.
7. A Case of Rupture of the Kidney from Slight Trauma. J. Lee Atkinson.
8. The Treatment of Acute Gonorrhea in Men. J. G. Hayes.

1. Etiology and Treatment of Carcinoma of the Tongue.—By W. G. Spencer. (See MEDICAL RECORD, August 22, 1914, page 357.)

3. Bony Splinting in Cervical Pott's Disease.—By A. Don. (See MEDICAL RECORD, August 22, 1914, page 361.)

4. Tuberculosis in Infancy and Childhood.—By D. B. Lees. (See MEDICAL RECORD, August 22, 1914, page 366.)

5. Conditions Simulating Chronic Appendicitis.—J. Morley states that Jackson's pericolic membrane may give rise to symptoms simulating chronic appendicitis. In the condition of mobile proximal colon, which is a reversion to the primitive pronograde arrangement, the patient is predisposed from birth to constipation and the various ills resulting from it. Symptoms resembling chronic appendicitis may result, or there may occur actual inflammation of the appendix, but in either case the right surgical procedure is not a simple appendicectomy but a fixation of the colon back into the right loin. The commonest cause of an erroneous diagnosis of chronic appendicitis is right tuboovarian disease, often of gonorrheal or septic origin. In such cases a spasmodic contraction of the right psoas muscle sometimes occurs on palpation, which contraction may be mistaken for an abscess or a neoplasm.

7. Rupture of the Kidney from Slight Trauma.—J. L. Atkinson states that rupture of the kidney is a comparatively rare result of trauma, more particularly so when the actual kidney tissue itself is lacerated. Keen quotes Kuster's statistics of injuries under his observation in the clinics of Berlin and Basle, and these show only 10 cases in 7,741 injuries, or a little over 1 in 1,000. Israels, with a large experience of renal surgery, had only one operative case. But in practically all cases met with either in actual practice or in the records, the condition has always been caused by a severe accident, such as falling from a height, crushing between buffers of a train, or by the wheel of a heavy cart passing over the abdomen. In the author's patient, a girl fourteen years of age, rupture of the kidney was caused by a fall from a veranda whose floor was eleven inches from the ground. The girl had run a distance of fifteen feet and had plunged through a wire netting at the end of the veranda. Profound shock and hematuria pointed to the real nature of the lesion. This was confirmed by operation on the following day. Recovery ensued.

Berliner klinische Wochenschrift.

August 17, 1914.

Severe, Fatal Infection of Mankind with Bovine Tuberculosis.—Beitzke relates the following case: A boy, aged fourteen, began to lose his appetite, then to vomit. He lost flesh as a result and a cough set in. Pain beneath the diaphragm had been present from the start. The case proved a puzzle to a number of practitioners. Admitted to a hospital with diagnosis of severe anemia, both liver and spleen were found enlarged. To the

right and behind was heard a pleuritic friction sound. Red blood cells 5,660,000, white blood cells 8,439. Temperature 38° C. Patient lived six weeks after admission, dying of progressive exhaustion. Edema and ascites developed before death. A brief summary of the case after study of autopsy finds is as follows: boy of 14, ill in all six months, dead of progressive marasmus. Generalized tuberculosis of an unusual and severe type. The amount of caseation in the enlarged lymph glands and spleen exceeded anything ever seen by the author. Both lungs contained uniformly distributed large and round caseous foci—an unusual find. The process had evidently begun in the mesenteric glands, with secondary involvement of the mediastinal and supraclavicular glands, speaking unqualifiedly for an abdominal infection. Bacteriological studies showed undoubted bovine tuberculosis, inoculation experiments giving positive results. The boy had played daily in the cow stable, and had drunk raw cow's milk. The ancestry was sound and the boy himself was healthy. His exposure to the cows had been prolonged, lasting over months. It does not appear that the milk he drank could be traced to any particular infected cows, for nothing of this character is adduced. In 1912 Weber published a collection of 138 cases of bovine tuberculosis in man, and the author increased this number to 264 cases without exhausting the literature.

Case of Diphtheritic Polyneuritis.—Friedlander relates a case which occurred in his own person. He was fifty-seven years old when he contracted diphtheria from a child patient. The case was a very severe one both for its local and systemic manifestations. The fauces, palate, and pharynx were covered with membrane. On several occasions circulatory failure was threatened. Insomnia was troublesome and there were drawing pains in the lower limbs, relieved by aspirin. Four weeks after the onset of the disease, while he was recuperating at a resort, he was seized with a violent backache and pain over the sacrum. A week or so later his feet felt benumbed while walking. A slight paresis of the left hand led to the diagnosis of polyneuritis. There was developed an ataxic gait and loss of knee reflex with intolerable pain in the limbs. As the author's mental state showed participation in the disease he was taken to a sanatorium. By reason of several pareses he was unable either to feed himself or swallow readily. There was loss of cenesthesia, so that he could not perceive the locality of the various members. Paresis of the sphincter ani had led to prolapse of the rectum. Anorexia had developed, with repugnance toward certain foods. The calf muscles and interossei showed marked atrophy while a number of others were more or less involved. The circulation was very poor, the hands being like ice. The nerves of the four extremities were involved with exception of the sciatics. The involuntary reflex acts were abolished (sneezing, etc.) and perspiration ceased. Despite all the grave symptoms the cardiac action was good, the kidneys had not been compromised by the disease, and no bedsores developed. There was gradual recovery, promoted by sojourns in Gardone and Aachen, and by physical therapy.

Deutsche medizinische Wochenschrift.

August 6, 1914.

Extinction of the "Diseases of Unculture."—Kisskalt refers to certain diseases which appear to die out as a result of civilization and its implied sanitation, especially typhus, recurrent fever and bubonic plague. Vaccination also controls smallpox. Recently, however, we have learned much concerning epidemiology. Typhus as a louse-borne pestilence is readily controlled by steam disinfection of clothing and the simple application of soap and camphorated oil to the surface of the individual. In this way the disease is kept in check in Tunis. Mere sanitation alone accomplishes little or nothing against this affection, and its recession is due to increased knowledge founded on animal experimentation. Recurrent fever, also louse borne is similarly checked by an antilouse campaign. Variola, on the other hand, is not spread by vermin, and its present status is that of measles and scarlatina. Sanitation has not prevailed against these affections, although quite recently there appears to be a falling off in scarlatina mortality. Recession of the bubonic plague in recent centuries is now readily intelligible as it is a rodent-borne disease in which the flea is the direct carrier. It is doubtless connected with the suppression of the old black house rat, which was completed during the 18th century. The causes of this suppression are not known. The socalled migratory rat, a much less familiar animal, is believed to have had much to do with it, and the multiplication of domestic cats may also have played a part. This does not explain fully how rat plague came to die out, as rats are still with us in abundance. At present we can only adduce the possibility of an acquired immunity. As is known to bacteriologists there is a socalled pseudo-tuberculous bacillus in rodents which resembles very strongly the *Bacillus pestis*, of which it may be an avirulent successor.

Internal Calcium Therapy.—Boruttau refers to the increasing importance of mineral matter in our studies of normal and pathological metabolism, especially in regard to calcium addition in deficiency diseases. Emmerich and Loew have recommended the addition of inorganic calcium to bread, while several trademarked preparations are being marketed as additions to infant's milk. The calcium compounds most used are the chloride and lactate. To make any impression on deficiency diseases (nervous affections, spasmophilia) large dosage and persistent use are neeessary. The author suggests a combination of calcium and plant seed albumin (edestin) as a purin free nutrient. Artificial asthma in animals as a result of intravenous injection of hypophysis extract, can be prevented by preliminary treatment with injections of calcium chloride. Such results can hardly be explained by the mere making good of tissue defects. It is probable that the calcium ions circulating in the blood exert a specific action on the muscles and nerves as a result of altered concentration.

Mechanical Treatment of Impotence.—Flatau assumes that fifty per cent. of functional impotence is amenable to treatment—almost twice the percentage computed by Fürbringer. The very large fraction of incurables, however, may possibly benefit by some purely mechanical contrivance to the extent of securing sufficient temporary rigidity to impregnate women. It is the elderly man and worn out rake who are often among those who wish to marry for the sake of an heir, and from the eugenic viewpoint children begotten by such males are undesirable as doomed to inferiority. The author therefore would interest himself only in the otherwise robust who are psychically impotent, and who are extremely anxious for an heir. Numerous devices are on the market, but their use is connected with serious drawbacks. They are expensive and difficult of application. In these cases of impotence precocious ejaculation is very often present, thus defeating the purpose of the erection; and the mere manipulations connected with fitting the apparatus to the genitals will frequently have this very result. The author knows of no apparatus yet devised which is practicable.

Insurance Medicine.

Surgery of Gastrointestinal Disease in Its Relation to Life Insurance.—Dr. William J. Mayo, Rochester, Minn., states that in anticipation of the questions which confront life insurance companies, a review of what surgery has accomplished in its relation to the prolongation of human life is important. The insurance company must know as accurately as possible to what extent an average risk has been increased by a surgical operation and whether a patient will be benefited sufficiently by an operation to warrant the insurance company in urging that it be performed. If death may be averted or life prolonged, it then becomes a matter of economy for the company to have the operation performed as early as possible. It is assumed that in estimating the curability of the disease for which the operation is performed, the surgeon is a thoroughly competent one, familiar and experienced in the methods of procedure. An estimation as to the curability of any gastrointestinal disease based on data that was accumulated previous to five years ago is practically worthless. We formerly believed that simple ulcers occurred in the stomach in 95 per cent. of the cases, now we know that 75 per cent. of them are in the duodenum. The condition was supposed to be much more common in women than in men; we now know that at least 75 per cent. of the cases occur in men. We believed that the lesion was usually multiple; we now know that it is single in 95 per cent. of the cases. We believed that the taking food gave rise to pain; we find on the contrary that food gives relief to pain. Hemorrhage is a diagnostic symptom in not more than 20 per cent. Sudden hemorrhage from the stomach with no other symptom of an ulcer is not indicative of ulcer. Ulcer of the stomach is not quite so favorable for operation as is ulcer of the duodenum because of the frequency with which cancer is engrafted upon it, rendering it imperative to excise if possible. A slight increase in operative risk is therefore accepted in order to secure better ultimate operative results. It is quite within the limits of truth to say that 98 per cent. of patients with duodenal ulcer and 95 per cent. of patients with gastric ulcer may be cured by a well-chosen, properly executed operation. The operative mortality for duodenal ulcer, including all causes, is about 1½ per cent. That of gastric ulcers which include the large callous ulcers in which resection is necessary, is from 3 to 4 per cent. Complications arising as the result of the operation are extremely rare. Under the improved methods of diagnosing cancer of the stomach, especially by the Roentgen ray, which makes early recognition possible, we may expect a yet higher percentage of cures following operation. The reexamination for life insurance purposes by competent medical examiners will have a great influence in the detection of such growths while they are yet in the curable stage. Resection of the stomach for cancer gives about 25 per cent. of 5-year cures and the operative mortality is about 10 per cent. Gallstones may be considered foreign bodies and, other things being equal, the earlier these foreign bodies are removed the better for the patient. In patients who are good risks for operation the removal of gallstones has only a small mortality, not over ½ per cent., and the patient becomes a good insurance risk at the end of a year. When the gall-bladder becomes so diseased that it can no longer functionate, it must be removed. Mayo states that about 80 per cent. of his cases from this trouble come to him in this condition, and in many of these cases cancer was found in an early stage. He urges early operation in cases of gallstone condition in order to avoid cancer of the gall-bladder and liver, and also involvement of the common duct and secondary involvement of the ducts of the liver and pancreas. The immediate mortality of operations on the common duct is much greater than for stones in the gall-bladder. Taking cases as they come, usually with jaundice, infective cholangitis and changes in the blood incident to the disease, the mortality is probably from 5 to 8 per cent. Considering their importance, extent and nature, the small intestines are rarely diseased, probably by reason of resistance brought about by their long heredity. Immediately beyond the stomach, which has the highest percentage of cancers, is the small intestine which relatively has the least. The number is so small as to have little bearing on the question of its relation to life insurance. The appendix and its diseases may be considered a closed book, as the probabilities are that the individual who has lost his appendix is in no greater danger from complications than is the individual who has not had his appendix removed of having trouble with it of any equally severe grade. Surgery of the large intestines introduces some new and complex questions. Many believe that in the colon lies the cause of serious ills which bring on degenerative changes in vital organs and also the symptom-complex which we term neurasthenia. It has been shown that we now consume four times as much flesh per capita as we did 100 years ago. Decomposition of vegetable matter results in fermentations which produce mostly harmless combinations; decomposition of meats results in putrefaction with the development of poisonous bodies. In this manner so-called intestinal intoxication may have its origin. Short-circuiting the ileum into the sigmoid and removal of the large intestine are being practised for relief of degenerative and neurasthenic conditions. The subject is so new that it would not be profitable to discuss its effect on insurance. Tuberculosis of the large intestine of the hyperplastic variety is more common in the vicinity of the secum and ascending colon. It gives the clinical symptoms, and, when removed, many of the physical appearances of cancer, and is often due to the bovine type of tubercle bacilli. It is usually localized, that is, the individual has no other evidences of tuberculosis. As a rule all of the cases suitable for operation have remained well after excision. Intestinal diverticula, which occur in the large intestine, may cause a condition strongly resembling cancer. It is important, therefore, when a tumor of the large intestine is removed that it be examined microscopically to determine its exact nature. Operation for cancer of the large intestine gives favorable results; fully 50 per cent. of such patients have lived for five years and were apparently well at the end of that time. The only prophylaxis for cancer is the removal of sources of chronic irritation. The insurance company may, by means of the re-examination of the insured, prevent many deaths from cancer and greatly increase the length of life of the insured. Many of these conditions are even more important in relation to chronic infections and anemias from which may start cardiovascular disease.—Medical Section American Life Convention.

Book Reviews.

DIE IMMUNITÄTSWISSENSCHAFT. Eine kurzgefasste Übersicht über die biologische Therapie und Diagnostik für Ärtze und Studierende. Von Dr. HANS MUCH, Oberarzt am Eppendorfer Krankenhause. Zweite völlig umgearbeitete Auflage. Price, 8 marks. Würzburg: Carl Kabitzsch, 1914.

THERE is perhaps no more satisfactory single volume on our knowledge of immunity than this monograph by Much. The author is a well-known investigator in this subject, who has contributed much of fundamental importance to his specialty. His style is lively and clear; and he writes from the point of view of the practising physician, consequently presenting his subject in a form more useful than is usually seen in the work of purely laboratory workers. From another point of view the book is very personal, the author freely expressing his own ideas, though they do not agree in some cases with those current. He does what is very rare in Germany, omits all references to literature, but the work gains by these very limitations; it is more compact and less involved.

After an introductory chapter on general principles he turns to a discussion of the meaning of the words, immunity and virulence; then classifies the three types of immunity, and finally begins his practical subject: the immunization against poisons, using diphtheria as an example. He points out the difficulty of handling the well-known cases of diphtheria carriers, whose throats are often filled with virulent organisms although the general health of the persons suffers not at all. Such people are often more dangerous than those actively ill of diphtheria, for they go unguarded among healthy people to whom they can communicate the disease. He insists properly on the importance of the early administration of diphtheria antitoxin and discusses the statistics with great clearness, showing that if the remedy is given on the first or second day of the disease the mortality is almost negligible; whereas late injections have but little value, as large quantities of toxin have been formed and the tissues injured beyond repair before the antitoxin reaches the circulation. The question of protective inoculation is also handled with a great deal of skill. He shows that such inoculations do not protect for any very long period, giving as an average ten days. He recommends Schick's intradermal test for the presence of sufficient toxin in the blood to give protection and also warns against the general use of the Behring active immunization method by the injection of a mixture of active toxin partially or completely neutralized by antitoxin. He also commends very strongly the intraspinous or intradural injection of tetanus antitoxin, a practice which has recently been revived both in this country and abroad, owing to the poor effects which are obtained by a subcutaneous or intravenous exposition of the drug. In some forms of bacterial infection he feels that the body can be assisted in its contest against the invasion of the organism by the induction of a general leucocytosis, by the injection of hetol, or by the production of a local leucocytosis by the use of sodium nucleinate. He also thinks that the injection of a serous fluid into abscesses rich in leucocytes is of help, a process which has been used by the surgeons in cleansing indolent ulcers and granulating wounds. He advises the transfusion of fresh plasma obtained by adding 1.5 per cent. of sodium citrate to the blood of a healthy person so as to prevent coagulation, and then reinjecting about 100 c.c. of this mixture. These examples are quoted only to show that the author does not follow the example of many of his countrymen and leave the therapeutic side entirely untouched. In acute septic disease he feels that vaccine therapy is entirely worthless. While he admits its value in chronic conditions, he considers that the use of an autogenous vaccine is not always to be preferred, for he points out that the body is already immunized to a certain extent against its own organism which is causing the infection, and that, therefore, a closely related strain of the same species should be used. This, of course, is opposed to Wright's belief that the benefit of the vaccine comes from stimulating the tissues which have not yet reacted to the organism which is inciting the infection.

In the treatment of syphilis he takes the point of view that the Wassermann reaction is merely an expression, and an unspecific expression, of a damage to the tissues of the person showing the reaction and that, therefore, treatment should be continued until the Wassermann reaction is negative. He takes issue with those who think that the Wassermann reaction is a specific immunity reaction and says that if this is the case it would be a mistake to destroy by treatment an immune antibody circulating in the blood. The negative reaction, however, does not show immunity, but only that the diseased tissue has ceased to figure, though the parasites may still exist; but of this the Wassermann affords no proof.

In regard to the recent work of Abderhalden on the subject of protective ferments he is distinctly sceptical. His own tests have been entirely negative, and he doubts the scientific information which Abderhalden has given as the basis of the reaction. He does not, however, deny the possibility that experience may show the test to be of clinical value, in spite of the lack of scientific foundation.

These abstracts are sufficient to show that the writer has produced a very interesting, readable, and useful review of the present position of immunity, as it aids the physician in diagnosis or in treatment.

PRACTICAL HORMONE THERAPY. A Manual of Organotherapy for General Practitioners. By HENRY R. HARROWER, M.D., Sometime Professor of Clinical Diagnosis, Loyola University, Chicago; Fellow of the Royal Society of Medicine; Fellow of the American Medical Association. With Foreword by Professor Dr. Artur Biedl, Vienna. Price, $4.50. London: Baillière, Tindall & Cox; New York: H. R. Harrower, 880 West 180th Street, 1914.

IN this, the latest contribution to the subject of the internal secretions and of their value as medicinal agents, the author displays a comprehensive knowledge of the extensive literature of this subject. Indeed, with the references in the text and the bibliographical lists at the end of each chapter, there is presented a digest of almost everything that has been written on this subject. In giving this book the title "Practical Hormone Therapy" the author has applied the epoch-making conception of Starling to the entire series of internal secretions. These are contrasted with the enzymes as regards their greater resistance to heat and as regards the fact that "a ferment consists of the product of the cell producing it, the proferment, *plus the hormone*." This book is divided into eight sections which deal respectively with the general aspects of hormone therapy, the hormones of the digestive system, the metabolic glands, the nervous system, the reproductive system, the vascular system, and miscellaneous topics, such as the use of pluriglandular extracts. An appendix contains a glossary of terms, an organotherapeutic dosetable, and a list of books on the internal secretions. In turning the pages of this book one cannot but admire the zeal with which the author has collected the data pertaining to the therapeutic efficacy of the internal secretions. At the same time one feels that the scientific value of this book is impaired by an excess of enthusiasm in extolling the value of organotherapy.

DAS HYGIENISCHE A B C FÜR HERZKRANKE. Von Prof. Dr. HEINRICH STERN in New York. Mit 6 Abbildungen im Text. Price, 2.50 Marks. Würzburg: Verlag von Curt Kabitzsch. Pages 148.

THIS book is addressed to those of the laity who suffer from heart disease or to those who are in danger of becoming heart sufferers. In a simple, clear way the patient is told of the heart and its functions, the diseases of the heart and the mode of life is pointed out. The patient is shown the purpose of the doctor's orders and can thus better cooperate with him. Courage and the joy of living are instilled into him. Therapy is omitted except those few little things that the patient can do for himself.

LUXOR AS A HEALTH RESORT. By W. E. NICKOLLS DUNN, M.B., Lond., M.R.S.C., L.R.C.P., and GEO. VIGERS WORTHINGTON, M.B., B.C., Cantab., M.R.C.S., L.R.C.P., Superintendent Medical Officers to the Luxor Hospital for Natives Price, 1/6 net. London; H. K. Lewis, 1914.

COMPARATIVELY little is known by the profession in general, and less by the public, of the conditions in Egypt, of its advantages and drawbacks, of its virtues and dangers. It is with the idea of giving a short and clear account, which may be a useful guide to the profession and public alike, that the writers have ventured to set down these few practical notes, gleaned from several years' experience in Upper Egypt.

Society Reports.

AMERICAN PEDIATRIC SOCIETY.

Twenty-sixth Annual Meeting, Held in Stockbridge, Mass., May 26, 27, and 28, 1914.

THE PRESIDENT, DR. SAMUEL MCC. HAMILL OF PHILADELPHIA, IN THE CHAIR.

(*Concluded from page* 571.)

Thursday, May 28, 1914—Third Day.

A Case of Primary Splenomegaly of the Gaucher Type.—Dr. J. H. MASON KNOX and Dr. R. H. WAHL of Baltimore reported this case, which occurred in an infant 11 months old. The child had never thrived and weighed only 11 pounds. General malnutrition was associated with idiopathic enlargement of the spleen, liver, and lymph glands, and a peculiar yellowish pigmentation of the skin of the exposed parts. The blood picture was normal until a few days before death, when it assumed the appearance characteristic of lymphatic leukemia. At autopsy the liver, spleen, and the lymphoid tissues were very much enlarged and firm. Histologically there was more or less complete disappearance of the lymphoid elements, which were largely replaced by large swollen rounded or polygonal cells with small nuclei and abundant foamy appearing cytoplasm. The affected organs showed a variable amount of iron-containing pigment. In this case the large cells apparently arose from both the endothelium and the recticulum. The picture in the spleen resembled that first described by Gaucher in 1882. The condition suggested a systemic disease of the lymphaticohemapoetic tissues, but apparently any reticulated tissue might be involved. The condition was very probably related to other blood diseases.

A Case of Gaucher's Disease.—Dr. CHARLES HERRMAN of New York reported this case, which presented the following manifestations: A marked enlargement of the spleen, and a moderate enlargement of the liver; no distinct enlargement of the lymph nodes; discoloration of the face, especially around the nose, and a wedge-shaped thickening of the conjunctiva on either side of the cornea; persistent leucopenia and a tendency to hemorrhages, especially from the nose. The size of the liver and spleen did not change materially during the seven years that the patient was under observation. As the disease progressed the blood showed a marked decrease in the percentage of hemoglobin (75-45), a slight decrease in the number of red blood cells (4,390,000-3,400,000), a constant leucopenia with a decrease in the percentage of polynuclear leucocytes (70-48). As a result of splenectomy, in addition to a marked improvement in the general condition, there was an increase in hemoglobin (40-55) and red blood cells (3,400,000-4,000,000) and a much more marked increase in the white blood cells (4,400-15,000) with an increase in the polynuclear leucocytes (48-75). Splenectomy seemed justifiable even though the benefit might be only temporary, since all other forms of treatment had failed. The risk of the operation was no greater than that of similar operations for other conditions.

Dr. THOMAS S. SOUTHWORTH of New York asked Dr. Herrman if he had recommended operation for the sister of the patient whom he said was also suffering from the disease.

Dr. L. EMMETT HOLT of New York asked what results had been secured in the cases operated upon.

Dr. J. H. MASON KNOX of Baltimore said he wished to emphasize what Dr. Herrman had said in regard to the difficulty of making a diagnosis in these cases unless there was another case in the same family. The advisability of doing a splenectomy early in the course of the disease was a difficult problem as one did not know to what extent the disease had spread to other organs. It might be possible by means of a trochar to get a specimen of the spleen pulp for a pathological examination from which one might make the diagnosis. This would not be a dangerous procedure.

Dr. CHARLES HERRMAN of New York, in reply to Dr. Southworth's question, said that it would be difficult to get the consent of the parents to such an operation unless the child was in immediate danger. Dr. Mason's suggestion in reference to getting a specimen from the spleen for examination he had no doubt would some day be made possible. As to the cases reported, the first was Dr. Boviard's case, operated on by Dr. McCosh, and did not attract much attention. Of the nine cases reported that had been operated on, six recovered and three died. The oldest was 37 years of age and the youngest three years. In the future more cases would be operated upon and the operation would be done earlier. The cases reported had been followed only a few years and it was too soon to judge of ultimate results. Operation was justifiable as drug treatment was of no benefit.

Shall a Department of Pediatrics Include in Its Curriculum the Theoretical and Practical Training of Medical Students in Social-Medical Work Among Infants and Children?—Dr. HENRY J. GERSTENBERGER of Cleveland, Ohio, presented this paper. He said that in a similar paper last year Dr. Gittings had declared that "Between the prevention of disease and the preservation of health there is no essential difference and surely the physician, and not the sociologist, should become the logical arbiter of all problems relating to health." Dr. Gerstenberger said that if we were willing to take the first step we must be ready to take the second and see that the "logical arbiter" was trained for his work. In order to be effective all preventive work must be built upon the sound basis of scientific medicine. In consequence only medical men could direct such work, and therefore it was the duty of the medical schools to see to it that this medical training was given to students. The ideal plan for such work and instruction would be one dispensary in a small district with a well-trained full-time physician in charge aided by an adequate nursing staff, a social worker, and such assistant physicians as might be required to care for all the medical and social ills of the people in that district, except obstetrical and post-partum cases. This physician should have as his administrative head the Commissioner of Health and as his vigilant advisers and counsellors for the different parts of his work men at home in their special fields of medicine, these same men to be the heads of their respective departments or subdepartments in the university medical school; for the reason that after all was said and done our greatest hope for completeness of knowledge for ideals, and for stable policies in medical education in America, were the universities. This plan would give the student the opportunity to get in touch with practical work. Such a plan was being followed in Cleveland. During the senior year the class was divided into four sections and each section spent one-half to two hours for eight consecutive weeks in the wards getting an experience in contagious disease, in the milk laboratory of the Babies' Dispensary, and by practical work among babies in the homes of the poor. This work was appreciated by the men and he felt convinced that the seed had been sown and that men would take advantage of the opportunities offered to prepare themselves for this new field.

Dr. HENRY DWIGHT CHAPIN of New York called attention to the differences between institutional and private work and stated that many an interne that made a good record in the hospital failed to adjust himself to the conditions met in the homes of the poor. If the university could give this instruction it would be a great advantage. The most crying evil of the day was that men were turned out with insufficient training. At the Children's Hospital in New York the first step in social service was taken in 1900 and now every home was visited by a social worker and the physician was acquainted with the home surroundings of every patient. For the social work they had at first tried women physicians, but found that the nurse did better. He did not know why, but the work required a peculiar personality involving tenderness and sympathy; the workers must be something more than trained technicians.

Dr. A. D. BLACKADER of Montreal, Canada, thought it was a question whether this ideal in teaching could be realized owing to the lack of time. At McGill University the fifth year was devoted to clinical work and during this past year one morning a week was given to pediatric work. It was their aim to equip men as well as possible for general work and he did not see where they would get the time for doing the social work. He said he was glad Dr. Gerstenberger had spoken of the useless overfeeding in tuberculosis that was being done by the enthusiastic social and philanthropic agencies and of the needless giving of certified milk.

Dr. L. EMMETT HOLT of New York told of the time given to the teaching of pediatrics at the College of Physicians and Surgeons and did not think that conditions were as bad as had been pictured. Pediatrics

got as much time as obstetrics and some other subjects and it was being more and more recognized all over the country. The men at Columbia were given a very good idea of what pediatrics meant and the work had to be done for a degree. Dr. Holt urged the members to take a more active part in the sociological side of pediatrics and to join the Association for the Prevention of Infant Mortality.

Dr. Fritz B. Talbot described the social work in connection with the Massachusetts General Hospital and said they now thought they could not get along without this aid to their hospital work.

Dr. J. H. Mason Knox of Baltimore said he wished to endorse what Dr. Gerstenberger had said. If people had waited for this Society to do preventive work many babies would have been lost. The members of this Society should take a part in work of this character and should interest others in it even if they did not have the time to do the actual work themselves. Infant consultations furnished an opportunity for the medical student. Here the student would see the babies week after week when they came for advice as to how to keep well and would thus become interested in the work of prevention and would go out with a knowledge of how to keep babies well as well as of how to cure them after they had become sick.

Dr. John Lovett Morse of Boston told of the pediatric work that was being done at the Harvard Medical School, and said that they now proposed to put the fourth year men in the baby hygiene stations. Dr. Morse was of the opinion that there was not sufficient correlation between the various agencies engaged in the work of looking after the children and in the prevention of infant mortality.

Dr. J. C. Gittings of Philadelphia said that from present indications we would soon be on the Chinese basis. He said he wished to emphasize how strongly he felt on this subject. The physician with a well established practice did not have time to do a great deal of the preventive work, but he could extend his sympathy. It was necessary to have trained directors and now that the attention of students had been drawn to this work he believed that men would qualify.

The Pathology and Prophylaxis of Rickets.—Dr. Joseph E. Winters presented this communication, in which he described the abnormalities in ossification which showed conclusively that whatever inhibited assimilation of salts in food caused rickets, and that which insured assimilation of salts in food prevented rickets. Salts to be assimilated must be in organic synthesis with protein. In every food produced in the laboratory of nature salts were in organic synthesis with protein. Disintegrate this synthesis and every food was a rachitic food. Condensed, evaporated, dessicated milk, whey powder, and every dry preparation of milk was a rachitic food. The synthesis of salts with protein in milk was light, hence easily disintegrated. The child fed on cereal might be extremely emaciated and markedly rachitic. Cereal dextrose, glucose, maltose and malt soup inhibited the assimilation of salts in young infants and engendered rickets. Hit or miss modifications of skimmed milk were also productive of rickets. Digestion of protein was by gradual erosion, therefore the young infant could not digest protein unless in finely divided particles, that there might be innumerable points of catalytic action of enzymes. The neglect of the physical behavior of protein superinduced rickets in that it precluded salt assimilation. Centrifugal cream was a rachitic food since it was a protein free food. Ample protein was requisite for salt assimilation. In order to make easy the digestion of protein use the top one-half ounce from a quart bottle of milk sixteen hours after milking, diluted with water and lime water and administered at the proper temperature; this yielded an immense number of finely divided light feathery flocks, easily reduced to a semi-emulsified condition by stirring. The prophylaxis of rickets must be sought in the physical behavior of protein. The proportion of salts in mother's milk was diminished with the increasing age of the mother, in the later months of lactation, during pregnancy, in lactation, and from frequent pregnancies, and might be the cause of rickets. Syphilis, tuberculosis, or malhygiene, predisposed to, but did not cause, rickets.

Dr. Rowland G. Freeman of New York said it seemed to him that it was time to stop considering rickets as a disease due to food at all. Food never caused it though it might modify the course of the disease. Some of the worst cases of rickets in his experience had been in breast fed children, where the breast milk was good. Rickets usually occurred in people from the tropics and developed during the winter when the children were shut in. He believed that rickets was a disease due to bad air.

Dr. L. Emmett Holt of New York said that they had examined a series of breast milks in regard to the salt content and had found that the salts were not deficient during the later months of lactation. The salt content of the later months did not differ from that of the second, third, or fourth months.

Dr. L. E. La Fétra of New York said there was a class of young and feeble infants, especially premature infants, that developed rickets in spite of the best feeding and hygiene. Something seemed to have influenced these babies before birth that produced a tendency to rickets. It was a question whether the food factor or even fresh air entered into the problem. There might be something in the internal secretions that was responsible.

Dr. J. P. Crozer Griffith of Philadelphia said there seemed to be a tendency to rickets in the colored race and Italians. He had observed the disease in a stillborn infant and there seemed to be a hereditary factor. This had been studied by an Italian physician with reference to the past histories of families; he found that with the best of feeding and care children with this inherited tendency developed the disease. He felt sure that rickets was due to something inherited, but he did not know what it was.

Dr. Fritz B. Talbot of Boston stated that with the help of a social worker he had studied one hundred cases of rickets from every point of view and after he was through he could find no definite cause for the disease.

Dr. Joseph E. Winters said that there might be an inherited factor and there was no reason why rickets might not be congenital, but that the underlying causes were those he had spoken of, the diminution of proteins and salts. As to the cases of rickets in colored children and Italians one could not be sure that they were not due to bad feeding, as without the help of a social worker it was impossible to get at the truth in regard to all the irregularities of feeding. If it was a question of atmospheric condition one would not see such cases as the one of which Dr. Gittings had spoken. The fact that children developed rickets on the foods that had been indicated and got over it when put on breast milk was evidence that other factors were subordinate to those involved in the feeding.

The Results of Thymus Extirpation.—Dr. John W. Howland, Dr. E. A. Park, and Dr. R. D. McClure of Baltimore presented this communication. Dr. Parks stated that extensive recent work by Matti, Klose, and Vogt had shown that extirpation of the thymus gland in young dogs gave rise to emaciation and death several months afterwards. Their work showed further that most pronounced changes in the skeleton took place, changes identical with those of rickets in the human being. Van Basch and others had found as a result of thymectomy in dogs transitory changes in the skeleton resembling human rickets, but had failed to find that the thymus gland was essential to life. Some of their thymectomized animals had shown retardation of the development of such extent that at the end of six months they were not much more than one-half the size of the controls, but were nevertheless active, healthy looking, normally formed animals. No changes of a rachitic nature had been found. They felt certain that the thymus gland in dogs was not essential to life and that the changes that resulted from its removal were not of so gross a nature as had been reported in recent work which had come particularly from Germany.

Dr. Alfred Friedlander of Cincinnati said that it was difficult to remove the thymus completely as in certain instances there were accessory thymi and these easily regenerated and took the place of the original thymus and they affected the results of these experiments. Thymectomy in the human being was exceedingly dangerous and there was no absolute indication for doing it. By the operative method the mortality was 33 per cent., while the method of shrinking the thymus with the x-ray had proved simple and safe. They felt justified in claiming that in the x-ray they had a means of treating the enlarged thymus which was just as effective and much safer than thymectomy.

Dr. Isaac A. Abt of Chicago asked what was considered an enlarged thymus, one that produced symptoms or one that appeared large when examined by the x-ray. He felt convinced that examination by the x-ray alone

was not sure. If one could outline the thymus by percussion and there were associated symptoms which were confirmed by the *x*-ray one might be justified in making a diagnosis of enlarged thymus. The only place where the *x*-ray could be absolutely relied on was in the cap thymus; in other forms the clinical evidence was more sure and the *x*-ray only confirmatory.

Dr. E. A. PARK of Baltimore said in reference to the complete extirpation of the thymus that they had looked for rests and believed that their presence had been greatly exaggerated as they had not found them. The operative removal of the thymus ought not to be so difficult. As performed by Dr. Halstead the operation was simple and ought not to be attended with great danger.

The Diagnosis and Treatment of the Late Type of Hereditary Syphilis.—Dr. BORDEN S. VEEDER and Dr. R. C. JEANS of St. Louis read this paper, which was based on the study of 122 cases of hereditary lues at the St. Louis Children's Hospital. Of these 74 belonged to the group usually described as later syphilis, while only 48 were infants under one year with the classical symptoms of rash, coryza, enlarged spleen, etc., which belonged to the early stages of hereditary syphilis. This ratio was the reverse of the figures usually given for the incidence of early and late hereditary syphilis and was due to the inclusion of cases which were not looked upon as luetic before the frequent use of the Wassermann reaction. A wide variety of lesions were encountered and in many instances the lesions were multiple. In every case in which these lesions occurred the Wassermann reaction was positive. The large number of cases with lesions of the central nervous system, 43 per cent., was one of the most interesting features of this series from the standpoint of diagnosis. Among the unusual lesions was an aortitis and a torticollis. Three cases were tested for indefinite pain of obscure origin which had persisted regularly for some time and all gave positive Wassermann reactions, and in all the pain disappeared under specific treatment. The absence of Hutchin's teeth in their cases was very noticeable; of 48 cases old enough to have permanent incisors the teeth were notched in but three cases. They now made it a practice to make a routine Wassermann examination in all cases with chronic lesions of the central nervous system and in many acute cases, and likewise in acute joint lesions and in many cases frequently looked upon as rheumatic. The treatment consisted of a combination of neosalvarsan and mercury. Intravenous injections were used. They preferred the neosalvarsan because it fulfilled essential requirements in children. In acute lesions three or four intravenous injections of neosalvarsan were given with a gradual increasing dosage and then mercury was started in small doses and gradually increased until the patient was taking fairly large doses. This treatment was then interrupted for a short time and again repeated. They had been able to secure but little permanent effect from neosalvarsan and had not observed any advantage from its use in chronic cases of the late type, that was in such lesions as cerebrospinal syphilis or interstitial keratitis that had been present for some time. The Wassermann reaction was stronger in hereditary lues than in any other form of syphilis and hence it was correspondingly more difficult to make negative.

Dr. CHARLES GILMORE KERLEY said it was comforting to hear what had been said in regard to treatment in these late cases of hereditary syphilis. In three cases coming under his observation, one of keratitis, one of periostitis of the tibia, and a third having both keratitis and bone changes, there was no effect from the combined use of salvarsan and mercury.

Dr. SAMUEL MCC. HAMILL of Philadelphia said that Dr. Warthin had been studying the question of the persistence of the spirochete in cases of cured syphilis which had given a negative Wassermann for several years. In such cases coming to autopsy he had found the spirochete in the testicles in nearly every instance and he drew the deduction that syphilis was probably an incurable condition. He had been asked the question, "In cured cases that become reinfected, if the spirochete persisted, what relation had these spirochete to the new infection?" This was interesting in connection with what Dr. Veeder had said in regard to the uncertainty of cure in these late cases.

Officers.—The following officers were elected: *President*, Dr. GEORGE N. ACKER of Washington, D. C.; *Vice-president*, Dr. HENRY L. COIT of Newark, N. J.; *Secretary*, Dr. SAMUEL S. ADAMS of Washington, D. C.; *Treasurer*, Dr. CHARLES HUNTER DUNN of Boston, Mass.; *Delegate to the Association of American Physicians*, Dr. ABRAHAM JACOBI; *Elected to Membership in the Society*, Dr. R. H. WAHL of Chicago, Dr. PHILIP VAN INGEN of New York, Dr. T. DE WITT SHERMAN of Buffalo, and Dr. HENRY F. HELMHOLZ of Chicago.

Place of Meeting.—The next meeting of the society will be held in Cape May, N. J., May 25, 26, 27, 1915.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, Held April 7, 1914.

THE PRESIDENT, DR. SMITH ELY JELLIFFE, IN THE CHAIR.

The Chronic Progressive Cerebellar Tremor.—Dr. J. RAMSEY HUNT said that under this title he would direct attention to a group of cases which he believed belonged to a definite and undescribed *clinical type* of nervous diseases. Three cases of this affection had come under his observation, two of which had been under treatment for a considerable time. The third was of more recent date and would correspond to an earlier stage of the disease. In the outline of the clinical picture, the two advanced cases only would be considered, in which the disease had been constant and progressive over a period of six years. The affection began in one of the extremities, either the arm or leg, as a volitional tremor of the *intention type*, which very gradually increased in intensity. After an interval of a year or more a similar tremor developed in another extremity and progressed in the same gradual manner as in the limb which was first affected. A year or so later the other portions of the body were gradually involved, so that in the course of from three to four years the head, trunk, and extremities presented the clinical picture of a coarse, volitional tremor. The tremor was increased by all movements, however slight, and by any excitement or mental activity. It ceased during sleep, and was always greatly diminished by rest in a relaxed or recumbent posture and usually ceased entirely in this position. Some slight rhythmical tremors of the head, hand, or foot occasionally persisted even during rest in the recumbent position. It was distinctly a volitional tremor, and any attempt at a coordinated movement directed towards some object produced an increase of the shaking and that atactiform tremor which we associate clinically with multiple sclerosis. The tremor movement was slow and coarse, and averaged from three to five vibrations a second. The rate and amplitude were both increased by voluntary movements and by excitement. It was not affected by closure of the eyes. The gait was jerky, uneven, and dysmetric, the smooth harmony of movements being interrupted by coarse irregular tremors of the head, trunk, and extremities. There was no ataxia, either kinetic or static. The equilibrium was easily maintained with the eyes open or closed, even when the whole body was in a state of shaking and oscillation. The speech was slow and scanning, with a tendency to explosive utterance, or it was simply slower than normal. Finer movements of the hands were rendered impossible, so that eating and drinking were difficult, and the handwriting became an irregular scrawl. There was no paralysis: no sensory disturbances, and all the tendon and skin reflexes were present and normal. There was no loss of the perception of weights. The speaker especially emphasized the preservation of the abdominal reflexes, and the normal flexor type of the plantar reflex. The pupils were equal and reacted normally. There was no true nystagmus. Occasionally, when the head tremor was active and it was mechanically checked by holding, the tremor overflowed, and appeared in the ocular muscles. When, however, the eye fixed and followed an object, there was no nystagmus. There were no explosive emotional attacks, nor crises of laughing and crying; no diplopia, no vesical trouble, visual disturbances, nor other signs of multiple sclerosis. The optic discs were normal, as were the other cranial nerves. Memory was intact; there were no unusual states of depression or exaltation, and there were no evidences of mental deterioration. There were no pigmentary deposits of the cornea as have been noted in some cases of the pseudosclerosis. Headaches occurred before the onset of the tremor, and from time to time since. These were chiefly frontal, not of great severity, and not accompanied by nausea or vomiting. There was no true objective vertigo, but in the erect posture, when the oscillation of the head was pronounced, subjective sensations of vertigo and giddiness occurred.

There was no history of epileptiform seizures, cerebellar fits, or vestibular attacks. The Wassermann test for blood and cerebrospinal fluid was negative, and there was no increase of albumin nor cells. The blood was normal, as was the urine, and the general visceral examination was negative, excepting for a small, firm enlargement of the thyroid gland in one of the cases, without symptoms of Graves' disease. There was no history of trauma, nor symptoms indicative of hysteria. Except for the coarse, progressive tremor, which gradually and successively involved one extremity after another, the only other symptoms indicating an organic disease of the nervous system were the following, and these may be referred to a disorder of certain functions of the cerebellum. The adiadochokinesis of Babinski was distinctly present on both sides. There was also a hypotonic state of the muscles, as indicated by flaccidity and softness of the muscular tissue of the extremities, relaxation of the joints and the presence of the Stewart-Holmes sign of hypotonia (failure of the rebound or movement of extension when flexion of the arm has been resisted and is suddenly released.) Mechanical and electrical excitation of muscles was normal. In addition, certain symptoms indicating asynergia and dysmetria were also present, *i.e.* a failure of the harmonious grouping of the movements concerned in a coordinated act. This was especially marked in the upper extremities. While there was no weakness or paralysis of the muscles in the ordinary sense, there was demonstrable an *intermittent asthenia* of a peculiar character, which consisted in the inability to sustain the muscle contractions of a voluntary movement except for a brief period of time. For instance, if the patient grasped the hand of the physician and was instructed to sustain the contraction, even with special effort, relaxation took place in a few seconds and the grip loosened, and another attempt would be made only to suffer the same spontaneous relaxation. This could also be demonstrated in dorsal flexion of the foot and flexion of the arm. The author ascribed this to a defect in the mechanism regulating muscle tonus, and it was, in a way, the reverse of what Babinski had described as cerebellar catalepsy, in which the power of fixation was greatly increased when a limb, by an effort of will, was held in a certain position. The Barany "pointing tests," had been unsatisfactory and difficult of interpretation because of the coarse atactiform tremor on intention. The caloric tests show the integrity of the vestibular apparatus. To summarize briefly, this clinical type, which was considered worthy of differentiation, was characterized by a chronic, gradually progressive tremor, coarse and irregular in character, associated with symptoms of asynergia, hypotonia, adiadochokinesis, and the *intermittent asthenia*, an inability to sustain fixed or continuous muscle contractions. All of these symptoms were referred to disturbance of the cerebellar function. In the differentiation of this condition, the so-called hereditary or essential tremor may be excluded by the absence of a hereditary or family tendency to tremor, by the slow method of progression, successively involving one extremity after another, and by the associated symptoms of a cerebellar affection. The "tremor type" of Parkinson's disease may be ruled out by the disturbance of tonus, which differs fundamentally from the rigidity and hypertonicity of that disease. There are none of the symptoms which would justify a diagnosis of hysteria, a traumatic neurosis or the pseudosclerosis of Westphal. The author realized that in the absence of any pathological support to the contrary, the question of multiple sclerosis was an important one in the interpretation of this group of cases. If the underlying lesion was multiple sclerosis, this group deserved a place among the recognized clinical types of that discase. As, however, all the symptoms indicated a disturbance of the cerebellar function, and were slowly progressive, he would regard these cases as representing a well defined and progressive disease of some portion of the cerebellar mechanism. The clinical type he would designate as the *chronic progressive cerebellar tremor*. It was suggested that such cases had probably been variously classified as hereditary or essential tremor, multiple sclerosis, hysterical tremor, traumatic neurosis and atypical paralysis agitans. The reports of three cases were given.

Insanity Among Jews.—Dr. A. A. BRILL and Dr. M. J. KARPAS presented a joint paper on this subject, which was read by Dr. Brill (see page 576).

Dr. GEORGE H. KIRBY said the paper of Dr. Brill and Dr. Karpas was of special interest to him, as they had for several years past endeavored to collect careful statistics at Ward's Island regarding the different racial types coming into the hospital. Similar data were now being gathered under the supervision of the State Hospital Commission in all the State hospitals. Studies in comparative race psychopathology had always seemed to him important, not only because of their purely psychiatric value, but also because of their practical bearing on some of our sociological and economical problems. It was, for example, important to know that the Italians were bringing in more epilepsy than any other race; that the Irish supplied an enormously disproportionate number of alcoholic psychoses, and that the recently arrived Jews furnished a high percentage of dementia præcox, mania-depressive insanity and feeble-mindedness. While the studies so far made showed that these psychopathic tendencies existed in varying degree among the different alien groups, it was much more difficult to determine if insanity in general was more prevalent in one race of mankind than another. Drs. Brill and Karpas, contrary to certain general impressions, concluded that insanity was *not* disproportionately frequent among Jews as a race, but that in fact, just the opposite was true. Dr. Kirby said he wished to mention one factor involved in this study which he thought threw some doubt on the conclusions reached. To determine the incidence of insanity, one should not compare an essentially immigrant population (such as the Jews in New York) with the native born population. An immigrant population may be variously constituted. It usually contained a disproportionate number of young adults, and the two sexes might exist in unusual proportions. The Italian population of New York had a big majority of young, unmarried men, while the Irish immigration had brought more women than men to this country. On the other hand, the native born population contained from one-sixth to one-fifth of children, and had, of course, a much larger proportion of middle aged and old people than did an immigrant population. The age periods were, therefore, very important in determining the incidence of insanity in any group of people. One reason why dementia præcox and manic-depressive insanity were relatively more frequent among Jews admitted to the hospitals than the native born was because there were relatively more young adults in the Jew population. As the average age of the immigrant population increased, there would be more cases of paresis, and, later still, more cases of arteriosclerosis and senile dementia to record among the Jews. The speaker said that to his mind, more reliable comparisons were those contained in the figures which the authors of the paper quoted from the Russian sociological study. We had there a native Russian population compared to a native Jew population, and the figures were practically equal, the Jews showing only a slightly higher percentage than the Russians. If, however, the multitude of cases of dementia præcox and manic-depressive insanity among the Jews in this country had remained in Russia to be included, the percentage would have probably been even higher for the Jews. In regard to feeble-mindedness, a great deal of the data available indicated that it was proportionately higher among Hebrews than other races. Among all the cases of imbecility admitted to the Manhattan State Hospital during the past four years, 50 per cent. of them were Jews, whereas this race constituted only 21 per cent. of the total admissions. Some studies made in the New York City schools showed a high percentage of Hebrew pupils in the classes for defectives. With ten per cent. of the children of native parentage, there were 40 per cent. of Hebrew parentage: more Hebrew children, in fact, than there were Italian, German, Irish, and negro children combined. At Ellis Island the number of defective Hebrews excluded had been remarked upon; the figures showed that nearly 33 per cent. of all the immigrants certified as mentally defective were Hebrews, whereas this race furnished only 14 per cent. of the total arrivals.

Dr. SMITH ELY JELLIFFE said the general attitude toward any statistical problem was one that was extremely difficult to grasp. Statisticians who followed work of this kind as a profession seemed to feel that the average question could be satisfactorily and definitely solved by figures, and they were apt to ignore certain facts tending to show that such figures, taken by themselves, were of rather superficial importance. Dr. Kirby had emphasized the fact that from the bare recitation of a series of figures we were not warranted in draw-

ing any definite conclusions as to the broader aspects of this problem. Sociologic and economic questions, the transplantation of families, educational factors—all these had to be taken into consideration in trying to solve this problem of the comparative prevalence of insanity among the Jews or other race.

Dr. KARPAS stated that the statistical data in the paper was obtained from the Manhattan State Hospital and the Psychopathic Department of Bellevue Hospital; the former aided them in the study of various forms of mental diseases occurring in the Hebrew and the type of predilection of certain forms of mental diseases; the statistics from the latter prove that the ratio of the Jewish insane to the Jewish sane population was not so high, and since Jews inhabit large cities, New York formed an invaluable source of information for the study of race psychopathology, particularly in Jews. However, he felt that the figures were by no means absolute; but they formed an invaluable index by which one could gauge the insane population and furthermore be guided in future studies along the same line. He also felt that the large number of so-called mental defectives among Hebrews excluded at Ellis Island was not at all conclusive, inasmuch as the medical examiners there were not familiar with the language and racial characteristics of the class of immigrants they were dealing with. One must bear in mind that feeble-mindedness, excluding the well-defined cases of idiocy and imbecility, is purely relative, and before one can diagnose a case of mental retardation, it is necessary to take into consideration the individual in relation to his heredity, environment, and intellectual training.

Dr. BRILL said he realized that the criticisms made by Dr. Kirby and Dr. Jelliffe had some basis, but when one came to investigate the statistics that had been given by various other writers to prove the converse of this contention, namely, that the Jews did contribute more to insanity than any other race, one would find that their deductions were based largely on hearsay, while the conclusions drawn concerning the number of insane Jews in Manhattan and Bronx were based on actual figures. In this paper, Dr. Brill said, they had confined themselves to the question of disproportionate insanity among Jews, and had not taken up the various psychoses, as such; feeble-mindedness, without insanity, was not considered at all, as that class of cases would be investigated and reported at some future date. It was practically impossible, of course, in a study of this kind, to select the cases from the general population at various ages, or to learn how recent or remote their arrival in this city had been. While such a selection might have had some influence upon the results, it would probably have been comparatively trifling, and the percentages would have remained practically unchanged.

Dr. MAURICE FISHBERG (by invitation) said that great care must be taken in interpreting the statistics of insanity—in fact, more discretion was necessary than in interpreting dreams. Ninety-five per cent. of Jews were city dwellers as against only 33 per cent. of non-Jews. Urban dwellers had a higher incidence of insanity, and must commit their mental defectives to institutions, whereas in rural populations the rates of insanity were lower and the milder forms of mental alienation were permitted to roam about. The Jews were engaged in financial and commercial pursuits in much larger numbers than the Christians, and this had an influence in the direction of increasing the number of insane among them. It was, however, impossible to determine the exact proportion of insane Jews in New York, because we had no reliable data as to the actual number of Jews, all the so-called estimates being merely guesswork. As to the statement that 40 per cent. of the pupils in the ungraded classes in the schools of this city were of Jewish descent, the speaker said this did not at all prove that there was more feeble-mindedness among them than among others. Jewish parents were more apt to send their children to school, while other inmigrants often used every possible effort to evade the compulsory education law. Dr. Fishberg emphasized the fact that while studying these problems, one must be extremely careful in the compilation of statistics. While preparing a monograph on the ethnic characteristics of the Jews, he had carefully scanned the literature, which was more extensive than the readers of the paper seemed to be aware, but he could arrive at no positive conclusions. In the official statistics of Austria, Hungary, Germany, and some other European countries there were many data about conditions extending over long periods of years, yet it seemed that the question whether insanity among the Jews was more frequent than among others, and whether there was such a thing as a *psychosis judaica*, or whether certain forms of mental alienation were more apt to occur among non-Jews, had not yet been settled. It all depended, it appeared, on the frequency of the factors instrumental in the etiology of insanity, such as alcoholism, syphilis, precarious occupations, such as banking, mercantile pursuits, etc. That there were no race factors at work was evident from many peculiarities, and this was best illustrated by the frequency of suicide among them. Half a century ago a Jewish suicide was extremely rare, while at present there were more Jews who voluntarily ended their life in Germany and also in New York than others. Ethnic traits did not change within one or two generations. Dr. Fishberg showed that the statistics from Russia, quoted by the reader of the paper, were of no value, because census statistics had never been taken seriously in that country, and, in addition, the Jews there kept their insane at home, excepting in very severe cases, and hence they were not counted in the asylum population. The figures presented by Dr. Brill about conditions in New York were not carefully compiled, and might be interpreted in many ways. More figures were of no value: statistics were always comparative.

The Autonomic Reciprocal Activities of Brain and Viscera.—Dr. WALTER TIMME presented a paper on this subject. He said a decade had now passed since Langley and the English school had contributed to our knowledge of nervous anatomy and physiology a comprehensive plan of the structure and workings of that part of the nervous system which supplied the smooth muscle fibers of the body, the cardiac muscle, and the glandular tissues, and to which they had given the broad term, Autonomic System. This was so-called from the fact that it acted independently of the cerebrospinal system, and still there seemed to be confusion not only in the nomenclature, but also in the interpretation of the many experiments that had been made by various investigators in this field of research. Dr. Timme then briefly sketched the anatomical characteristics of the autonomic system, from which we saw that the viscera generally had a double nervous supply: one from the sympathetic *via* the vertebral and prevertebral ganglia, and the other from either one or the other of the autonomic divisions. These two sets of nerve fibers conveyed a continuous stream of current to the tissues, but from the probability that their end organs in the tissues were different from one another, class for class, their effects upon the viscus were of a balancing character. As a result, the activity of the organ was commensurate with the work that in a given case was required of it, the repair and growth of its cellular elements controlled, the blood supply properly limited; and all these various activities were constantly at work, independent of our will, and, indeed, largely of our consciousness. But such a compensating balancing mechanism was dependent upon many factors other than these, and yet upon factors that were influenced *indirectly* by the will and consciousness, so that if one set of fibers was depressed, the other overacted its part, and the converse. But it would seem that if one set was entirely destroyed, the other, having no physiological antagonist, ceased its influence. We all knew that various associations produced autonomic effects without our will, and it was reasonable to suppose that if we could recall these associations through our will, the same autonomic effects would be produced. Joy caused a rapid heart action; shame was accompanied by blushing; fear sent the blood from the face and lips and dried the mouth; psychical irritation might cause vomiting or asthma or diarrhea, and sexual excitement was followed by erection. Any of these effects could be reproduced by calling up the associations which accompanied their presence at some previous time, so that only indirectly could the will control the autonomic mechanism—a far different matter from the voluntary absolutism over the cerebrospinal. Many attempts have been made to trace anatomically the path of influences from the cortex and other cerebral areas to the bulbar and spinal sympathetic nuclei, and on the other hand the track of the painful and other sensations from the viscera to the cortex, but the sum of our knowledge at present is merely that there exist certain areas in the brain whose stimulation produces certain activities in the viscera. For example, there is a point in the hypo-

thalamic region which, when irritated, produces dilatation of the pupil (Kreidl). The floor of the third ventricle contains an area which partially controls the sugar tolerance; bladder contractions may be called forth by stimulating a part of the hypothalamus; but these results are quite isolated and want further proof. As for the tracts of conduction for these impulses, we simply know that the cervical sympathetic and the superior cervical ganglion were the carriers of the current from the cerebrum and midbrain to the ciliary muscle influencing the tone of the pupil. The other question, the manner of conduction of painful impulses from the viscera to the cortex, was explained by many—Sherrington, Muller, Head and others—as due to the process of "irradiation" from the termination of the afferent autonomic fiber in the spinal ganglion to the spinal afferent nerve in juxtaposition to it, and thence to the cortex. We have now seen in the lowest vertebrate type, the amphioxus, in the mammalian cat and in the human being, based upon embryological development directly observed, upon physiological and pathological experimentation, upon clinically observed facts and upon pharmacological experience, that there was a close relationship between the activity of the brain and that of the viscera, and that in spite of the autonomicity of the one and the primacy of the other, each was complementary to the other in a broad sense, and depended upon it for its own normally functionating existence.

Presentation of Memorial of Dr. Ralph L. Parsons.—Dr. Theodore H. Kellogg, presented this memorial.

Presentation of Memorial of Dr. E. C. Spitzka.—Dr. N. E. Brill presented the following resolution, which was unanimously adopted:

Resolved: That the New York Neurological Society has learned with great sorrow of the death of its member and former President, Dr. Edward Charles Spitzka; that it desires to place on record the expression of its appreciation of the very great value of the services rendered by him to the New York Neurological Society, and to medical science, especially to neuro-anatomy and to psychiatry; And, therefore, it orders that a Minute of this Resolution be inscribed on its records, that a copy of it be sent to the medical press, and that a copy, suitably engrossed, be sent to the family of the deceased.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Illinois State Board of Health.

January, 1914.

ANATOMY.

1. Name the classes into which the vascular system is divided. Give the anatomical structures of each class.
2. Give the three forms of articulations, with one example of each.
3. Name the ligaments of the temporo-maxillary articulations.
4. Name the muscles of the arm, giving the origin of each.
5. What is the longest muscle in the body? Give its origin and insertion.
6. Name the coronary arteries. Where do they arise and terminate?
7. Name the branches of the axillary artery.
8. What does the foramen magnum transmit?
9. Name the lobes, fissures, and arteries of the liver.
10. Where and into what does the great sciatic nerve divide?

MATERIA MEDICA AND THERAPEUTICS.

1. Give the dose, mode of administration, uses, and dangers of apomorphine hydrochloride.
2. Define local anodyne. Name one and describe its use.
3. Name three antacids, give dose and therapeutic indications.
4. Define diuretic, name three and explain use and mode of action of one of them.
5. Classify each of the following according to its therapeutic use: Camphor, morphine, nitrite of sodium, veronal, ergot.
6. Name two drugs which increase the hemoglobin of the blood. Give dose and use.
7. Name two drugs which are alleged to increase the coagulability of the blood. Give uses.
8. Name two drugs which lower blood pressure, giving dose, mode of administration, and uses.
9. Name two diaphoretics and give physiological action of one of them.
10. Name five drugs used for reducing or lowering the temperature in fever, giving dose of each.

CHEMISTRY.

1. Define briefly the following terms: Matter, force, energy, and law of Avogadro.
2. Explain the terms radicle and residue, also reaction and reagent.
3. Name some uses of phosphorus. Give one test for phosphorus in case of poisoning. How many oxides of phosphorus?
4. State chemical action of nitric acid. Complete the following formula: $C_6H_6 + HNO_3 =$
5. (a) Name some of the characteristic properties of hydrocarbons. (b) Give formula for marsh gas. (c) Complete the formula $6Cu + CS_2 + 2H_2O =$

ETIOLOGY AND HYGIENE.

1. Give the etiology of Hodgkin's disease.
2. Give the etiology of cirrhosis of the liver.
3. Give the etiology of rheumatic fever.
4. Briefly discuss the prophylaxis of trachoma.
5. What hygienic conditions should exist in a manufacturing plant employing 3,000 men and 800 women, to protect and main the health of the employees?

PATHOLOGY.

1. Describe the pathology of arthritis deformans.
2. Give the gross pathology of acute lobar pneumonia.
3. Name six pus-producing cocci in the order of their virulence.
4. Describe the pathology of pyonephrosis.
5. Describe the pathology of chronic parenchymatous nephritis.

BACTERIOLOGY.

1. Name some of the important pathogenic diplococci.
2. What are the important pathogenic bacteria found in sputum.
3. Give the bacteriology of syphilis.
4. Give the technique of the Widal test.
5. Describe the blood findings (microscopic) in a case of pernicious anemia.

PHYSIOLOGY.

1. How is heat produced in the body, and how is it given off from the body?
2. Explain dangers of transfusing blood from lower animals into man.
3. What is meant by "physiological leucocytosis" and under what conditions found?
4. Discuss functions of (*a*) proteins, (*b*) carbohydrates, (*c*) fats, (*d*) salts, (*e*) water, all of which constitute food.
5. What physical and chemical changes take place in a muscle during contraction?
6. Give origin and function of the bile.
7. Name parts of (*a*) small intestine, (*b*) large intestine.

ANSWERS.

Illinois State Board of Health.

January, 1914.

ANATOMY.

1. The VASCULAR SYSTEM is divided into two classes: (1) The *blood-vascular system*, which consists of the heart, arteries, capillaries, and veins, and (2) the *lymph-vascular system*, which consists of the lymph glands and lymph vessels.

2. The *three forms of articulations* are: (1) *Synarthrosis*, or immovable articulation, such as that between the two parietal bones. (2) *Amphiarthrosis*, or mixed articulation, such as that between the two pubic bones. (3) *Diarthrosis*, or freely movable articulation, such as that between the humerus and the ulna.

3. *Ligaments of the temporomaxillary articulation* are: External lateral, internal lateral, stylomaxillary, and capsular; with an interarticular disc of cartilage.

4. The *muscles of the arm* are: *Coracobrachialis* (origin from coracoid process of scapula), *Biceps* (origin from coaracoid process of scapula, and upper margin of glenoid cavity of scapula), *Brachialis anticus* (ori-

gin from outer and inner surfaces of shaft of humerus, beginning at about the level of the insertion of the deltoid), *Triceps* (origin from below the glenoid cavity of the scapula, from posterior surface of shaft of humerus and external border of humerus above the musculospiral groove, also from posterior surface of shaft of humerus and internal border of humerus, below the musculospiral groove), and *Subanconeus*, which is really the name of some of the fibers of the lower part and under surface of the triceps.

5. The longest muscle in the body is the *Sartorius*. It arises from the anterior superior spine of the ilium, and is inserted into the upper part of the inner surface of the shaft of the tibia.

6. The *right and left coronary arteries of the heart*, arise near the commencement of the aorta; the right, from the anterior sinus of Valsalva; and the left, from the left posterior sinus of Valsalva; these two arteries anastomose in the substance of the heart. The *superior and inferior coronary arteries of the face* are branches of the facial artery, and run along the upper and lower lips respectively; each one anastomoses with its fellow of the opposite side. The *coronary artery* is also a name for the gastric artery, a branch of the celiac axis, which supplies the stomach.

7. *Branches of the axillary artery:* Superior thoracic, acromiothoracic, long thoracic, alar thoracic, subscapular, posterior circumflex, and anterior circumflex.

8. The *foramen magnum* transmits: The lower part of the medulla oblongata and its membranes, the spinal portion of the spinal accessory nerves, the vertebral arteries, the anterior and posterior spinal arteries, and the occipitoaxial ligaments.

9. The *lobes of the liver* are: Right lobe, left lobe, lobus quadratus, lobus caudatus, and Spigelian lobe (the last three are subdivisions of the right lobe). The *fissures of the liver* are: Umbilical fissure, fissure for the ductus venosus, transverse fissure, fissure for the gall-bladder, and fissure for the inferior vena cava. The *arteries of the liver* are: The hepatic artery, with the two branches into which it subdivides, the right and left hepatic arteries.

10. The *great sciatic nerve* generally divides at about the lower third of the back of the thigh into the internal popliteal and external popliteal nerves.

MATERIA MEDICA AND THERAPEUTICS.

1. APOMORPHINE HYDROCHLORIDE. Dose 1/30 grain (expectorant); 1/10 grain (emetic). It is usually *administered* by hypodermic injection. *Uses:* To produce vomiting, as an expectorant (in bronchitis). *Danger:* Collapse.

2. A *local anodyne* is an agent which, when applied to a part, is capable of relieving pain in that part. Heat is a local anodyne; it may be applied in the form of hot water, by compresses, hot packs, or by immersing the part in hot water; dry heat and steam are also used.

3. *Three antacids:* Sodium bicarbonate, potassium bicarbonate, and magnesia.

Sodium bicarbonate, dose gr. xv, is sedative to the gastric nerves, and is used in dyspepsia, hyperacidity, and acid diarrhea (of infants); it is applied locally in burns, ivy poisoning, and to allay itching.

Potassium bicarbonate, dose gr. xxx, is used in dyspepsia, hyperacidity, gout, and rheumatism.

Magnesia, dose gr. xxx, is used for acidity, sick headache, and mild digestive disturbances.

4. *Diuretics* are agents which promote the secretion of urine. *Three diuretics:* Water, digitalis, potassium acetate. *Potassium acetate* acts as a diuretic by stimulating the renal epithelium, and causing hyperemia of the kidneys, thus increasing the water in the urine. It is used in gouty and rheumatic conditions.

5. *Camphor* is a cardiac stimulant; *morphine* is a hypnotic anodyne and antispasmodic; *nitrite of sodium* is a vascular dilator; *veronal* is a hypnotic; *ergot* is used to cause contraction of the pregnant uterus, also of the muscle fibers in arteries (in case of hemorrhage).

6. *Two drugs which increase the hemoglobin of the blood:* Iron and perhaps arsenic.

Iron. Mass of ferrous carbonate, dose gr. iv; used in chlorosis.

Arsenic. Dose of liquor potassii arsenitis, ♏ iij, to be increased; used in anemic conditions.

7. *Two drugs which are alleged to increase the coagulability of the blood:* Calcium chloride and gelatine. Said to be useful in cases of internal hemorrhage and in hemophilia.

8. *Two drugs which lower blood pressure:* Nitroglycerin and amyl nitrite. *Nitroglycerin* is given by mouth or hypodermically in doses of ♏ 1; *amyl nitrite* is inhaled, dose ♏ 3. *Nitroglycerin* is used in cases of chronic nephritis with high blood pressure, also in anticipated attacks of angina pectoris. *Amyl nitrite* is used in angina pectoris, epilepsy, and cardiac dyspnea.

9. *Two diaphoretics:* Pilocarpine and Dover's powder.

Action of pilocarpine: "Especially stimulates the terminations of the secretory nerves, the first effect being a marked increase of the saliva; also stimulates unstriped muscle generally (with the exception of that of the blood vessels), and particularly in the intestine, causing violent peristalsis. The heart is at first accelerated and then slowed, and the blood-pressure first rises and then falls. The pupil is contracted, and spasm of accommodation occurs. The effects on the central nervous system are mainly depressing; they appear late and are quite overshadowed by the peripheral effects. This drug is the most efficient sudorific known, and with the exception of the diaphoresis its most important effects are the salivation and the myosis. In consequence of the hyperemia of the skin caused by it, the temperature may be temporarily elevated, but the evaporation of the sweat soon produces a decided fall."—(Wilcox's *Materia Medica.*)

10. *Five drugs used for reducing or lowering the temperature in fever:* Acetanilide, gr. iv; antipyrine, gr. iv; acetphenetidine, gr. vij; quinine sulphate, gr. iv; and salicylic acid, gr. vij.

CHEMISTRY.

1. *Matter* is that which occupies space.

Force is that which produces, or tends to produce, motion or change of motion of matter.

Energy is the capacity to do work and also the exertion of doing work.

Law of Avogadro: Equal volumes of all gases, under like conditions of temperature and pressure, contain equal numbers of molecules.

2. *Radical* is a group of atoms which can enter or leave a chemical reaction, and behave in general as a single atom.

Radical of an acid is obtained by the subtraction from the acid of a number of hydroxyls equal to the basicity of the acid.

Residue of an acid is that which remains after removing the replaceable hydrogen.

Reaction is the interaction of two or more substances with chemical union or decomposition; also, the evidences of chemical decomposition afforded by changes in color, solubility, state or shape.

Reagent is a substance used to bring about a reaction.

3. *Uses of phosphorus:* In making matches, rat paste, and phosphor bronze.

Mitscherlich's process for detecting phosphorus: "This process is based upon the property of unoxidized phosphorus of becoming luminous in the dark. The matters supposed to contain the poison are rendered fluid by dilution with water, and acidulated with sulphuric acid. They are placed in a flask upon a sand bath, and the flask connected with a Liebig's condenser, which is placed in absolute darkness. Upon heating the flask any phosphorus present is volatilized, and, condensing in the tube, forms a luminous ring. This reaction is very delicate, and the appearance of the ring is proof positive of the presence of unoxidized phosphorus."—(Witthaus' *Essentials of Chemistry and Toxicology.*)

There are *two oxides of phosphorus*, the trioxide, P_2O_3, and the pentoxide, P_2O_5.

4. *Nitric acid* is decomposed on exposure to air and light or to strong heat; it is an oxidizing agent; it dissolves many metals, forming nitrates.

$$C_6H_6 + HNO_3 = C_6H_5NO_2 + H_2O.$$

5. *Hydrocarbons* are gaseous (the first four members of the methane series), liquid (the next ten or eleven), and the remainder are solid; they are lighter than water and are insoluble in water, but soluble in alcohol, ether, and liquid hydrocarbons.

Formula for *marsh gas* is CH_4.

$$6\,Cu + CS_2 + 2\,H_2O = 2\,Cu_2S + 2\,CuO + CH_4.$$

ETIOLOGY AND HYGIENE.

1. The *etiology of Hodgkin's disease* is unknown.

2. *Etiology of cirrhosis of the liver:* Irritants taken

to the liver by the blood; alcohol, and certain infectious diseases.

3. *Etiology of rheumatic fever* is unknown; probably some diplococcus, staphylococcus, or streptococcus.

4. *Prophylaxis of trachoma:* "The patient and his family must be warned of the contagiousness of the secretion, and impressed with the necessity for keeping the patient's handkerchiefs, towels, wash basin, etc., apart from those of other persons. In schools, asylums, institutions, and barracks, the prevention of epidemics of trachoma is a very serious matter, requiring constant vigilance, careful inspection of every new addition or inmate, and the isolation of trachoma cases so long as the latter are capable of conveying the disease."—(May's *Diseases of the Eye.*)

5. "In addition to the ordinary hygiene of factories and workshops, such as proper space, air, ventilation, water supply, lighting, heating, drainage and plumbing, ordinary cleanliness, and absence of dust, care should be taken that women and children do not work too long at a time or at occupations involving the use of poisonous or deleterious materials; that there are ample toilet and lavatory accommodations, and that these are separate and away from those used by men; there should also be opportunity to sit, and women should not be expected to remain standing for long periods of time."—(Scott's *State Board of Physiology and Hygiene.*)

PATHOLOGY.

1. *Pathology of arthritis deformans:* "The cartilage cells proliferate and burst into the joint, leaving the matrix, which has become fibrillated, looking like coarse velvet or plush. The softened cartilage is worn away at the points of pressure, and the underlying bone becomes hard and polished (eburnated). In spite of this hardness, the bone becomes worn away and perhaps grooved. At the same time there is overgrowth of the cartilage at their margins, which produces 'lipping,' while new bone is formed underneath. These osteophytes may lead to impairment of mobility, or may become broken off and form loose bodies in the joint. The synovial membrane is thickened and its villi hypertrophied. Cartilage may develop in the synovial fringes, and then, if detached, another type of loose body in the joint is formed. Effusion may or may not be present."—(*Aids to Surgery.*)

2. *Lobar pneumonia.* (1) *Stage of engorgement.*—This is the stage of inflammatory hyperemia and edema, and it is characterized microscopically by overfullness and slight tortuosity of the pulmonary capillaries, and by swelling of the alveolar epithelium. The lung is of a dark red color; it is heavier and less crepitant than natural; it pits on pressure; and its cut surface yields a reddish, frothy, tenacious liquid.

(2) *Red hepatization.*—Here there is an exudation of liquor sanguinis and blood-corpuscles. The exuded liquids coagulate within the alveoli and terminal bronchioles, the coagulum enclosing numerous white and a few red blood-corpuscles. The alveolar epithelium is swollen and granular. The lung is now much heavier than in the preceding stage, and is increased in size, so as to be often marked by the ribs. It is quite solid; sinks in water, and cannot be artificially inflated. It is remarkably friable, breaking down with a soft granular fracture. The cut surface has a markedly granular appearance, seen especially when the tissue is torn, and due to the plugs of coagulated exudation-matter which fill the alveoli. The color is of a dark reddish-brown, often here and there passing into gray. This admixture with gray sometimes gives a marbled appearance. The pleura covering the solid lung always participates more or less in the inflammatory process. It is opaque, hyperemic, and coated with lymph.

(3) *Gray hepatization.*—This stage is characterized by a continuance of the process of inflammatory cell-emigration, and by more marked changes in the epithelium. The white blood corpuscles continue to escape from the vessels, and the alveolar epithelium becomes more swollen and granular. The alveoli thus become more completely filled with young cell-forms, so that the fibrinous exudation is no longer visible as an independent material. The fibrinous exudation now disintegrates, and the young cells rapidly undergo fatty metamorphosis. The alveolar walls themselves, with few exceptions, remain throughout the process unaltered, although very occasionally, when this stage is unusually advanced, they may be found here and there partially destroyed. Owing to these changes, the reddish-brown color of the lung becomes altered to a grayish or yellowish white. The granular appearance is much less marked; the solid tissue is much softer and more pulpy in consistence, and a puriform liquid exudes from the cut surface of the organ. This stage, when advanced, has been termed 'suppuration or purulent infiltration' of the lung."—(Quain's *Dictionary of Medicine.*)

3. *Six pus-producing cocci: Streptococcus pyogenes, Staphylococcus pyogenes aureus, Staphylococcus pyogenes albus, Staphylococcus pyogenes citreus Gonococcus, Streptococcus erysipelatis.*

4. *Pathology of pyonephrosis:* "The kidney presents a number of abscess cavities, the intervening parenchyma being pale and tough as a result of chronic interstitial nephritis. Unless there has been antecedent hydronephrosis the pelvis is usually small in proportion to the greatly enlarged and flask-shaped calyces, which constitute the abscess cavities and form the chief bulk of the kidney. Their communications with the pelvis and with each other are narrowed or obliterated, so that they may be regarded as separate cavities. The purulent contents are often mixed with crumbly masses of phosphates. The mucous membrane of the pelvis and calyces is converted into granulation tissue, and, in advanced cases, becomes the seat of ulceration which eats into the parenchyma. The renal blood-vessels are thickened and narrowed by endarteritis, so that there may be very little hemorrhage when the pedicle is divided. The perinephric cellular tissue is converted into granulation and scar tissue, and is frequently the seat of scattered foci of suppuration, and sometimes a large perinephric abscess is found to communicate directly with one of the dilated calyces. The perinephric suppuration may extend into the psoas and quadratus muscles, or into the cellular planes of the abdominal wall."—(Thomson and Miles' *Manual of Surgery.*)

5. In *chronic parenchymatous nephritis* both degenerative and proliferative changes are seen. The tubular epithelium is always more or less affected, showing signs of cloudy swelling, fatty degeneration, desquamation, and disintegration, most marked in the convoluted tubules, but also present in the loops and collecting tubules. The distribution of these changes is usually patchy, giving rise to mottling of the cortex. The lumina of the tubes may be dilated, and contain granular and fatty matters, and hyaline casts, the latter formed by coagulation of exudation in the tubules. The glomeruli may occasionally appear normal, but there is almost always some swelling and hyaline degeneration, together with some proliferation and desquamation of the epithelium, so that they become highly cellular. Occasionally the glomerular changes may be more marked than the tubular; fatty degeneration of the glomerular and capsular epithelium may be prominent, or there may be swelling, proliferation, and desquamation of the epithelium, or both these changes may be combined. The glomerular vessels may be compressed, their endothelium degenerate, and they may be obstructed by leucocytes or by hyaline thrombi, and finally obliterated. Interstitial changes, though present, are not conspicuous, and consist of edema, and scattered foci of round-celled infiltration about the glomeruli and veins. Sometimes hemorrhages are evident in some of the glomeruli and the corresponding tubules. Lardaceous infiltration frequently accompanies parenchymatous nephritis.

BACTERIOLOGY.

1. *Pathogenic diplococci: Diplococcus meningitidis, Diplococcus gonorrhœæ, Diplococcus pneumoniæ, Diplococcus catarrhalis.*

2. *Pathogenic bacteria found in sputum:* Tubercle bacilli, streptococci, staphylococci, pneumococci, Friedlander's bacilli, influenza bacilli, and *Micrococcus catarrhalis.*

3. Syphilis is due to infection by the *Treponema pallidum.* This is a slender spirillum, with regular turns, the curves varying in number from three or four to twelve or even twenty; it is about 4 to 20 mikrons long, actively motile, with a fine flagellum at each pole; it is flexible, hard to stain, and has not been cultivated on artificial media. How it divides is not known. It stains best with Giemsa's eosin solution and azur.

4. Widal's test in typhoid fever "depends upon the fact that serum from the blood of one ill with typhoid fever, mixed with a recent culture, will cause the typhoid bacilli to lose their motility and gather in groups, the whole called 'clumping.' Three drops of blood are taken from the well-washed aseptic finger

tip or lobe of the ear, and each lies by itself on a sterile slide, passed through a flame and cooled just before use; this slide may be wrapped in cotton and transported for examination at the laboratory. Here one drop is mixed with a large drop of sterile water, to redissolve it. A drop from the summit of this is then mixed with six drops of fresh broth culture of the bacillus (not over twenty-four hours old) on a sterile slide. From this a small drop of mingled culture and blood is placed in the middle of a sterile cover-glass, and this is inverted over a sterile hollow-ground slide and examined. * * * A positive reaction is obtained when all the bacilli present gather in one or two masses or clumps and cease their rapid movement inside of twenty minutes."—(From Thayer's *Pathology.*)

5. In *progressive pernicious anemia:* The marked feature of the disease is pronounced oligocythemia. This progresses rapidly, and in ordinary cases the number of red corpuscles sinks to 1,000,000 or less per cu. mm.; at the same time, changes in size (microcytes and megalocytes) and in shape (poikilocytes) make their appearance and reach grades rarely attained in other diseases. Nucleated red corpuscles are always present in some number, and are usually abundant. The largest forms (megaloblasts) as a rule predominate, but in some cases the smaller forms are more abundant. Karyokinetic figures may be found in the nuclei. Polychromatophilia is generally present. The leucocytes may be decreased or normal in number; in the late stages leucocytosis is not uncommon, and it may become extreme. The larger mononuclear leucocytes are usually more abundant than in health, and myelocytes often occur in considerable numbers. In the terminal leucocytosis of pernicious anemia the lymphocytes often predominate.

PHYSIOLOGY.

1. *Heat is produced in the body* by: (1) Muscular action; (2) the action of the glands, chiefly of the liver; (3) the food and drink ingested; (4) the brain; (5) the heart; and (6) the thermogenetic centers in the brain, pons, medulla, and spinal cord. *Heat is given off from the body* by: (1) the skin, through evaporation, radiation, and conduction; (2) the expired air; (3) the excretions—urine and feces.

2. *Dangers of transfusing blood from lower animals to man:* "The serum of certain animals possesses the property of dissolving the red corpuscles of another species of animals. The serum of a dog destroys the red corpuscles of a man; the hemoglobin is dissolved out. The serum, besides its action on the red corpuscles, is also active against the white corpuscles of the same animal, stopping their ameboid movements. The globulicidal action of the serum is related to its poisonous action on microbes. The normal serum of certain animals kills microbes, as the serum of the dog kills the typhoid bacilli. The power to kill red corpuscles and microbes is due to the presence in the serum of a substance, an alexin. In transfusion this plays an important part."—(Ott's *Pathology.*)

3. *Physiological leucocytosis* is an increase in the number of the white blood corpuscles occurring under normal or physiological conditions, such as: Digestion, exercise, after a cold bath, or during pregnancy.

4. *Function of proteids:* Formation and repair of tissues and fluids of the body, regulation of the absorption and utilization of oxygen, formation of fats and carbohydrates, production of energy. *Function of carbohydrates:* Production of heat and energy and formation of fats. *Function of fats:* Supply of heat and energy, supply of fatty tissues, nutrition of nervous system. *Function of salts:* Support of bony skeleton, supply of HCl for digestion, regulation of nutrition and energy. *Function of water:* It enters into the composition of all the tissues and fluids of the body, it moistens the surfaces and membranes of the body, it keeps the fluids of the body at their proper degree of dilution, it removes waste matters, distributes and regulates body heat.

5. *When a muscle is in a state of activity:* (1) It becomes shorter and thicker, but (2) there is no change in volume; (3) there is an increased consumption of oxygen; (4) more carbon dioxide is set free; (5) sarcolactic acid is produced; and hence (6) the muscle becomes acid in reaction; (7) it becomes more extensible, and (8) less elastic; (9) there is an increase in heat production and consequently a rise of temperature; (10) the electrical reaction becomes relatively negative; and (11) a sound is produced.

6. *Bile* is secreted by the liver. *The functions of the bile* are: (1) To assist in the emulsification and saponification of fats; (2) to aid in the absorption of fats; (3) to stimulate the cells of the intestine to increased secretory activity, and so promote peristalsis, and at the same time tend to keep the feces moist; (4) to eliminate waste products of metabolism, such as lecithin and cholesterin; (5) it has a slight action in converting starch into sugar; (6) it neutralizes the acid chyme from the stomach and thus inhibits peptic digestion; (7) it has very feeble antiseptic action.

7. *Parts of the small intestine:* Duodenum, jejunum, ileum. *Parts of the large intestine:* Cecum, ascending colon, hepatic flexure, transverse colon, splenic flexure, descending colon, sigmoid flexure, rectum.

(To be continued.)

Miscellany.

The Motorist's Fuel.—H. Massac Buist notes that the chief factor that controls the present and future price of the motorist's fuel is the ratio of expansion of the world's supplies to that of the motoring movement. When the former exceeds the latter then the price of fuel must become cheaper. An investigation of the world's motor trade at the moment suggests that, as regards private vehicles of the middle and the large sort, the possible rate of expansion has reached something like a fixed quantity. Therefore, as far as these are concerned, fuel production is either going ahead or is about to go ahead of demand. On the other hand, the development of the light car and the commercial motor vehicle has only just begun. The latter would upset all calculations were it not certain that it will soon be run either on other fuel than gasolene or on much cruder spirit than is used for the pleasure car, therefore creating a demand for the residuary product and so making for cheapness all round. But the light car, which is perhaps the vastest field to be entered, will call for the use of the highest grade spirit. The situation of supply and demand would look grave were it not for the fact that the average light car is extremely economical of fuel; a vast number of these machines can be brought into use without making any heavy additional demand by comparison with the increased consumption of fuel when big batches of large cars are brought into use. If one add, therefore, to these facts the all-important one that the requirements of shipping service are all the time creating a demand for residuary products, it may be plainly seen that the price of fuel will probably not rise.—*British Medical Journal.*

Dogs in the Sanitary Service of Armies.—Granjux states that in most European armies the medical corps are provided with dogs that are trained to the task of finding wounded soldiers. Shortly before the outbreak of the present war there was held in Belgium an exhibition at which the wonderful feats of these animals were demonstrated. At Fontainebleau, France, there has been maintained under the auspices of a private national society a so-called "military kennel" at which various methods of training dogs for military purposes have been studied. For instance, these animals have been taught to bring back the cap of the wounded soldier, or in lieu of this something removed from his pocket. In order that these animals may become proficient in their task, it is necessary that they should live with the soldiers for some time, accompanying them on the march, and getting used to the roar of guns and the smell of powder. There can be no question that on the widespread battlefields of today these trained dogs can render a distinct service in helping the medical officers gather in all the wounded.—*Le Caducée.*

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THE RELATION BETWEEN THE SURGICAL TREATMENT AND RADIOTHERAPY OF CANCER.*

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THE malignancy of cancer is due to the infiltrating growth and local dissemination of the tumor into adjacent tissues and regional lymph glands, to the formation of metastases and to cachexia. Of this symptom-complex cachexia appears usually during the late stages of the disease and is frequently absent throughout the whole course of it. Neither is the formation of metastases an early or a constant manifestation of the disease. Metastases occur frequently in carcinoma of the breast, thyroid, prostate, stomach, liver, gall-bladder, pancreas and kidney. In ulcus rodens, epithelioma of the skin and lip, carcinoma of the parotid, uterus, rectum, mouth, tongue, pharynx, urinary bladder, ovaries, intestines, lungs, and mediastinum metastases are rare and occur very late in the disease. In carcinoma of the penis, primary carcinoma of the vagina, and carcinoma of the esophagus metastases are usually absent.

Thus the most important phenomenon in malignancy of cancer is the local infiltrative growth, the local dissemination into adjacent tissues and into the regional lymph glands with the concomitant replacement and destruction of vital organs. Cancer patients frequently succumb either to a fatal hemorrhage caused by an ingrowth of the cancer into the wall of a blood vessel or to an erosion and rupture of the wall of a vital organ adjacent to the growing tumor (stomach, esophagus, rectum, urinary bladder, etc.), before either metastases or general cachexia develop. The ultimate goal of cancer research will always remain the discovery of a specific therapeutic agent, but since, as it was shown above, cancer remains during the greater part of its development a purely local disease, it should be possible to accomplish a great deal with purely local remedies. Indeed in recent years, as will be shown later, the success of such local treatment was very considerable.

Surgical Therapy.—The modern surgical treatment is based on the fact that cancer spreads locally and through the regional lymph glands. It seeks to remove all the normal tissue adjacent to the malignant tumor and into which the latter spreads most frequently. The rule of modern surgery is also to make the incisions in the normal tissue as far from the tumor as safety will permit and furthermore to remove all the regional lymph glands. By these methods, devised on the basis of anatomical and clinical research, brilliant results have been obtained during the last two decades. None the less, operative statistics show that a comparatively small percentage of cancer patients can be cured by surgery alone to-day. Only in carcinoma of the lip the radical cure by the aid of the so-called block dissection of the tumor and the regional lymph glands is as high as 70 to 83 per cent. In carcinoma of the breast Halstead,[1] who is one of the best operators of this condition, reports that 38.8 per cent. of the cases which were operated remained well for three years and over. Since not all the cases examined are operable, probably not more than 30 per cent. of the cases of carcinoma of the breast can be cured by surgery alone. In regard to carcinoma of the uterus Wertheim,[2] the greatest authority on the surgical treatment of this condition, states that about one-half of the cases which come to him are operable and of these about one-half are cured by the operation, consequently about 25 per cent. of the cases of carcinoma of the uterus may be cured by operative treatment. Wm. J. Mayo,[3] who is one of the most brilliant operators in the world, reported recently on 996 cases of carcinoma of the stomach. Of these 344 cases only were operable and of the latter 25 per cent. remained cured five years and over after the operation. In other words about 9 per cent. of cases of carcinoma of the stomach can be cured by surgery alone in the hands of a Mayo and probably an even smaller percentage in the hands of most other surgeons. In all rather less than 30 per cent. of cancer patients can hope to be cured by the aid of surgery alone. It is also safe to assume that there can hardly be expected any further progress in surgical treatment of malignant tumors. The latter are usually situated in close proximity to the vital organs, the injury of which would endanger the life of the patient. There is consequently set a limit to the length to which a surgeon may go in removing the normal tissue adjacent to the tumor. What further progress will be obtained by improvement of diagnosis and the education of the people on the subject of cancer and consequent earlier operative interference cannot be considered here. The fact remains that while operative surgery has accomplished a great deal in the treatment of cancer, further therapeutic progress must depend upon other methods. The whole field of modern therapeutics outside of surgery may be classified in chemotherapy, serotherapy, and physical therapy. The latter method is the most important in the treatment of malignant tumors. Of the different methods of physical therapy employed in medicine radiotherapy is the only one of real value in cancer.

Radiotherapy.—The term radiotherapy in its broad sense means treatment of a disease by the

*Read in part at the meeting of the Brooklyn Pathological Society, January 5, 1914, and of the German Medical Society of New York, February 2, 1914.

aid of different rays. The rays of light may be employed either using the unfiltered sunlight or the artificially produced ultraviolet light, rays of heat, which are used in modern radiotherapy, are obtained through the action of a high potential electric current. This method is called diathermy or thermopenetration. The third class of rays used in radiotherapy are the rays derived from a Roentgen tube or radioactive substances. All these rays are frequently generated through the action of electricity (ultraviolet, diathermy, Roentgen rays), nevertheless it must be clearly understood that radiotherapy is not identical with electrotherapy and that the former means treatment by the aid of rays and not by the aid of electricity.

In the treatment of cancer the rays of light do not play any rôle. As will be shown later, rays of any kind in order to produce an effect on a malignant growth must be able to penetrate into the deeper tissues. The rays of light are absorbed by the superficial layer of the epidermis and do not penetrate any further. The treatment by the aid of the rays of heat, diathermy, is subordinate to other methods of treatment of malignant tumors and will be considered later. The most important method of radiotherapy in the treatment of cancer is the treatment with Roentgen rays and the rays of the radioactive substances.

The rationale of the radiotherapy in malignant tumors must be looked for in the so-called selective action of the rays on the cancer cell. The Roentgen rays and the rays of the radioactive substances are absorbed by the cells of the radiated tissue. Through the biochemical action of the rays the cells become diseased. The injury caused in the cells by the radiations may differ in degree in accordance with the quantity of the rays absorbed. Cells only slightly injured may recover while a severer injury may completely destroy the cell. Every cell of the animal or plant organism is susceptible to injurious action of the radiations. But the susceptibility varies in degree with the cells of different tissues. The cells of malignant tumors are a great deal more susceptible to the action of the rays than the cells of the normal tissues surrounding the tumor. If the rays are employed of a correct quality and in a sufficient quantity it is possible to destroy all the cancer cells in a certain locality and at the same time leave the normal tissues either intact or so slightly injured, that they ultimately completely recover. This quantitatively selective influence of the rays may reach to a depth of at least 3½ cm. Bumm and Warnekros[4] show in their latest publication that it is possible to destroy with the modern methods of Roentgen therapy cancer tissue at the depth of 10 cm. Consequently while the action of the rays is purely local it may well cure certain kinds of even internal malignant tumors. The truth of this selective action was proven anatomically by Aschoff, Hansemann, and many other pathologists and clinicians. But in order to obtain these results correct methods have to be employed.

Technique of Radium Therapy.—Radium was employed in the treatment of cancer nearly since the time the rays were discovered by Becquerel in 1896. The first attempts failed, and the action of the rays did not seem to differ from the action of any other caustic. Dominici,[7] Wickham and Degrais,[6] in France and Krönig and Gaus,[7] Bumm,[8] and Döderlein[9] in Germany showed recently that the failures were due to faulty methods. The radioactive substances emit two kinds of rays. The α and β rays which constitute the greater part of the radiation are called soft rays and have little power of penetration. They are absorbed completely by the superficial layers of tissue, and the quantity absorbed by each cell is so great that all the tissues are destroyed, and the action of the rays is caustic. The hard γ rays represent only about 1 per cent. of the radiation, they penetrate into the deeper layers of tissue and exert the selective action on the cancer cells. It is possible that a small percentage of the hardest β rays have a similar action. With the small quantities of radium used formerly the γ rays had no influence on the tissues. The modern method of radium therapy consists in employing larger quantities of radioactive substances and applying them for a longer period of time. The soft caustic α and β rays, which would be very injurious with the larger quantities of radium used, are filtered off by layers of some heavy metal which absorbs the soft rays. The methods vary with the different investigators, some of them employing extremely large quantities of the substance as high as 800 mgm. of mesothorium at one time. Recently it was shown that with such extremely large quantities the selective action may again be lost and the whole organism of the patient injured. It would lead too far to describe all the various methods employed and the writer will present only his own method of application of radioactive substances.

The radium salt is sealed in thin glass tubes and these placed in a silver tube 0.5 mm. thick. When the surface of the tumor is ulcerated or the radium is placed inside of a tumor, the silver tube is covered only with a thin layer of rubber and then the harder β rays also come into use. But in the majority of cases only the γ rays are used, and for this purpose the silver tube is placed inside of a brass tube 0.75 mm. in thickness. The brass tube is further covered with several layers of photographic paper and cotton in order to protect the skin against the irritating secondary rays which are produced in the metal filters under the influence of the γ rays of the radium. The whole is placed in an aseptic rubber tube. The largest quantity of radium used on a patient at one time is 50 mgm., which is kept continually over the growth for 2, 4, 6, or 12 hours. When the malignant growth is extensive, as in carcinoma of the uterus, the urinary bladder, or the breast, the writer applies the radium for 12 hours of the night every other night until 100 hours of 50 mgm. or 5,000 milligram-hours have been given; after this a recess is taken for four weeks and then if necessary another shorter course of treatment is given. This method of the writer implies the use of a comparatively smaller quantity than is recommended by some clinicians. But the results are quite as satisfactory, while the severe injuries to the adjacent normal tissues caused by the very large doses are avoided. Very recently there appeared an article by Schauta,[10] a noted German gynecologist, in which he states that he has employed radium in carcinoma of the uterus by three different methods. At first he used very small quantities of unfiltered radium and the results were all negative. Then he applied very large quantities of radium for several days in succession, and while the malignant tumors disappeared the patients died as a result of injuries of the normal tissues. At present he employs as a maximum dose 50 mgm. during 12

hours. As a result of this method not a single patient of Schauta died, and 50 per cent. of the patients are clinically cured. His technique is practically identical with the one employed by the writer and reported by the latter[11] on a previous occasion.

Technique of Roentgen Therapy.—The difference between the modern technique of Roentgen therapy and the methods employed 15 years ago is as great as in radium therapy. At present only the hardest rays are employed, the softer being filtered off with metal, usually aluminum. The intensity of the rays employed is also vastly increased. The great susceptibility of the skin to the action of Roentgen rays sets a narrow limit to the quantity of the rays which may be sent through a region. While this quantity is at least 2½ times as great for hard filtered rays as it is for soft unfiltered ones, it is small in comparison with the quantity required to influence a malignant growth. To obviate this difficulty the skin over the area to be treated is divided into several small fields through which the rays are applied. In the deep tissues the rays from the different fields cross and act cumulatively. This method of application is called cross-firing and is also being used with advantage in radium therapy. All the fields may be treated at one sitting and the patient kept under treatment continually for three hours and longer. Otherwise the whole series of fields is divided into three or four parts and treated in as many consecutive days. Then a rest is taken for three or four weeks after which the same series is repeated. A detailed discussion of the differences in the methods employed by the different clinicians would take up too much space and the writer will present only the methods and instrumentation adapted by him for the work.

The writer uses a large coil with an air-cooling device constructed by Reiniger, Gebbert, and Schall of Erlangen, Germany, with a gas mercury interrupter and an additional interrupter (rhytmeur) which breaks rhythmically the current discharging through the tube and allows the target to cool off during the period of the interruption.

For the success of deep Roentgen therapy which is employed in treatment of malignant tumors it is very important to use a hard tube, the penetration of which can be kept constant for a long time. The tubes used by the writer are water-cooled tubes with a small focus tube 10 cm. in diameter with an auxiliary vacuum tube. Water is constantly pumped by an electric pump specially devised by the writer and constructed by Mr. J. C. Goodrich of Montefiore Home which gives more satisfaction than the double reservoir used in Germany. The electric pump obviates the necessity of constantly changing the bottles. Furthermore the water at the target changes more rapidly and consequently cools the latter more efficiently.

The quantity of the rays is read on a Bauer penetrometer and the intensity of the high potential currents discharging through the Roentgen tube is estimated by the milliamperemeter. If the tube becomes harder it is softened by an osmic regulator worked from a distance. All the apparatus can be read and controlled from inside of a lead-lined booth.

Up to the present there does not exist a correct physical method for measuring the quantity of the ray output of a Roentgen tube. The best apparatus to use is the Sabouraud-Noiré pastille or some modification of it, and the Kienboeck photographic strips. The combination of a certain milliamperage of the currents discharging through the tube, a certain penetration of the tube, a given distance between the target and the skin, and a unit of time of exposure indicate the quantity of the rays applied. If all these factors remain constant then the dosage of radiation in a unit of time also remains constant.

Before a new tube is used on a patient it is tried out with a Sabouraud-Noiré pastille. If with the same amperage of the primary current the numbers on the Bauer and the milliamperemeter remain constant, then the time consumed to brown the pastille, *i.e.*, to give a full erythema dose, is also constant. After a few trials a new water-cooled tube usually remains quite constant and the time of treatment indicates approximately the dosage. To cite an instance: A tube under the influence of a constant amperage of the primary current shows 9 on the Bauer, 4 milliamperes through the tube, and it takes three minutes to brown the pastille. If the same can be repeated several times then the tube is seasoned and will constantly give one full dose in three minutes. Should the tube change its character this will immediately show on the Bauer or milliamperemeter. Since two full doses can be safely given of hard filtered rays, such a tube can be used for six minutes on each field of the skin without causing an irritation. In order to be certain that the dose given is accurate a Kienboeck photographic strip is placed over the radiated skin. 10X of Kienboeck usually corresponds to one full dose of Sabouraud, but after six minutes' radiation with the tube described above the Kienboeck may show 15X instead of 20X. This is due to the fact that the measuring apparatus was originally arranged for softer rays than are used at present.

The rays are filtered with 3 mm. of aluminum and a layer of leather; the distance between the target and the skin is 18 cm. The focus tube is inclosed in a box lined with 2 mm. of lead rubber with two windows of double lead glass. The non-radiated surfaces of the body of the patient are covered with lead rubber to protect against the rays.

In Roentgen therapy as in radium therapy the writer's dosage is not as excessive as is used by some German clinicians. In the first place it is hardly necessary or advisable to keep the patient constantly under the rays for three hours. Further, it is not advisable to divide the skin into too many fields, since good results may be obtained by a smaller number of fields. Besides, when each field occupies too small an area the rays will not meet in the deep tissues and a correct cross-firing will not be obtained. Moreover, too excessive a dose may produce severe injuries in the organism. A couple of instances may illustrate the dosage employed by the writer. In postoperative or recurrent cases of carcinoma of the breast the chest is divided into 12 fields, 6 subclavicular, 1 supraclavicular, 2 axillary, and 3 scapular. All the fields are treated in 3 consecutive days, each field getting from 15X to 20X. This constitutes one series of treatment during which the patient gets in all about 200X. The same is repeated in 3 to 4 weeks. In postoperative prophylactic treatment the intervals between the series of treatment is still longer. In carcinoma of the uterus the lower part of the abdomen is divided into 12 fields and the sacral region into 6 fields. The 18 fields are

treated in 4 consecutive days and between 300X-350X is given in one series. Besides this a great deal more than two full doses can be given through the vagina or over an ulcerated area of the tumor.

The Relative Value of Radium and Roentgen Rays.—When Becquerel first discovered the radioactive substances he called his radium tube a pocket edition of the Roentgen tube. This expression very aptly shows their relative position. The biological action of the two kinds of rays is probably very closely analogous, though some investigators claim that there is a qualitative difference in their action on cancer cells. At least cases are on record in which one kind of rays failed and the other kind influenced the growth. The rays of the radioactive substances are a great deal more penetrating than the hardest Roentgen rays which can be produced to-day and the former can be placed close to the diseased area, while the distance between the anticathode and the skin is not less than about 15 cm. In conditions like carcinoma of the larynx, esophagus, rectum, or vagina, the radioactive substances which can be placed within the lumen of the organ are superior to the Roentgen rays. On the other hand, the Roentgen rays can be used over a larger area and are therefore more advantaveous in carcinoma of the breast, or stomach, or in large round-cell sarcomata, lymphosarcomata, mediastinal tumors, etc. Bumm and Warnekros[4] report several cases of carcinoma of the uterus and a case of carcinoma of the lung, which were clinically cured by the aid of Roentgen rays applied through the skin of the abdomen and the thorax. In some of these cases the distance between the skin and the growth was at least 10 cm. In the case of carcinoma of the lung the microscopical diagnosis was made from an excised supraclavicular lymph gland and the result of the treatment was shown on a Roentgen photograph. Furthermore, the Roentgen rays are amenable to technical improvement, and it is possible that ultimately a Roentgen tube will be constructed which will produce more penetrating and powerful rays than the rays of the radioactive substances. At present the best radiotherapeutic results are obtained by a proper combination of both kinds of rays.

Diathermy.—The rays of heat obtained from an external source as well as the rays of light do not penetrate to a greater depth than 4 mm. from the skin. Even when the actual cautery is used the tissue immediately adjacent to the cauterized part is not heated to any appreciable degree. It was shown by Zeyneck,[12] Nagelschmidt,[13] and others that a high frequency current of a sufficiently high amperage and comparatively low voltage causes a rise of temperature of all the tissues between the two poles. With proper technique the temperature of any part of the body or even the whole organism may be raised to any desired degree. Since 1907 when the instrumentation was perfected, the method of diathermy, as this mode of heating tissue is called, is frequently applied in internal diseases. In the treatment of malignant tumors diathermy is employed in two ways. In the first method the cancer tissue is heated to such a degree that the cells are destroyed. This method is also called electro-coagulation and its main advantage over the removal of the tumor with a knife consists in the fact that the cancer cells are destroyed *in situ*, without being severed from the organism, and consequently cannot be disseminated during the operation into the adjacent normal tissue or into the lymph and blood channels. Doyen[14] claims that at a certain temperature of coagulation the cancer cells may be destroyed and the normal tissue remains intact, but such a selective function of electro-coagulation could not be ascertained by other investigators. A radical operation in which the incisions can be done in normal tissue far from the tumor is undoubtedly superior to diathermy. But in inoperable cases where it is desired to remove the greater part of the tumor diathermy is more bloodless than the knife, sharp spoon, or actual cautery and offers less danger of a subsequent rapid dissemination of the remaining tumor cells.

Another method of application of diathermy in cancer therapy consists in heating the tumor to a slight degree and then radiating it with Roentgen rays. It is claimed by Ch. Müller,[15] de Keating-Hart,[16] and others that diathermy renders the cells more sensitive to the Roentgen rays. This method is yet in the experimental stage and in the opinion of the writer the Roentgen rays will be rendered far more effective by increasing their hardness and penetrability than by the aid of diathermy. The technique of diathermy is again different with the different investigators. The writer employs the diathermly apparatus devised by Nagelschmidt and manufactured by Roeniger, Gebbert and Schall. In malignant tumors the writer employs diathermy only in inoperable cases, when the tumor is so large that it is advisable to remove a part of it before beginning the radium or Roentgen therapy. The method employed by the writer is the one recommended by Nagelschmidt, which consists in coagulation of a thin layer of the tumor, removal of the coagulated part; then coagulation of another layer, and so on. In this manner injury of normal tissue with the possibility of secondary hemorrhage or destruction of a vital organ is prevented.

Rationale of the Combined Surgical Treatment and Radiotherapy in Cancer.—Both surgery and radiotheraphy are local methods of treatment, and a general dissemination of the disease or metases in distant organs is at present beyond their reach in the majority of cases, though Kroenig and Bumm reported cases of a metastasis in the lung anatomically cured by radiotherepy. Success in cancer therapy depends upon the destruction of all the cancer tissue in the organism. The advantage of surgery consists in the fact that it removes immediately at one sitting everything diseased. On the other hand it removes with it at the same time a great deal of adjacent healthy tissue. A limit is set to this removal of normal tissue by the fact that vital organs may be injured and consequently the life of the patient endangered. As a result of this a large percentage of cancer patients, as stated above, are inoperable and in a great many of those operated upon there are left microscopical islands of cancer tissue, no matter how radical the operation. These small islands develop subsequently into secondary tumors, and the disease recurs. The main advantage of radiotherapy, on the other hand, consists in the fact that it may destroy such small islands of cancer tissue without injuring the adjacent normal tissue. The disadvantage of radiotherapy consists in the fact that with our present technique it does not reach beyond a certain depth, and while it destroys the upper layers of a large tumor, the lower part may continue to grow.

The great advantage of the combined treatment

is thus self-evident. Surgery must remove the gross tumor whenever possible and radiotherapy must destroy the small islands of cancer tissue which cannot be seen by the naked eye of the operator and which are left behind in the greater number of cases notwithstanding the most radical operation. In other words the treatment of a cancer patient is not complete unless the operation is followed for a certain length of time by radiotherapy. Cases considered to be inoperable, *i.e.* those in which all the cancer tissue cannot be removed and a radical operation cannot be performed, should be operated upon with the aim in view to remove the greatest mass of the cancer tissue. This should be followed by radiotherapy in order to destroy the small disseminated remnants of cancer tissue. A number of inoperable cases of carcinoma have been reported recently which were improved under radiotherapy to such a degree that subsequently a radical operation could be performed. These cases, no matter how rare they may be, show the urgent necessity for radiotherapy in all inoperable cases not only as a most potent palliative measure, which removes the fetid obnoxious discharge from cancerous ulcerations and diminishes pain, but also as preliminary to subsequent surgical treatment. As stated above, at the most only 30 per cent. of all cancer cases remain cured for five years and over after a radical operation. If radiotherapy should change the figure only to 35 per cent. the method of treatment is more than justified. From all the aforesaid it is self-evident that the ideal method of treatment of malignant growth consists at present in the correct combination of surgery and radiotherapy.

Classification of Malignant Tumors in the Light of Combined Treatment.—To facilitate the consideration of the value of combined treatment in the various forms of malignant tumors, it may be well to divide them into groups as is seen on the chart.

(A) *Carcinoma.*

(1) *Superficial:* Seated in and under the skin.	Ulcus rodens. Skin. Lip. Penis. Breast. Thyroid. Parotid Tumor.
(2) *Deep:* Seated in and under the mucous membranes.	Uterus. Rectum. Vagina. Prostate. Œsophagus. Mouth, Tongue, and Pharynx. Larynx. Urinary Bladder.
(3) *Internal:* Seated in and under the serous membranes.	Ovaries. Stomach. Intestines. Liver, Gall-bladder, Pancreas. Lungs, Mediastinum. Kidney.

(B) *Sarcoma.*

The first group of carcinoma is the most easily influenced by the rays. In ulcus rodens and superficial epitheliomata of the skin, radiation undoubtedly accomplishes as much as the knife. It may even have certain advantages, both cosmetic and in the fact that it does not open the lymph and blood channels and thus allow freed cancer cells to enter the circulation. Very favorable results are obtained by radiotherapy in carcinoma of the penis, the breast, the thyroid, and in parotid tumors. But whenever possible, an operation should be performed as a preliminary step to the radiation and as much as possible of the primary tumor and of the involved regional lymph-glands should be removed. But the radiotherapy should follow immediately, otherwise the tumor after a partial operation becomes frequently very malignant and cannot be influenced by the rays subsequently.

Carcinomata of the second group are situated within comparative easy reach of the rays, do not attain very great size, and present good subjects for radiotherapy. As stated above, tubes of radioactive substances may be placed in close proximity to all the parts of the growth. Indeed the most favorable results are obtained in the treatment of carcinoma of the uterus. In a certain number of cases inoperable conditions with involvement of the broad ligaments have been rendered operable by a preliminary radiation. In some of these cases the extirpated uteri did not show any cancer cells on microscopic examination. The other organs of the same group do not yield quite as good results as the uterus. The writer and other clinicians have seen marked improvement in carcinoma of the vagina, the larynx, the urinary bladder, the rectum, prostate, and esophagus. Carcinoma of the mouth, tongue, and pharynx usually do not respond well to radiotherapy. Of the latter conditions carcinoma of the tongue is the most refractory. Most probably the cancer cells in these conditions are unusually resistant to the action of the rays. Generally it must be remarked that cancer cells of the same anatomical structure but originating in different organs or even in the same organs of different individuals may react quite differently to the action of the rays. The work is still in the beginning and improved methods will undoubtedly improve the results. This second group of cases will probably become the true domain of radiotherapy. But for the present in this group of cases radiotherapy should also precede or follow surgical treatment and be employed alone only when the case is completely inoperable. Even then it is advisable to remove the greater part of the tumor with the knife or diathermy and then radiate. Furthermore, the preliminary operations of colostomy, gastrostomy, tracheotomy, etc., are frequently needed in order to facilitate the application of the rays.

The third group of cases of carcinoma is the least amenable to radiotherapy. Still there are cases on record in which carcinoma of the stomach, the large intestines, and even the lungs have been very favorably influenced by the rays. Werner and Kroenig report two cases of carcinoma of the stomach which disappeared under radiation. Whenever an exploratory laparotomy is done and an inoperable carcinoma of the viscera is found, the tumor should be brought if possible nearer to the abdominal wall, so that it may be influenced subsequently by the rays.

Sarcomata are as a general rule influenced by the rays a great deal easier than carcinomata. But here again the best procedure is to remove surgically as much as possible of the tumor, even if the operation cannot be performed radically, and then follow immediately with radiotherapy.

To recapitulate, the advisability of radiation as an only method of treatment of operable cases of cancer, which is advocated by many noted German gynecologists, must be questioned until a sufficient number of years have passed to show the permanency of the reported cures. On the other hand

surgical treatment of malignant tumors is never complete unless it is combined with radiotherapy. All inoperable cases should be radiated, not only as a most excellent palliative measure, but in the hope, small as it may be, that the cases may either become operable or else the disease may be arrested, and the patient may gain months, nay years, of comfortable life. In such inoperable cases when the tumor growth is extensive it may be advantageous to destroy the greater mass of the tumor by the aid of the knife or diathermy and then radiate. In any event the diagnosis of an inoperable malignant tumor should not be the equivalent of a death warrant to the patient.

At present the writer is engaged in experiments on the adaptability of the Coolidge Roentgen-ray tube for therapeutic purposes. It is too early to pass an opinion on the subject. But the tremendous output of the rays from this tube and their uniformity and great power of penetration give a great deal of promise. If we consider further that with the present method of radiotherapy Kroenig and Gaus, and Bumm and Warnekros report cases in which carcinoma of the lungs was destroyed, the results in the near future may be astonishing. The methods of filtration and of protection of both the patient and the operator will have to be greatly improved in order to make the employment of these powerful rays possible. In any event the progress in research on cancer therapy of the near future must go hand in hand with the progress of radiotherapy.

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BILIARY SURGERY.*

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During the period of time covered by this paper 270 patients were operated upon with thirteen deaths, a mortality of 4 per cent. The majority of these patients were subjected to operative interference upon more viscera than the gall-bladder alone, or the gall-bladder and duct were interfered with, thereby insuring a greater risk as to mortality than individual operations would give.

It is with a view of presenting the causes of death and the operations done that I offer this paper.

Age. This varied from 22 to 74 years.

Sex. The number of patients in whom the sex was recorded was 242; of these 154 were females and 88 were males—rather a sharp contrast to the records of Whittemore of Boston, published in the *Boston Med. & Surg. Jour.*, October, 1913. He reported a series of 595 cases in which there were 441 women and 154 men; almost three times as many women as men.

Type of disease. My records show 54 cases of acute cholecystitis, 34 cases of gangrenous cholecystitis, and 115 cases of cholecystitis not otherwise classified. This series included all varieties, from non-inflammatory to hydrops. There were 6 cases of perforated cholecystitis, 6 non-calculous, 4 malignant, 8 cases of hydrops, and 23 of cholangitis. In addition, acute hemorrhagic pancreatitis, with suppuration or sloughing was observed six times.

The operations recorded were as follows: Cholecystostomy, 125 cases, with 5 deaths. Cholecystectomy, 96 cases, with 4 deaths. Choledochotomy and transduodenal choledochotomy, 5 cases in all, with 2 deaths. Cholecystostomy with choledochotomy, 17 cases, with 1 death. Cholecystectomy with choledochotomy, 27 cases, with 1 death. Cholecystotomy with and without combined operations upon the ducts, 142 cases, with 6 deaths. Cholecystectomy with and without combined operations upon the ducts, 123 cases with 5 deaths.

Here it will be well to note the relative mortality rates in these two types of operation as a prognostic factor in advising their performance. In the so-called lesser mortality type of operation cholecystostomy, with and without combined operations upon the ducts, I report 142 cases, with 6 deaths, a mortality of 4.2+ per cent., while in the graver operation of cholcystectomy, with and without combined operations upon the ducts, I report 123 cases, with 5 deaths, a mortality of 4+ per cent. Attention is also called to the difference in the results after cholecystostomy alone, 125 cases, with 5 deaths, and after cholecystectomy alone, 96 cases, with 4 deaths, in both the mortality being about 4 per cent.

Choledochostomy, singly or combined with operations on the bladder, was done in 49 cases, with 4 deaths, about 8 per cent. If the choledochostomies without additional bladder operations be considered, the mortality in this series is exceptionally high, five choledochostomies of this class being done with a mortality of two, or 40 per cent. These two deaths are easily explained: one occurred on the fourth day from embolism, and the other was due to a compression (interstitial fibrosis) of the liver cells in a patient 65 years old, in whom I opened the common duct, with negative findings, four years after a primary cholecystectomy and choledochotomy for pronounced cholangitis. Added to the cellular change in the liver in this case was a marked nephritis, which was the final cause of her dissolution, as there was almost complete anuria for four days preceding her death.

Secondary operations. Under this term I include those patients who were operated on a second or a third time—not those considered as two-stage operations. I can find the histories of but eight such

*Read before the Surgical Section of the Hartford County (Conn.) Medical Society, April 27, 1914. The greater portion of the paper was also read before the New York Surgical Society, April 22, 1914. I have felt that an additional consideration of the questions of two-step operative procedure, with a brief reference to the *x*-ray diagnosis will be of value.

cases in a series of 270, and these I will mention briefly. All were operated on by surgeons of repute, and I have no reason to doubt that the operations were as complete and thorough as the circumstances permitted. The following case presents a point of interest as to the length of time necessary for stones to grow to some size:

Mrs. B. was operated on six years ago in one of our large hospitals, a cholecystostomy being done. She remained free from pain for about two years. Then all her former symptoms recurred with increased severity, and there were signs of duct involvement. I then operated on her, exposing a very long, adherent gall-bladder containing 33 stones, none of them smaller than a marrow-fat pea. Four stones about the same size were also found in the common duct. A cholecystectomy and choledochotomy were done, together with the removal of the appendix. The patient made a prompt recovery, with no recurrence of any kind up to the present time.

It is but fair to the operating surgeon in this case to assume that in a case of election, as this was, we can preclude the possibility of his leaving 33 large stones in the gall-bladder. Therefore, either these stones were conveyed as fairly large sized ones from the liver into the bladder, or else the growth of stones in the gall-bladder can be very rapid. The common duct invasion must be considered by itself, as this part of the hepatic system was not operated upon at that time. We are all aware of the presence of hepatic stones, and in view of this established fact I advance the above argument as to the possible migration from the liver to the gall-bladder.

The second patient in the series was a young woman who was operated a year ago for an acute gangrenous (?) cholecystitis. No stone was found at the time. She came to me with a persisting fistula, and upon exposing her gall-bladder, a stone the size of a robin's egg was found. This stone, I am quite sure, was overlooked at the first operation. A cure was established in two weeks by doing a cholecystectomy.

The third patient was a physician in whom a cholecystostomy was done hurriedly two years ago in the Presbyterian Hospital for a suppurative condition, and owing to profuse hemorrhage from the surrounding tissues, packing was resorted to. Two years later he again developed marked symptoms. With great difficulty I was able to do a successful cholecystectomy with an appendectomy.

The fourth case was one of my own. The patient was a female, 22 years old, with an acute hemorrhagic pancreatitis. In addition to establishing very liberal drainage, I did a cholecystostomy, removing many stones, some of them the size of a marrow-fat pea. Speedy recovery took place, the drainage wound healing promptly. Only recently or about three years later, I was compelled to explore her for abdominal pains similar to those she had had before her first operation, with the result of finding an atrophied and contracted gall-bladder containing mucopus and an amber-colored stone, entirely different from those originally removed, and about the size of a very large marrow-fat pea impacted in the cystic duct. A cholecystectomy and appendectomy were done, and speedy recovery followed.

The fifth patient was one in whom a rapid cholecystostomy was done twenty months ago in one of our large hospitals by a man of very extensive experience. When I saw the patient, she said she had had a period of eleven months freedom, and then all her symptoms of a stone in the duct recurred. At this time the patient had a temperature of 103.6° and was profoundly jaundiced. An immediate operation revealed a small, purulent bladder and one large duct stone. Upon opening the common duct, no bile escaped; in fact, acholia persisted for fifteen hours, and then only the slightest evidence of bile was present. Twelve hours later, however, bile began to flow in fair amount. In this case a cholecystectomy, choledochotomy and appendectomy were done, and the patient made an excellent recovery.

The last of the series I wish to report was in a Catholic priest of about 40 years who was an athlete and worked hard in his parish. When I saw him, in consultation with Dr. Ludwig Kast, he said he was suffering from pain in his abdomen, similar to that in a previous attack, for which he had been operated upon thirteen months before. That operation, I was informed, was a cholecystostomy and choledochostomy. Conditions arose that demanded an exploration. Cholecystostomy and choledochotomy were again done, retaining the gall-bladder because the common duct was very much thickened (cicatricial), and a chronic pancreatitis existed. The fact was kept in mind that it might be necessary at some future date to do a cholecystenterostomy. This patient for four days went through the most profound manifestations of shock and collapse that it has ever been my misfortune to see, showing all the evidences of a severe toxemia, similar to those observed in acute pancreatitis. It is now about one year since his second operation, and no biliary symptoms have been complained of.

Combined or additional operations other than those of the hepatic system.

Appendectomy. Over ten years ago I called attention to associated disease of the appendix, using the unfortunate term "dual disease" instead of "coincident" or "associated." This association was well illustrated by the second operation upon one of our well-known western surgeons while on a visit to the east a few years ago. I always remove the appendix when the patient's condition permits it, or when the infection can be limited to the gall-bladder zone. In this series I have done appendectomy with cholecystostomy 67 times; with cholecystectomy 49 times; with cholecystostomy and choledochostomy six times, and with cholecystectomy and choledochostomy 15 times, making a total of 137 appendectomies in the entire series, over 50 per cent. Of the above number it happens that the appendix has occasionally been the primary offending member, and the gall-bladder the secondary. One patient with a gangrenous appendix gave a history of gall-bladder trouble for years, she was also two months pregnant. She had an appendectomy and cholecystostomy done without disturbing the pregnancy. In one case a Finney operation for pyloroplasty was done, and in one a gastroenterostomy with choledochostomy. A partial gastrectomy for carcinoma, with cholecystectomy and choledochotomy was done in a woman who was afterwards shown at a meeting of the New York Surgical Society. In this case, three years before, I had done a right nephrectomy, a right oophorocystectomy, and an appendectomy. This patient is living to-day, her second year terminating in two months.

Gastroenterostomy for duodenal ulcer was done in two cases. A gastrotomy for ulcer on the posterior wall of the stomach was done in one case. In one case there was gastric carcinoma. In ten cases there were uterine and ovarian operations not requiring hysterectomy. In one of these there was a large cyst with a pedicle twisted several times. In 17 of the cases the operation was associated with hysterectomy for fibroids. I have found the gall-bladder involved frequently in recent years in this condition, and in my opinion the patient's convalescence is scarcely retarded by these associated operations.

In six of the cases there was an acute pancreatitis in the hemorrhagic, suppurative, or sloughing stages of the disease. Five of these recovered. In all of them a cholecystostomy had been done. One, previously cited, was operated upon recently, doing a cholecystectomy. In one there was a mucous fistula which persisted for two years and then healed spontaneously.

Carcinoma of the papilla of Vater was observed

once. This patient was operated on twice, first a cholecystostomy and subsequently a cholecysterostomy being done. This patient has also been shown at a meeting of the New York Surgical Society.

Perforated typhoid cholecystitis. In one of the cases, a male, during the third or fourth week of his attack of typhoid fever, had a sudden onset of acute abdominal pain, with distention. When I saw him, on the following day, he was comatose and a rapid exploratory operation for suspected perforation of the bowel revealed two large holes in the gall-bladder, with profuse peritoneal soiling with purulent bile-stained material. The wound was rapidly drained and packed and the patient was returned to bed in 11 minutes, quite moribund. He was unconscious for seven weeks, but finally recovered.

In February, 1903, I presented the subject of "Primary Typhoidal Perforations of the Gall-bladder" at a meeting of the New York Surgical Society recording the history of a female patient 46 years old, with a successful outcome. In preparing my article at that time I collected the then available statistics of this complication of typhoid and found that, my own case included, there were thirty-four in all, and that of these, four had recovered.

Hydatids. Two patients with this complication have been operated on by me in the past two years. In one where I did a cholecystectomy and choledochostomy, the hydatid was about the size of a hen's egg. It was located in the liver at the sulcus of the suspensory ligament and was easily excised intact with secondary suture of the liver. My second case of hydatids will be recorded under the fatal cases.

I have had one case of acute phthisis associated with cholecystitis gangrenosa. In this I did a successful cholecystectomy, but within less than one year jaundice occurred and colic recurred. A further operation was then deemed inadvisable. This was some three months ago and I have not seen the patient since.

Hemolytic jaundice. This patient was a young man of 20, upon whom I did a cholecystostomy for suspected cholecystitis, followed in six months by a splenectomy. The latter operation was done about three months ago with entirely satisfactory results.

A subphrenic abscess occurred in six of my series with one death. This fatal case is the same one recorded under complicating hydatids.

Transduodenal operation. This operation has been done by me three times in my career, successfully in each instance. With the advent of the Blake forceps I feel the necessity of this procedure has been passed, as with the ordinary choledochostomy opening we can, with this instrument, grasp and remove, with or without crushing, all stones, even when well impacted in the papilla of Vater.

Morbidity and secondary operations. These questions cannot be reported definitely or satisfactorily until some clearing-house method is established of reporting to the original operator the patient's condition and the necessity for further operations, etc. When some such method is employed data of value to all, particularly to the prospective patient, can be advanced.

Deaths. In 1910, out of a series of 43 of these cases, no deaths occurred.

In 1911 there were 54 operations, with four deaths. The first of these was a widow of 50 with general streptococcemia. A cholecystostomy was done in the hope that some benefit might follow, particularly as the patient was slightly jaundiced. Death resulted from a septic endocarditis, the patient surviving the operation by several days. It is possible, indeed, more than likely, that in this instance an unnecessary operation was done, but it is not probable that it hastened the patient's death.

The second death in the series was that of a Polish Jewess, well advanced in years and enormously fat, with a double inguinal and an umbilical hernia, all of large size. She came under my care with a general peritonitis, her illness dating back about ten days. A fairly clear gall-bladder history was obtained. Operation revealed a large perforation in the gall-bladder, with pus and bile free in the peritoneal cavity. This patient was apparently on the road to recovery when a fatal pneumonia supervened.

The third case was one of acute hemorrhagic pancreatitis in a man, 55 years old, with an illness of ten days' duration. He was moribund when a cholecystotomy was done and many stones removed. Death occurred within thirty-six hours.

The fourth case was that of a man over sixty upon whom a choledochostomy and cholecystotomy were done. Death followed on the seventh day from embolism, while he was engaged in a fierce argument with his son, a physician, about the necessity of continuing his special nurses.

In 1912 there were 63 recorded operations, without a death. In 1913 there were 78 recorded operations, with 6 deaths, two of them after cholecystostomy.

The first case was that of a man 38 years old, who had dilated veins and varicosities to such a degree that merely rubbing the exposed mucous surface of the gall-bladder would be followed by a profuse hemorrhage. The veins in the vicinity of the pylorus and stomach were three-quarters of an inch in diameter. Death occurred on the fourth day and was attributed to acute gastric dilatation.

The second case of this series was that of a man, 55 years old, with cardiac myositis, which proved fatal. In this case the operation showed a perforated gall-bladder, with a mural abscess containing air.

The third case was that of a woman of 60 where death followed a choledochostomy done erroneously for supposed duct obstruction which proved upon microscopical examination of the autopsy specimens to be a cell destruction by interstitial hepatitis. This patient had been operated by me some three years before for a profound streptococcus cholangitis. A cholecystectomy and choledochostomy were done, with a stormy convalescence and prolonged drainage, followed by a condition of health far better than she had enjoyed for fifteen years. After three years she had a sudden recurrence of her jaundice, and at the second operation the bile flowed perfectly clear and in fair quantity. While apparently progressing favorably, an acute nephritis supervened upon a chronic renal impairment, with fatal result.

The fourth case was that of a man, 55 years old, with a suppurative cholecystitis, a percystic abscess, empyema, and a suppurative hydatid cyst. This patient had suffered from jaundice, with an intermittent temperature, for seventeen days, and was much emaciated. Operation revealed a perforated gall-bladder, with two well localized abscesses, one on each side of the gall-bladder. Owing to the

patient's serious condition, drainage only was done. Several days later, as the temperature still remained high, an exploratory aspiration of the chest was made and eight ounces of purulent fluid withdrawn. The following day a section of rib was made, and a few ounces of murky fluid evacuated. It was then seen that what had been regarded as a typical empyema was a lesion involving the dome of the liver, and upon puncture, over a quart of hydatids in most foul *Colon communi* pus was evacuated. Death followed from exhaustion about two weeks after the operation.

The fifth and sixth cases, one a man 55 years old, and the other a woman of 74, both died of nephritis, the first after a cholecystectomy and the second after a cholecystostomy.

In 1914, up to April, there is a series of 26 cases, with three deaths. The first was that of a woman with well advanced symptoms who died from nephritis after a cholecystectomy. The other two patients were males, aged 55 and 57 years, respectively. The first was much emaciated and deeply jaundiced, with skin the color of mahogany. A choledochostomy was done and the patient died four days later from an embolism. The second patient had already been operated for prostatic enlargement and his urine contained the *Bacillus coli communis*. There was an intermittent temperature of the Charcot type. A cholecystectomy and choledochostomy were done, showing evidence of a pure streptococcus infection. The patient's temperature dropped from 103.6° to 99°, he developed a generalized maculopapular eruption (septic infarcts), and died on the eighth day.

With the citation of the fatal cases, as given above, I cannot feel that I have been responsible for a single death by doing any additional operative procedure, as it will be observed that of the thirteen deaths, but two of the patients had any complicating disease. Of the thirteen deaths eight were in males. The fourth death in 1911 was the result of pancreatitis, and was reported as such in a paper on "Pancreatitis" published during the present year in the *New York Medical Journal*. The other, the fourth patient, who died in 1912, required the operations to which he was subjected excepting the one for supposed empyema, as I am satisfied that my exploring needle must have tapped his hydatid abscess. Nevertheless, the suppurating hydatids were best approached through the transpleural route.

As a conclusion based upon these statistics, I am inclined to perform cholecystectomy more frequently than heretofore.

Two-Step Operation.—This is a rarity with me—in fact, has been considered in only a few instances when a rapid cholecystostomy for gangrene, etc., was indicated.

These cases in many instances resolve thoroughly and do not invariably return for further operation. Several instances of this type can be cited, one in particular.

A sea captain, 74 years old, with a history of recurring attacks of gall-bladder colic, was seen by me through the courtesy of Dr. Walser, of Staten Island. At this time he gave a history of acute cholecystitis of some ten days duration—the signs and symptoms, when seen by me were those of gangrene with possible perforation. The patient's condition was such that a hurry operation only was feasible. The abdomen was opened, with findings of a gangrenous and perforated gall-bladder filled with calculi. The escaping, purulent bile was limited by omental adhesions. A large tube with iodoform drainage was installed. The patient, during delirium evidently due to a deficiency in his urinary output, jumped from the second-story window of the hospital, alighting upon his heels and fracturing both ossa calcis. Upon being returned to his room he was free from delirium, remained so, and made a perfect recovery from both his gall-bladder involvement and the fractures. He finally died some four years later of pneumonia.

This citation is no argument that these patients all recover as, had he been a young man, his expectancy of life would have been far greater and recurrence of gall-bladder symptoms might have been observed.

I do not believe in the two-step operations as advocated by many, but would heartily indorse it only in those instances when a primary operation in the ultra-serious patients is done for drainage, or realizing that obstruction is present or still exists—as in the case of a physician in Bridgeport whom I recently operated upon.

When first called to see him on a Sunday afternoon his condition was found to be very grave, due, in all probability, to a cholecystitis gangrenosa, giving at the same time a set of symptoms indicative of common duct stone or pancreatic obstruction. Upon opening the abdomen a large, distended, acutely thickened gall-bladder was exposed, with profound involvement of his pancreas. It was deemed advisable to drain the gall-bladder only, and defer secondary operation to some later day, as it was suspected that the pancreas might be malignant. This was done, with a prompt recovery and closure of the cholecystostomy wound. In view of his recovery and gain, the malignant suspicion became doubtful, when suddenly he reported a profound attack of pain and jaundice. Such attacks occurred several times—he then concluded he was ready for his second operation. This was done some five or six months after the first. The findings were highly pleasing, although difficult to remove, owing to the adhesions from the previous attacks and operation. The pancreas had resumed normal size and a single stone was found in the common duct. The appendix also was removed. He has made a most satisfactory recovery, gaining quite a number of pounds during the year now passed since his operation.

Such procedure has been carried out by me on several occasions—one of them being another physician in whom, at the second operation, I did a successful transduodenal operation.

Obstruction Due to Gallstones.—I have operated five times for this condition—four of the patients unfortunately so far gone (fecal vomiting, etc.) at the time of operation that recovery was impossible.

The fifth case was that of a widow, 74 years of age, with a clear history of repeated attacks of gallstone colic, in whom an acute attack, suspected of being appendicular, was observed by several physicians. When I saw her, she was so tender in the right iliac zone as to mislead me into diagnosticating a gangrenous appendix. Operation was done under great difficulties at 1 A. M., an acetylene lamp from an automobile being the improvised light—an assistant with an infected hand giving ether—myself and a green nurse doing the operating in a ponderously fat old lady. The incision through the peritoneum was followed by a coil of ileum popping into the wound; the coil was felt to contain a large hard substance obstructing the ileum about 4 inches from the ileocecal valve; in addition it was observed by the palpating fingers that there was a tumor of the right ovary the size of a large lemon, and the suspected appendix was but a chronic one, quite large and adherent. The gall-bladder was not palpated, owing to the patient's profoundly depressed condition. A rapid enterostomy, with extraction of a stone the size of a large walnut, was done, the ovarian

tumor and appendix were removed, and a drain was placed in the peritoneal cavity for forty-eight hours. A speedy recovery was effected. About two years later she again suffered an attack of gall-bladder colic, which rapidly subsided. She has now gone by her seventy-seventh year, and for over one year no further trouble with the gall-bladder has been evident.

Trauma.—I cannot close this discussion without citing the history of a patient upon whom I operated recently, bearing upon trauma as a factor with a distinct medicolegal aspect.

The patient, a young man, was brought to me with the history of being struck, a few days before, in the upper right abdomen by a kickback from a piece of wood that he was sawing with a circular saw, in the factory of his employer. His condition was such that no careful history of his previous condition was taken. An operation for cholecystitis or possible rupture of the gall-bladder was done; a gall-bladder with cloudy bile was opened—the terminal fluid being milky white. Pathological examination failed to reveal pus organisms, but clinically the patient evidenced a typhoid chart and upon examining him for typhoid, Widal was found positive. The patient was, or is now in the hands of his attorney, trying to prove trauma as the cause of his cholecystitis, while we in a more careful history have obtained the facts that he was ailing for quite some time before he was struck by the piece of wood.

A word about the *x*-ray diagnosis. Recently Pfahler of Philadelphia, in the *Journal of the American Medical Association*, states that although he had 74 per cent. definite evidences of stones by the *x*-ray, he felt that 50 per cent. in the hands of himself and other radiologists would be a fair average. That to show gallstones the greatest care and repeated exposures are necessary. Also that lime salts must be present with cholesterin to give a shadow.

60 West Fifty-second Street.

THE DIETETIC TREATMENT OF CHILDREN DURING THE SECOND PERIOD OF LIFE.*

By CARL G. LEO-WOLF, M.D.,

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During the last two or three decades the physiology of metabolism has been brought more and more on a scientific basis, and we have been taught the "why and wherefore" of many an old and tried dietary rule, but we have also seen many a cherished theory exploded, many a time-honored custom discarded, many a pet measure proven to be contrary to the laws of nature.

In order to understand the better the dietetic treatment of children during the second period of childhood, that is during the period of first dentition from the end of the first to the seventh year of life, it will be necessary for me to give you a brief recapitulation of the demands on the part of the child's body for food during this time.

First of all I must state that we must have a clear understanding of the fact that there is a vast difference between the demand of a child for food and its consumption of food, as it is only too well known by us pediatricians that children during this period of life are, as a rule, overfed. This condition usually arises at the time of weaning. Hardly any mother knows how much her infant is getting at the breast, and when she weans the little one she attributes every crying spell to hunger, and in giving more food she adds to her mistake; thus only can we explain the large number of cases of digestive disturbances at this time and the fear of mothers of weaning their babies during the summer months when overfeeding bears its evil fruit. Whenever possible the physician should superintend the weaning and he should determine by careful weighing, both of the infant and the food, how much the child is getting and what progress it is making.

What then are the demands of the child for food? The answer cannot be given offhand, but must be given separately for each age and also for the respective weight of the child; and it is best here to remember Rubner's statement that metabolism and demand for food correspond to the surface of the body, but that there is no essential difference in the metabolism of the adult and that of the child, except that the one is growing and the other is not.

The child lives almost exclusively on fat and carbohydrates, from which it produces the necessary heat; it reserves the ingested protein for growth and it will therefore be able to get along with very small amounts of nitrogenous food. The demand of the child for protein ranges according to age and weight somewhere between $7\frac{1}{2}$ and 20 grains per pound of body-weight, *i. e.* an average of about $13\frac{1}{2}$ grains per pound. Not more than 10 per cent. of the total calories should be supplied by proteins, and less than one-half of these should be derived from animals.

Now as to the proportions of carbohydrates and fats, these must make up the other 90 per cent. of the calories, at first, that is in the beginning of the second year of life, in the proportion of 40 per cent. of carbohydrates and 50 per cent. fat; but with growth this proportion changes in such a manner that the carbohydrates will prevail more and more. A safe rule to remember is the following: no less than one-fourth the necessary calories should come from fat, and the proportion of fats to carbohydrates should be such a one that the child's food contain not more than 6 or 7 parts of carbohydrates by weight to one part of fat.

As to the salts in the food, this question is just now being worked out in the different laboratories and we are learning more about this daily; enough at present to say that some salt is a necessary addition to the child's diet, but not more than 1 grain per pound of body-weight daily, as every additional grain of salt has to be excreted and therefore creates a demand for more water; an excess of water in its turn will carry away not only the superfluous solium chloride but other salts as well which were not in excess and which will thus be lost to the body.

After these general remarks you will ask me what shall we give our little patients to eat and how shall we give it?

You know that I am an apostle of rare feedings and long intervals in infant feeding, and I hold the same views about later life. True, at the time of weaning it is best to adhere to our well-tried five feedings daily at four hours interval, nothing naturally being given at night; but as soon as possible we should leave out the afternoon meal, the one corresponding to the afternoon tea, and later also the second breakfast, so that the child gets one-quarter each of its daily allowance at breakfast and supper and one-half at dinner, the heaviest meal coming best in the middle of the day followed by a nap. I have just stated that I consider myself an apostle of long-interval feeding in children, but that does not mean that I am a crank on this

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subject. I realize as well as anybody that we must individualize and I know that some children have to have their meals more frequently; but I also know that frequently children will have a much better appetite and will do much better on three square meals a day even at from two to three years of age. We must, however, not attempt to fool ourselves or let us be fooled by the mothers: we must call everything given to eat and every glass of milk between meals a meal.

In what form should we then give the necessary 30 calories per lb. to a child during this second period of life?

This forms the transition from the lactivorous organism which is living, at least when it gets the food destined for it by nature, on a homogenous material to the omnivorous organism which man represents living on heterogenous material.

We must get away from the old idea which is still too deeply rooted in the minds of the laity as well as of many physicians that milk, animal milk, is the ideal food for children after the completion of their first year of life; it is a poor enough substitute for mother's milk during infancy, why then should we wean a child from the mother's breast to give it another food destined for infants, infant cows though they be? Does not the development of the teeth at this time indicate clearly enough the nature of the food to be given forthwith?

Many an originally healthy set of teeth is spoiled through lack of use at this early age and by the continued feeding with liquid or semi-solid food. The solidity of the food should be determined by the stage of eruption and the number of the teeth.

Do not misunderstand me, please. I do not want to be quoted as saying that milk is bad for small children. I do state, however, that milk as the exclusive or even principal food for small children is bad, but it does constitute a very valuable addition to the child's dietary, though it is best, especially with advancing years, to banish it from the menu for dinner.

Broth, which used to be considered one of the mainstays in the bringing up of young children, makes a good recipient for the farinaceous foodstuffs, but should not be given by itself, for it is too voluminous in proportion to its nutritive qualities, as it contains only 7 calories per 100 c.c.; it also is too rich in salts, containing 1.5 per cent.; its value as a food is therefore determined by what we cook in it. Strong broth and beef tea are stimulants and as such have no more place in the dietary of the healthy child than has alcohol.

During the second year of life when milk is still given in considerable quantities this will furnish most of the proteins, some of which will also be supplied in the cereals we give now; the salts will be ingested in the tender young vegetables which we allow at this age and in the fruit. Of the vegetables the best for this age are spinach, carrots, lettuce, potatoes, Spanish chestnuts; of the fruits apples, pears, oranges and bananas, these latter cooked either as vegetable or as fruit. I am also a great believer in the leguminosæ: dried beans, peas and lentils, and also soy-bean flour. As the young vegetables are given principally for their salts, we must see to it that the child really gets these; in the ordinary household the water in which the vegetables have been boiled, which then contains most of the salts, is thrown away and the child is thus robbed of a most essential part of its food. We must tell this to the mother and teach her to boil down this water and to add it again to the vegetables in straining them.

For the teeth nothing is better than to give the child dry toast made in the oven (not the soggy kind), zwieback, Holland rusk, crackers and graham wafers.

During the next two years we may give occasionally, but by no means regularly, an egg or some minced meat; we can also allow the coarser vegetables such as the different kinds of cabbages, cauliflower, parsnips, turnips, and asparagus; of the fruits those with pits and the berries with the seeds strained out; the child may now get bread, ordinary toast and rolls.

After the age of four the child may eat at the family table, especially as it may now be allowed to chew its meat, and it is safer to have it do this beneath the watchful eyes of its parents, as it might otherwise acquire the pernicious habit of bolting its food; it may get all kinds of vegetables and fruit, and the daily allowance of milk may be still further cut down, though this will hardly be necessary, as many children refuse to drink milk at this age.

So much about the diet of the healthy child during the second period of its life. We will now consider briefly what we can accomplish with the dietary treatment of sick or weakly children of this age.

I shall not speak of those conditions due to affections of the alimentary canal and its appendages, to diseases of the kidneys, or to the different forms of infection, but I shall confine myself to constitutional disturbances such as we find so frequently in these children and which are caused by faulty feeding during infancy, and will therefore be found most frequently in unnaturally fed children, or which may be due to some inherited constitutional peculiarity or inferiority.

Many a child which had been looking quite well at six months may look pale and pasty at the beginning of its second year. This is due to an anemia consequent upon the lack of iron in milk, for there is less than one-third of a grain of iron oxide in one quart of cow's milk, and even less in woman's milk. This anemia will readily yield to the feeding of green vegetables and it is to prevent this condition that we now recommend the administration of fruit juices and vegetables during the second half of the first year.

In rickets the treatment should also be principally a dietetic one, and here again a judicious mixed diet with plenty of fresh fruit and vegetables will accomplish a great deal more than overfeeding with milk.

Moeller-Barlow's disease, or infantile scurvy, is amenable to dietetic treatment only. The easily assimilated salts of the vegetables and fruits and perhaps also their acids will succeed in conjunction with raw milk where medication has invariably failed.

Spasmophilia, which causes such symptoms as laryngospasmus, tetany and nervous overexcitability can be easily controlled by taking away all cow's milk from the child's dietary and feeding it on a diet containing vegetable proteins only, as the animal proteins seem to cause these conditions. After a week or so we can carefully add cow's milk again in small amounts; in fact, we can use this as a control of our treatment.

We now come to that most interesting condition, the exudative diathesis, attention to which has been called especially by Czerny, and about which a great

deal of discussion is going on at the present time. This consists in manifestations from the lymphatic system, an increased activity of which causes hypertrophic swelling of the lymphnodes and an overproduction of lymph; this gives rise to glandular swellings, exudations on the skin, and frequent as well as refractory catarrhs of the respiratory passages. At the same time that these symptoms of constitutional disturbance are most pronounced we find in the exudations and also in the blood a tremendous increase of the acidophile cells.

What this condition really is has not yet been settled; for us it suffices to know that it is of very frequent occurrence, that it runs in families, that it can be cured or at least considerably improved, and also prevented by dietetic treatment. The importance of its early recognition and treatment will be readily understood if we consider that the asthma which incapacitates one of our adult patients so frequently from work and which makes it so hard for him to find a job is due to the same inherited condition which produces adenoids and enlarged tonsils and swollen glands in the neck in his older children, the same which produces the thick crusts in his eczematous baby, and which gives this baby the frequent attacks of bronchitis.

As I have just stated, these conditions can be influenced by diet, by giving the child the lowest possible amount of food, and especially of the animal proteins, on which it can exist, even if its weight remain somewhat below the normal. With dietetic treatment we shall not only be able to influence the pathological conditions after they have appeared, but shall be able many a time to prevent their appearance in the younger children in families where the older ones have had these symptoms. Who will contradict me if I state that we may be able to prevent asthma and chronic bronchitis in the adult by changing the diet of the young child?

Formerly we would have treated these cases with medicine, the so-called symptomatic treatment, which is nothing but a poor excuse for not finding out what is really the matter with a patient, and if we had changed the diet at all it would have been to order a so-called "strengthening diet," one with plenty of milk at meals and between meals, and then some more, and rare roast beef or steak, not to forget the eggs in all forms from raw ones up. What would have been the result of this "strengthening diet"? The child would perhaps have had constipation or stubborn diarrhea, or both alternately, its complexion would have been yellowish, it would have had a tendency to pruriginous eczema, its sleep would have been poor, it would have developed neurotic symptoms, and if we had taken the temperature regularly we would have found continuous subfebrile temperatures.

Now we put these children on a diet which is almost exclusively vegetarian, and I may state here that in this I go even farther than Czerny and his school, with the result that the children remain thin but well.

In conclusion I would say that the dietetic treatment of children at this as well as at any other age is not an easy matter.

In the first place it is hard, even in the so-called better families, to find out what the child really eats, not what it is given, as part of this is usually spoiled and wasted. We must insist upon getting every information as to kind, amount and preparation of the food.

And second it is very hard to make the laity understand the importance of our dietary. We must therefore make it a rule to be most exact in giving our instructions as to the time, the amount, and the preparation of all and every food and drink, and the less we leave to the mother or attendant the better will be our results. True that in order to do this we must realize ourselves what we want to accomplish, and by what means. I am convinced that a thorough knowledge of cooking is one of the essentials of success.

Third, we have to contend with prejudice and ignorance, and we must strenuously resist the meddling interference of others. We must therefore be most deliberate in our directions, which should be invariably in the form of a written prescription, but we must not be inconsiderate and forgetful of individual differences, of idiosyncrasies, and of innate physical or psychical aversions. We must take into account geographical as well as racial differences, even local tastes and customs. We will always succeed if our diet is strictly adhered to, and if we cannot accomplish this in the home then we will be able to do so in the hospital or in a well-regulated sanitarium.

Lastly we must not be oblivious of the social conditions of our patients, we must realize that for a large percentage, if not the majority, of our patients we must try to provide the necessary diet at the least expense, and we must always avoid prescribing anything which is expensive and which we could get more cheaply in some other form, even if its name should not be quite so high sounding nor its advertisements quite so attractive. If we will only pay some attention to this we shall find that it is not at all difficult and we should retain the good will of our patients.

It now only remains for me to acknowledge my indebtedness for a considerable part of the subject matter of this paper to the chapter on nutrition after the first year in Pfaundler and Schlossmann's textbook on the diseases of children, which I had the pleasure of translating, and also to the collected essays of Prof. Dr. Heubner.

481 Franklin Street.

HYPERTHYROIDISM.*

By I. Willis Ballard, M.D.,

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The history of the surgical treatment of disease of the thyroid gland has been an extremely meager one until within the last quarter of a century. The attention of the medical world was first attracted to this form of treatment by Kocher who demonstrated that removal of a part of the thyroid gland was a feasible procedure. Many years prior to this Barry, Graves, and Basedow had accurately described the symptomatology of hyperthyroidism and suggested means for its treatment, but it remained for Moebius to place upon a rational foundation the present day method of treatment by showing conclusively that hyperthyroidism "is the result of the absorption of an excessive amount of substance secreted by a diseased gland" and to him clearly belongs the credit of demonstrating that the disease is "a form of poisoning of the body through an excessive activity of the thyroid" and not a disease of the nervous system or of the vascular apparatus. The correctness of this theory of Moebius is proven afresh with each patient

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cured by treatment directed to the thyroid itself.

The incidence of hyperthyroidism is probably greatly in excess of what the average practitioner thinks. Failure to realize this is undoubtedly the cause of its being overlooked in some less fully developed cases. A more important source of error, however, is that many men consider the presence of exophthalmus and goiter as essential symptoms to its diagnosis. Such really is not the case and their presence usually marks a rather advanced stage of the disease. The diagnosis of frank cases of hyperthyroidism is not difficult. Goiter, exophthalmus and tachycardia admit of no other explanation. However, such cases are in the minority and we are much more often called upon to make the diagnosis prior to the development of this pathognomonic symptom complex. It is the consideration of the diagnosis at this early stage that we shall undertake.

It is becoming more and more probable that a diagnosis of hyperthyroidism must be made in all cases in which there is present a long continued tachycardia not explained upon some other pathological basis, and this even in the absence of both exophthalmos and goiter. While tachycardia is thus of very great importance in the diagnosis of hyperthyroidism, other conditions that may induce a tachycardia should be borne in mind. Severe anemia, exhaustion, or long continued nervous strain from any cause may induce a temporary tachycardia. Indeed it is probable that severe and long continued nervous strain, for some unexplained reason, is of importance as an etiological factor in the development of hyperthyroidism itself. Despite these additional possibilities, however, tachycardia, regularly present, remains the most important single symptom of hyperthyroidism. Ranging usually between 120 and 180 impulses to the minute, it may assume at intervals the proportions of a painful palpitation when it becomes an exceedingly distressing accompaniment of the disease. The majority of patients in the early stages present themselves for diagnosis prior to the development of exophthalmos or goiter and frequently complain of but one or two symptoms. Bearing in mind that tachycardia is invariably present these symptoms are usually about as follows:

1. *Muscular tremor.*—Muscular tremor, the most important of the so-called minor symptoms, is elicited by having the patient extend an arm. The number of contractions of the tremor is noted to be eight or nine to the second and very closely resembles the tremor of chronic alcoholism from which upon occasion it becomes necessary to differentiate it. While there is much uniformity in the frequency of the contractions in hyperthyroidism, there is great difference in their degree. The tremor is usually confined to the extremities, more rarely to the eyes alone, and very rarely to one extremity alone. It differs from the tremor of paralysis agitans in that there is no special movement of the part, but rather a fine wave-like contraction of individual muscle fibers.

2. *Muscular weakness.*—Hyperthyroidism always gives muscular weakness as one of its symptoms, both in the early and late stages, but the form to which we have reference here is that occurring in the very earliest stages. A very large number of these patients presenting this intolerable and increasing muscle weakness, seemingly without evident pathological basis, are classed as neurasthenics and their muscle weakness is attributed to nervous exhaustion. The diagnosis of certain of these unusually obscure conditions is much facilitated by bearing in mind the associated symptoms of hyperthyroidism. It is probable that this condition of muscle weakness affecting the muscles of the orbit has much to do with the production of the exophthalmos and the von Graefe and Stelwag signs so common in the more advanced stages of the disease.

3. *Nervous erethism.*—This is one of the most common and one of the earliest symptoms of hyperthyroidism. In some form it is almost invariably present and in certain instances is present to such a degree as to cause serious confusion with hysteria. On the other hand, in contrast to nervous erethism some patients present an exactly opposite condition of nervous depression, with complete loss of nervous control of certain set muscle groups resulting in a form of temporary paralysis. An important member of this group, usually seen however only in the more advanced stages of hyperthyroidism, is paralysis of the external ocular muscles with an inability to move the eyeball and a resulting fixed staring expression.

Affecting the lower limbs there is occasionally seen a group of paralytic symptoms, assuming in some instances the proportions of a paraplegia. The presence of these paralytic symptoms arouses the suspicion of hysteria in the first instance or of a lesion of the cord, myelitic in nature in the second. The perfect sphincter control and the absence of trophic changes should speak against myelitis, and hysteria is ruled out by the absence of hysterical stigmata such as hemianesthesia, narrowing of the visual field, etc.

4. *Loss of weight.*—A gradual loss of weight is in some instances the main cause of complaint even in the early stages of the disease. Loss of weight is always present after the development of the so-called exophthalmic coachexia, but as an early symptom it is of particular importance because loss of weight associated with tachycardia is usually regarded as indicative of tuberculosis. There can be no doubt that many cases of tuberculosis in their early stages do give as their main symptoms loss of weight and tachycardia, often without elevation of temperature or demonstrable physical signs, but usually observation of these patients for a prolonged period of time will show some other evidence of the disease. The important point is that all cases of this character are not tuberculous, but certainly a percentage of them are instances of hyperthyroidism. In the later stages of hyperthyroidism when weakness and loss of weight have become marked symptoms one should not confuse the condition with diabetes. For some unexplained reason sugar is fairly often found in the urine of patients at this time.

5. *Psychical disturbances.*—With certain patients psychical disturbances form an important part of the early history of the disease. There are present particularly in the form of a nervous exaltation, a restless dissatisfied condition or, in common parlance, nervousness. I recall a patient, a young married woman, in whom this nervous exaltation was a most pronounced feature. She seemed consumed with energy, displaying an exaggerated activity, yet after being engaged for but a short time at any occupation she would stop and busy herself with something else. Other than these nervous symptoms, tachycardia and attacks of painful palpitation of the heart, there were no indications of hyper-

thyroidism, yet she recovered completely under treatment for this disease.

Finally, hyperthyroidism is frequently accompanied by certain paroxysmal attacks, the diagnosis of which may be extremely difficult unless the importance of the associated tachycardia and such other symptoms of hyperthyroidism as may be present is appreciated. These attacks consist of nausea, vomiting, diarrhea, and profuse sweating; symptoms by no means peculiar to hyperthyroidism, and the correct diagnosis of which is dependent upon our recognition of their etiology.

Treatment: It is not our purpose at this time to consider the surgical treatment of hyperthyroidism. In any plan of treatment of this disease, however, rest assumes a position of first importance and should be mental and emotional as well as physical. Hygiene and diet are attended to with that degree of thought to which all patients are entitled. Of internal forms of medication, that of Forchheimer is by far the most valuable and its originator reported 82 per cent. of cures. With this method of treatment alone I have not been able to obtain such results, but in combination with the use of the Roentgen ray this treatment offers the most valuable means at our disposal for the control of hyperthyroidism.

A consideration of the pathology of the disease and of the physiological action of the *x*-rays would seem to indicate that as a means of combating a certain definite pathological entity no more appropriate means could be found. Hyperthyroidism is primarily, first and last, a disease of the thyroid gland. The changes are those of an organ in active evolution, the seat of an increased proliferation of glandular tissue, the production of newly formed tubular spaces and a markedly increased circulatory activity. The physiological effect of the *x*-ray is inhibition. They slow up the activity of all glandular tissues, constrict capillaries and arterioles, and decrease function in all organs exposed to their influence. In theory there is no agent more suitable for correcting a definite pathological condition. In practice it will be found that the *x*-rays fulfill in a very exact manner the indications in this disease.

PERIODICITY OF THE DRINK NEUROSES.

By T. D. CROTHERS, M. D.,

HARTFORD, CONN.

Recently there have appeared in the daily papers detailed histories of two quite prominent examples of periodicity and convulsive concentration of nerve energies that has greatly puzzled neurologists, because there is no explanation.

The recorded cases are few, and the theories are vague and uncertain. In this study a grouping of some clinical facts will bring much light to conditions that have otherwise been very confusing. The alternations of exhilaration and depression in the activities of the brain and nervous system are considered mere ebbs and flows of nerve energies of little or no physiological interest.

When these alternations appear in diseases and degenerations of the brain and nervous system they come into prominence as distinct forces, following uniform laws of cause and effect. The neuralgic migraines, the epilepsies, some of the insanities, and a great variety of nerve and functional activities are familiar illustrations.

The drink neurotic who abstains for distinct periods and then suddenly breaks out with insane cravings for spirits, which after a time die away, only to be followed by another outbreak of a similar character, is an example of these unknown cyclic degenerations.

At one time it is a delirium, intense, overpowering, and irresistible and then a period of quiet rest, sanity, and complete control comes on. At one time it is the rigid moralist, strict abstainer, and sound, strong man. At another it is the excessive drinker, immoral, dishonest, without character, and reckless of his acts and conduct.

To the unreasoning public and the foolish theorist this is simply vice—an outbreak of the animal instincts and the beast part of the man. The most delusive and stupid theories have become a great literature in explanations of these two widely differing conditions. The statement that it is simply a gathering and breaking of morbid energies and activities of the brain and nervous functions, governed by distinct physical laws, is not recognized to any great extent.

Some facts common to these conditions will show how thoroughly they are physical and subject to laws which are to be studied. In all probability fully 60 per cent. of all inebriates and alcoholics display this periodicity of symptoms.

In the distinct periodical drinker the free intervals are very often definite as to time, varying from one week to several years, and in many cases breaking out at intervals that are as fixed and unvarying as the movement of the stars. In others this interval of freedom from the drink craze is variable, and in some cases depends on certain conditions which may be often forecasted, controlled, and prevented. In others the conditions are unknown, and the laws that govern their culmination and explosion have not been studied. There is a small class of persons in whom the drink impulse appears as mysteriously as the flash of lightning in a cloudless sky, with no premonition or hint of the coming attack. Often it disappears in the same mysterious way.

An attempt at classification indicates several groups which seem to have fairly constant symptoms. Thus in many cases they may be called the insane impulsive periodic inebriates. The free interval is an unknown condition, and the return of the drink craze is abrupt and unexpected. The man will drink and become crazed at the most inopportune time, on the eve of marriage or some great social, political, or literary triumph, or some business success, or on a public occasion, or at a funeral, where his condition is most disastrous for his future.

A very poor young man with a large family, who had been sober for some weeks was informed that his uncle had left him an immense sum of money, contingent on his remaining sober for one year. Immediately on hearing the news he drank to great excess for weeks.

The reaction when this obsession disappears and the sudden realization of the losses may precipitate suicide. The remorse is so intense that death is preferred. Others, when the drink craze passes off, show the most intense anxiety to explain and minimize the losses which they have suffered from, and also make earnest efforts to convince their friends that this will never occur again.

The memory is usually vague, and events of the past are uncertain and cloudy. In others the memory is clear and intact. The reason and judgment seem to have been suddenly arrested, and

on recovery display unusual activity to promote total abstinence in the subject and his friends. The extreme delirious excitement to help others and to show the dangers from alcohol, and promote the cause of total abstinence, so prominent in revival meetings, is not infrequently the after effect of previous alcoholic excesses. Sometimes this is manifested in egotism and childish appeals to credulity, away beyond the bounds of rational judgment and sense.

Another class of these periodics exhibit distinct premonitory symptoms of the drink craze. Curiously enough, they are unconscious of these premonitions. The more common of these symptoms are degrees of unusual excitement or depression, great business energy or unusual apathy, perhaps exaltation of the emotions or depressive states, with fears of poverty and sudden death. There is a great variety of these symptoms which take on almost every form of abnormality, all leading up to the toxic use of spirits, usually to stupor, and this period is marked by amnesias and delusions that are peculiar to the person.

Sometimes these premonitory symptoms are apparent in hallucinations of sight and hearing or sensory delusions in different parts of the body. At other times there are deliriums of intrigue and low cunning and egotistic duplicities and prevarications, foreign to the patient's previous character.

After spirits have been used up to a certain point all these disappear, generally after the first intoxication. Another class of periodics will have premonitory symptoms of childish reasoning and credulities of the presence of some disease, which will eventually suggest spirits as a remedy. They are often very strong persons, in apparent good health, and seem oblivious to any past experience. Then suddenly they will have food and health delusions, with fears sending them to the physician, who will fail to find anything to sustain their own conceptions of the case.

An example was that of a very prominent lawyer who counselled with many physicians, complaining of most obscure and complex symptoms. Then suddenly he drank to great excess, and after a few days recovered without any recollection of his previous alarm.

Another example was that of a noted banker, who once or twice a year exhibited extraordinary suspicion of persons with whom he was associated, and displayed unusual energy in trying to verify accounts and determine the exact amount in the vaults, examining books and vouchers with the idea of detecting some faults,

These premonitory symptoms are exceedingly varied, and in some degree appear in every instance. The exact recurrence of the drink craze, irrespective of other conditions and surroundings, is evident in many persons. The time in months, days, and hours can be traced, and the occurrence of the drink paroxysm is exact and literal.

It is a question whether the persons always understand that at such an interval they must drink spirits to excess. When they do there is evidently a preparation for this event, and a degree of expectancy which makes it more exact and positive. A number of cases have been noted where this period was a certain number of days and hours, rarely varying, and then never more than a day, and returning under the most extraordinary circumstances.

Examples like the following are not infrequent. A man in previous good health, conducting business in the usual way, will suddenly stop, disappear, and in a short time be found very much intoxicated. Professional men in the midst of most important duties will abruptly give the most frivolous excuses for a change in the work, and become stupid from drink in a short time.

In some instances persons show unusual anxiety to help others or take up some reform work with great energy, ending in a drink attack. Probably this is done in an effort to break up the imperative conception of the oncoming drink craze. The memory during this premonitory period, and even up to the close of the paroxysm is subject to wide variations. In some instances it is entirely a blank, and no efforts to explain the reasons and the causes are made. In others there is a half consciousness of the condition, which is never clear and connected. Very interesting questions have centered about the consciousness and capacity to realize this condition, but are still unsettled. The heredity of these cases is always very prominent.

Probably over 60 per cent. have a neurotic heredity in which insanity, epilepsy, inebriety, idiocy and various other diseases are traceable in the parents and grandparents, pointing to an unstable neurotic condition that is favorable to the outbreak of this distinct form of neurosis. Why it should take on the form of a craze for the narcotism of alcohol is not clear. In all probability this may be dependent on the errors of environment, nutrition, and faulty mental training. Many of the persons studied showed degenerations, perversions, both acquired and inherited. Others indicate a spasmodic tendency to gather and break like a storm, resembling epilepsy, and often merging into it.

These periodicities seldom appear until after twenty years of age, and often subside or merge into some serious degeneration before fifty. At first the length of the paroxysm is brief, confined to a few hours. Later it increases, extending over two or three weeks, then finally becoming shorter and less intense.

The narcotism of spirits develops some other symptoms or conditions which obscure and change the former. There may be intense loathing and repugnance for the odor and effects of spirits, and other drugs are taken. A period of a few years of periodic drinking often merges into morphinism or the use of some other drug.

The periodic drinking, based on a neurotic heredity, frequently merges into epilepsy, paresis, and forms of insanity, marked by exaltation and depression. The drink craze not infrequently dies away, but obsessions remain, sometimes concentrating on widely differing objects. Thus a periodic drinker developed a craze for building houses, which extended over many years, each year building a new house for himself, with different designs and rooms.

Another man developed a craze for travel. Every few months he would stop business and go away, pursuing an aimless journey. Another man has a craze for dressing, another one goes into politics, another becomes a reformer, and so on through an almost infinite list of activity.

The original periodic desire for spirits remains, only it takes on a different form. Oftentimes these cycles appear in epidemic delusions, literally most credulous faiths in unreal theories; faith in commercial and social enterprises, credulous expectations of impossibilities; or, on the other hand, waves

of pessimism, doubt, and confusional conceptions of things.

A number of persons have been noted who began in early life to drink at intervals, and a few years afterwards gave up spirits, and developed into paranoiacs, defectives, eccentrics, and men very sharply unbalanced at times. In political circles, these periodic drinkers who are reformed appear very prominent.

The impulsiveness of conduct, sentiment, and reason, so prominent in many persons, are all phases of these mysterious cycles of brain activity. Spirits, either as a medicine or as a beverage are exceedingly dangerous for such persons. It is often a question of great doubt whether any narcotics should be used. They are all very susceptible to the alternations of drug effects. It is evident that a great many drug and spirit takers have been developed from this class of spasmodic neurotics by thoughtless medication. Masked epilepsies, both in men and women, are of the same class and all indicate great instability and positive degenerations of certain brain centers, and are all suspicious of the possibilites of grave neuroses of some kind.

The alcoholic who has used spirits to the point of poisoning and has all the marked symptoms of congestion, toxemia, and general perversions, is amenable to treatment, with every prospect of restoration and cure. If with this alcoholism there is an hereditary influence and neurosis, the use of spirits may be a symptom at first as well as a cause. If the use of spirits began with distinct free intervals there is still further degeneration and still greater complexity in the prognosis as well as treatment.

The periodical return of the drink paroxysm should be treated successfully, and can be broken up by a great variety of methods and means. The fact that one at intervals is possessed with the desire for drink is a very serious one, and should not be treated lightly. The fact that one is able to stop after the period is over is no evidence of strength, but is decidelly suspicious of a very grave spasmodic disease that will terminate fatally. The fact that periodical drinking has preceded a case of pneumonia is of very grave prognostic importance. The mortality is increased, and any form of treatment becomes impotent. The fact of spasmodic diseases in infancy predisposes to alcoholic periodicity, epilepsy, and other neuroses that must be recognized in after treatment. The gravity of the epileptic paroxysms depends on their duration and persistency. The same thing occurs in the alcoholic paroxysm, only that there are conditions which may be broken up, and thus lessen or check the paroxysm. Persons afflicted in this way come under my care at intervals, with the distinct purpose of checking and breaking up the paroxysm which is expected to occur at about a certain time. This is done in institutional treatment. The hope is that the paroxysm will not return again until the cycle is completed, and this occurs in most instances after short intervals of treatment extending over years.

Such persons should be taught the gravity of their condition and encouraged to seek help from the physician on the first approach of the paroxysm, and in this way break up its return, then become built up and restored so as to overcome the next onset.

Here is a field for practical physicians of the utmost importance, with possibilities of restoration beyond any present conception.

THE HEALTH OFFICER AND THE TUBERCULOSIS PROBLEM IN RURAL COMMUNITIES.*

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WHEN your Commissioner, the Hon. Hermann M. Biggs, M. D., invited me to address this annual conference of the Health Officers of the State of New York on the problem of tuberculosis in rural communities, I was at first surprised and for the moment could not think that there should be any great difference between the tuberculosis problem in the city and in the town or village. But, after some reflection, I can well see that there is indeed quite a difference in the method by which tuberculosis must be attacked in a community which on the one hand has not the administrative machinery of a large city, and where on the other because of the personal close relations, friendly and neighborly in many instances, the health officer seemingly has not always a free hand to say and do what he thinks is best for the interest of the community at large.

Take, for example, the spitting nuisance. Many a worthy inhabitant of a small village or town should he be forbidden to expectorate freely where he pleases, when in winter he and his neighbors congregate around the warm stove in the grocery store or postoffice and solve the problems of the Universe, would consider an anti-spitting regulation an infringement of his inalienable rights as a free American citizen. The same would probably hold good if, when sitting in summer in front of his own home, he should dispose of his accumulated pulmonary or bronchial secretions or the juices of his chewing tobacco on the sidewalk. It is difficult for this worthy citizen to see how by such uncleanly and unsanitary habit he may not only injure himself and his family, but the entire community.

When, in addition to this, as it happens not infrequently, the careless spitter is upheld by some worthy but retrogressive member of our profession, be it because of political or family antagonism to the present incumbent of the health office, then there surely will be discord and continued spitting. Of course, there are exceptions, but I know that situations such as I have just described do occur, and they make the carrying out of sanitary regulations exceedingly difficult in rural communities.

Tuberculosis, according to Chapter 2 of the Sanitary Code, belongs to the communicable diseases which must be reported to the Health Officer. I can readily see how in a small community there may occasionally arise unpleasant feelings when the health officer insists upon reporting such cases. The fear that after being reported a stigma will be fastened upon an individual or family is often an inducement to hide the disease. We all know the danger of the tuberculous individual to a community, small or large, when he behaves as if he were not tuberculous. Even if he should be careful at home because of the advice of a conscientious family physician, he will often be careless when away from home, disseminating his seven billion bacilli per day by the deposit of his sputum where it will have a chance to dry and pulverize and be inhaled as bacilliferous dust by others. He may

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also propagate his disease through droplet infection. It is very strange how this latter source of infection is sometimes overlooked by otherwise well trained physicians. The expression "dry cough" is even used by some medical men, yet you all know that small particles of saliva are expelled during the cough, even if the individual does not expectorate.

You are all familiar with the laws of June 15, 1913, and the amendment to the county law in relation to tuberculosis hospitals of April 14, 1914. Whenever a county hospital for the care of tuberculous patients is about to be established, I know from experience what a prejudice is aroused among the people against placing such an institution in the vicinity of any community, and there is also the prejudice of many tuberculous individuals against entering such an institution. To be brief, we may put it this way: The most difficult phase of the tuberculosis problem in rural communities is phthisiophobia—the exaggerated fear of the presence of a tuberculous individual. On this fear is based the disinclination of prospective patients to have their chests examined during the onset of early symptoms, such as cough, loss of weight, rise of temperature, hoarseness, sanguineous expectoration, etc. They and their relatives fear being stigmatized in the event tuberculosis is diagnosed and reported. Phthisiophobia is responsible for the disinclination to obey anti-spitting laws, the disinclination of the community at large to have tuberculosis hospitals or sanatoria in the neighborhood, and last but not least, the disinclination of individuals to enter these institutions for treatment and cure.

To some of you younger men with less experience it might sound strange when I tell you that the majority of tuberculous individuals think themselves perfectly harmless and are afraid to enter tuberculosis institutions for fear of becoming infected there; and this fear is not infrequently shared by other members of the family. We all know that the successful treatment in the home of the patient, while feasible in some instances, is impossible in many. And yet, upon the early discovery and the prompt treatment of the tuberculous invalid at the right time and in the right place depends in no small degree the solution of the tuberculosis problem.

What can the health officer of a rural community do in the face of these tremendous difficulties which confront him in his honest and sincere effort to be helpful in the combat of tuberculosis?

Will you permit me to answer this question by picturing to you my ideal of the health officer of a rural community, and then in the lively discussion which I hope will follow my humble contribution I beg you to show me wherein my conception falls short? We will then have before us a worthy ideal for you to follow.

First of all, the model health officer of a rural community must be an ideal man; he must be beloved for his personality, and for his tact in dealing with patients, with his fellow physicians, and the other authorities in the community. He must be a thoroughly trained sanitarian. While it would be desirable for him to have a degree of Doctor of Public Health besides the degree of Doctor of Medicine, this to my mind is not absolutely essential, but he must be a thoroughly trained medical man to whom his fellow practitioners can look up and on whom they can call for counsel.

In last week's issue (No. 36, Vol. 29)* of the Public Health Reports, published by the U. S. Public Health Service, in an article entitled "The Making of Health Officers," my good friend, Assistant Surgeon-General John W. Trask, in deploring the fact that "there are exceedingly few men with requisite training from among whom the thousands of local health officers can be appointed," recommends a correspondence course in health administration and allied subjects for improving the efficiency of these officers. I most highly approve of this suggestion, but would urge that facilities for clinical instructions should be provided in addition, for the ideal health officer should not only be versed in sanitary science in general and be familiar with all the means of preventing endemic and epidemic diseases, but he should also be an expert diagnostician of communicable and contagious diseases, which knowledge cannot be acquired by correspondence.

Besides being all this, he must have not necessarily the gift of oratory, but the ability to give good practical talks to physicians and to laymen on medical topics, sanitation, and the prevention of disease. Last but not least, and I say this with all due respect for the authorities, the health officer of any county must and should be paid a salary high enough to make him independent of practice, so as to enable him to devote all his time to his official duties. The position should be for life, as long as he is able to do his duty. It should never depend upon political preferment.

If the community is too small to maintain a well-paid health officer, let us follow the suggestion of Mr. Geo. J. Nelbach, of the Tuberculosis Committee of the State Charities Aid Association, and unite a number of the smaller communities under the administration of one health officer, who, because of being well paid, can be held responsible for the sanitary conditions of the various communities comprising his sanitary district or unit.

And now, what are his particular duties concerning the tuberculosis problem? After having united with his fellow practitioners of the community to form an anti-tuberculosis league, after they have pledged themselves to aid him in a conscientious war not against the tuberculous but against tuberculosis, he should give regular popular talks to the town or village folks on the prevention of this disease, of course always under the auspices of the local physicians. The conscientious health officer should prepare himself carefully for such tuberculosis conferences. Pray, do not think that it is so very easy to talk the language of science in the language of the people. Nothing is more difficult than to avoid scientific terms when accustomed to them, and at the same time nothing is more detrimental to the good effect of a popular medical talk than the use of big words and phrases familiar to the medical ear, but sounding like Greek, Latin, or Hebrew to the lay mind.

Let the lecturer begin by defining tuberculosis, not as a dangerous contagious disease, but merely as a communicable one, which only becomes dangerous through ignorance and carelessness. I ascribe the wonderful success of the antituberculosis work in New York City, inaugurated by your distinguished commissioner and my distinguished teacher, Hermann M. Biggs, to the fact that from

*"The Possibility of State Departments of Health Improving the Efficiency of Local Health Officers by Means of Correspondence Courses."

the very onset of his propaganda he classified tuberculosis with the communicable and not with the contagious diseases. One must first overcome the fear of the disease in order to combat it successfully. It is a good thing to tell a lay audience that probably every one of them, or at least nine-tenths of them, have or have had tuberculosis at one time or another in their lives, and that we are not at all certain that a slight attack of tuberculosis does not confer upon us a certain immunity to future attacks. Explain, furthermore, that when we are in good health, thanks to the bactericidal quality of the Schneiderian membrane in our nose, the upward waving sciliæ in the upper respiratory tract, the phagocytic power of the antibodies in our blood, and the bacteria-killing power of the gastric secretions, we have natural factors of defense against tuberculosis. Otherwise, probably everyone of us would be ill with the disease. Then emphasize in as strong language as you can possibly put it in that the honest conscientious consumptive, who takes care to avoid infecting others by his sputum or saliva, is not a danger to his fellow men and is as safe to associate with as anybody else.

To explain to a lay audience the difference between a contagious and a communicable disease, take smallpox as an example. Tell them that no matter how clean and conscientious a smallpox patient may be, they should not go near him nor touch him, unless they have been vaccinated and revaccinated, and they should stay away from the smallpox hospital in general. On the other hand, say to your audience, "You may safely touch and shake hands with the conscientious consumptive and even kiss him on the forehead, if you must kiss, and nothing will happen to you," and then tell them that the well-equipped and well-conducted tuberculosis hospital or sanatorium is the safest place not to catch consumption.

Never fail in your popular tuberculosis talks to lay emphasis on the value of early diagnosis and impress upon your hearers the fact that an annual or semi-annual examination of their chests by their family physician is one of the safest and from every point of view most profitable investment for retaining or gaining health they could possibly make. Since you counsel these people to be examined by their own physicians they will see the altruism in your giving this valuable advice.

In reference to the tuberculosis institution, hospital, or sanatorium, you can also conscientiously say that no physician, no nurse, no visitor, or healthy inmate ever contracted tuberculosis there, because of the careful training of the patients and the splendid hygiene in vogue in such institutions. This also should be told to those who object on sentimental or sanitary grounds to the establishment of tuberculosis institutions in their neighborhood. The mortality from tuberculosis among the inhabitants of villages surrounding sanatoria invariably decreases after the establishment of such institutions. To those who object on account of depreciation of real estate value, prove to them by existing statistics, which are available to all, that real estate has improved in the vicinity of institutions for the tuberculous and you will very quickly win over to your side the real estate owner and the real estate dealer.

In your talk to villagers and farmers, and particularly to the women, teach the value of fresh air, of which they have so much in the country, and of which they make so little use; tell them that the fear of night air is a nightmare, for it is just as good as day air. Teach the children and the adults the art of deep breathing; teach your audience all about proper food, regular habits and the danger of intemperance, since alcoholism is a strong predisposing factor to tuberculosis. Insist upon the enforcement of anti-spitting laws; have your people do away with the roller towel at home, in hotels, or other public or private wash-rooms. In my travels through the State I have found a goodly number of hotels in which the roller towel and the common drinking cup seem to be still permanent fixtures, and badly kept spittoons the usual ornament of the lobbies and public assembly rooms. Encourage outdoor sleeping, which can be carried out so much more easily in smaller communities than in larger ones. Stop the chiming of bells and the striking of the town clock between the hours of 9 P. M. and 7 A. M., and stop other unnecessary and distressing street noises; they are as bad for the nerves of the indoor as the outdoor sleeper, and it is as bad for the tuberculous as for the non-tuberculous to be kept awake at night. Except in small villages, I don't see any earthly reason why the rooster nuisance could not also be done away with as has been done in New York City, where we recently passed a regulation, which will go into effect on November 1. This regulation will not permit residents of the Greater City of New York to keep roosters; it will also prohibit persons from raising chickens in their back yards where there is another residence or public institution within 75 feet of the poultry enclosure.

Improve the hygiene of your rural schools. In our large cities we erect the most beautiful buildings for our school children; in some villages and small towns anything from an old barn to the old-fashioned red brick building with low ceiling, with little or no ventilation, and bad lighting, has to do. Remodel these schools into open air schools, or build new ones in which you will have plenty of open air classes. I have said before, and am willing to say again, that in my humble opinion open air schools at least for primary grades must become the rule and indoor classes the exception if we wish to prevent and combat tuberculosis in childhood.

You should even concern yourselves with the hygiene of the churches. They should be properly ventilated and frequently cleaned. In Protestant churches advocate the use of individual communion cups and in Catholic churches see to it that crosses, and other articles of adoration, often kissed by the devout, are frequently disinfected.

Give anti-tuberculosis talks to ministers and teachers or directly to the children; distribute popular medical literature in schools for the children to take home; make fresh air apostles of these little ones and you will reach the old folks at home and thus combat the tendency to tuberculosis in the adults and the young; enforce your laws against bovine tuberculosis, for bear in mind that 10 per cent. of the tuberculosis in childhood is due to the bovine type of the disease. Allow no individual with an open tuberculosis to be employed in a dairy or in the handling of milk in stores.

You will, of course, see to it that all suspected sputum sent to you is carefully examined, but tell your physicians that often several specimens are necessary in order to find the tuberculosis germ, and last but not least, repeat to them as often as you can the maxim that while the presence of tubercle bacilli in the pulmonary secretion of the in-

dividual is absolute proof of the existence of the disease the absence of the germ does by no means prove that there is no tuberculosis. In the earlier stages of the pulmonary type of this disease the germs are found but rarely because there is little disintegration of pulmonary tissue, and yet it is in this early stage that we can most hope for complete recovery. It is, therefore, of vast importance that every community should have physicians who are experts in the physical diagnosis of the disease in its earliest stages, and the health officer of a community should be particularly qualified to aid his fellow physicians in the early discovery of tuberculosis.

See to it that every case of open tuberculosis receives hospital or sanatorium care or at least gets his sanatorium treatment under intelligent guidance at home. There should be no uncared for tuberculous individual in any community which has an efficient health officer and an intelligent municipal or county government. Make your sanatorium a center of education for physicians and laymen; make your hospitals for advanced cases attractive so that those who ought to enter will enter willingly and will be glad to be there because they will receive better treatment than they could at home; if the institution has cheerful and attractive features they will miss the home less.

The consumptive is the ideal victim of the quack, charlatan, and vendor of patent medicines, and this is particularly true of the consumptives who live in rural communities where often the local papers derive their greatest income from advertising nostrums and sure cures for consumption and other diseases. Have a health publicity column in your local paper to enlighten the public. If necessary, have the department pay for this to compensate the poor editor for his loss of quack advertisements. Tell your lay audience that there is no sure cure for consumption; that good air, rest, and good food under careful medical supervision, and the scientific administration of medicine to relieve distressing symptoms are up to this date our only means of curing tuberculosis, and that every advertisement of a sure consumption cure cloaks a swindle.

In all your talks to laymen try to imbue them with your own enthusiasm and devotion to the anti-tuberculosis cause. Tell your hearers that tuberculosis is not merely a medical disease but that it has a very large social aspect. Bad housing, overcrowding, dangerous congestion, and even underfeeding exist, alas, not only in our large cities but also in smaller communities. Show your wealthy and influential fellow citizens what great good they can accomplish by becoming interested in the amelioration of such conditions, as are conducive to the spread of tuberculosis. They will themselves benefit in the end from a clean and healthful community. Personal service to the consumptive poor and kind, generous, and considerate actions toward those afflicted with tuberculosis, rich and poor alike, will create a better and more helpful feeling throughout the community.

It is essential, in order to prevent and cure the disease, that the laymen and physicians of the community, whether large or small, should forget their little social, political, or religious differences and work hand in hand for the common good. Then and then only can you hope to come near the solution of the tuberculosis problem in your midst.

16 West Ninety-fifth Street.

Medicolegal Notes.

Revocation of License—Offering to Procure Abortion—Construction of Statute.—The Missouri statute, Rev. St. 1909, §8317, authorizes the State Board of Health to refuse a license to practise medicine and surgery to persons guilty of unprofessional or dishonorable conduct and to revoke licenses for like causes, and specifies certain acts which shall be deemed unprofessional and dishonorable conduct, namely, habitual drunkenness, drug habit, excessive use of narcotics, producing criminal abortions, or soliciting patronage by agents. It was, however, provided that these specifications were not intended to exclude all other "acts" for which licenses might be revoked. A physician was suspended by the Board of Health for one year upon a charge of unprofessional and dishonorable conduct in offering or being willing to commit a criminal abortion. It was held, in a suit to quash the action of the board, that an advertisement by a physician, stating that his practice was limited to "diseases of women and surgery," and the testimony of a witness that several physicians had told him that such physician had the reputation of being a criminal abortionist, would not sustain a suspension from practice.

The right of a licensed physician to practice is not a mere shadowy privilege which may be revoked regardless of whether the possessor has violated the laws of the state, but is a valuable privilege and perhaps a property right, which is protected at least by such safeguards as the legislature has thrown around it. The statute on which the suspension was based is, so far as it authorizes the revocation of licenses, highly penal and must be so construed, that is, with a degree of strictures commensurate with the severity of the penalty it imposes. Where the penalty is onerous, no one can be held to have violated its provisions unless his acts come within both the letter and the spirit of the law. Under the statute, it was held that a mere willingness or offer to produce an abortion would not justify suspension from practice. The general specification in the statute could not be applied to mere evil thoughts or a consent to do wrong where no wrong was actually done. It could not logically be urged that a mere desire or willingness to use intoxicants or narcotics excessively would impair the mind; and for the same reason it must be held that a mere consent to perform an abortion would not make the physician an abortionist, or subject him to the penalties of having committed that crime. The general specification of the statute was directed solely against certain undesignated acts, not against evil thoughts or a willingness to perform wrongful acts. There being no law or rule prohibiting offers to commit abortion, the board could not suspend a physician for offering to commit an abortion.—State v. Robinson, Missouri Supreme Court, 161 S. W., 1169.

Liability of Department Store for Medical Services Rendered to Employee.—In an action by a physician against a department store for services rendered to an employee under contract with the superintendent, the evidence conflicting as to whether the superintendent had authority to bind the company by the contract, it was held that the question was one for the jury. If the contract made by the superintendent was unauthorized, the question whether it was subsequently ratified by the president of the corporation operating the store was also for the jury. There was no doubt that the corporation itself had power to employ a physician to treat a patient while in its employ, and the president of the corporation possessed the implied authority as incident to that office to execute such power. Although the fact that a person merely calls a physician to attend a third party does not raise an implied contract upon such person's part to pay therefor, unless he was under legal obligation to furnish such services, yet he is liable if there was in fact an actual contract to pay, and an express promise to pay is not essential, if it sufficiently appears from the facts and circumstances that the physician intended to charge for his services, and the person requesting him to perform them intended to pay therefor. So in this case, though it might be that no one in express words promised to pay the plaintiff for his services, he might nevertheless recover on contract if the jury found as a fact that he rendered the services at the request of the defendant corporation with an intention on his part to charge, and that the defendant intended to pay therefor. Whether there was such an actual contract to pay for the services was a question for the jury.—Ghio v. Schaper Bros. Mercantile Co. (Mo.), 163 S. W. 551.

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HYPERSENSITIVENESS, FEVER, AND METABOLISM.

THE conception of anaphylaxis has opened up many new vistas of research in clinical medicine. Particularly in the domain of the infectious diseases has it served to explain at least in part such phenomena as fever, and changes in metabolism and in the blood. At the same time anaphylaxis itself has been delineated as merely one of the manifestations of parenteral digestion. Erich Leschke in the *Beiträge zur Klinik der Infektionskrankheiten und zur Immunitätsforschung*, Vol. 3, Nos. 1 and 2, defines anaphylaxis as follows: Upon the parenteral introduction into the body of a foreign protein, antibodies of the nature of protective ferments are formed and with the aid of complement serve to disintegrate or, in other words, to transform this protein. The toxic products resulting from the further parenteral introduction of the foreign protein cause the symptoms of anaphylactic poisoning. It is pointed out that F. Kraus was the first to perceive the close relationship between the fever resulting from infection and the reactions of immunity. The conception of anaphylaxis gave a new meaning to this febrile reaction. In 1895 Krehl established the fact that the parenteral introduction into the normal organism of foreign protein evokes in small doses a rise in temperature, and in large doses a fall in temperature. It was later found by Krehl and Matthes that the fever resulting from protein injections was higher if the animal had already received an injection of the same protein. Leschke subjected this problem to further investigation, using for this purpose guinea-pigs, rabbits, and dogs, and likewise found that in every instance the temperature reactions are dependent upon the amount of foreign protein introduced. He thereby characterizes this varying mode of reaction as one of general biological significance. He found moreover that the same reactions occurred in the production of passive anaphylaxis as in that of active anaphylaxis, in other words, the injection of anaphylatoxin caused the same reactions in the above species of animals as the repeated injection of foreign protein. Whatever differences in the febrile curve may exist among these different species are attributed to the different content in complement of the respective sera. Leschke believes that the anaphylatoxin is not a homogeneous substance but is a mixture of various substances. He conceives of pyrogenous and toxic components of the anaphylatoxin, which components are separate and distinct substances. Indeed, a third component has been differentiated by Dold and Rados and named phlogistin. This elicits an inflammatory reaction and may be isolated from the toxic component by virtue of its filterability through the Berkefeld filter and its greater resistance to heat. The inflammatory reactions are well known clinically in the Arthus phenomenon that occurs locally when a foreign protein is injected into a sensitized animal, and in the local tuberculin and luetin reactions.

The question that next presented itself to Leschke was the identification of the different split products of the parenteral digestion of protein. Biedl and Kraus had pointed out the resemblance of anaphylactic shock to peptone poisoning. Still later these investigators as well as Pfeiffer and Aronson alluded to the identity of these reactions with those produced by synthetic histamin or β-imidazolylethylamine. Leschke investigated the effect of peptone and of histamin upon the temperature. He found that neither in dogs nor in rabbits and guinea-pigs has pure peptone any effect upon the temperature. The fall in temperature observed after the injection of large amounts of peptone is attributed to the effect of other and more remote split products. It was found by von Knaffl-Lenz that the blood-pressure lowering and the blood-coagulation inhibiting effects of peptone are dependent upon the tryptophan present in peptone. Leschke found that histamin causes no change in the temperature. Moreover, not only in their effects upon the latter are histamin, peptone, and anaphylatoxin to be differentiated, but likewise in their effects upon the blood-pressure, the uterus, and the blood cells, and in the production of necrosis. Moreover the above three substances differ markedly in their physicochemical constitution.

In connection with this subject another important question at once arises. Since the anaphylatoxin seems to be non-specific for all bacteria and all types of protein, that is, the same toxic end-product arising from the parenteral digestion of protein, it is legitimate to ask whether in each instance or in each infectious disease there are not other and specific toxic end-products. Of course the diversity of the infectious diseases speaks in favor of the existence of such specific end-products. Recent investigations have revealed the presence of such substances but await confirmation.

The relation of anaphylaxis to metabolism is another subject of eminent interest and importance. A number of investigations have shown that foreign protein introduced parenterally is burned up and utilized exactly as when introduced into the alimentary canal, and tends to maintain the protein equilibrium up to the point of the development of anaphylaxis. At this stage the nitrogen metabolism undergoes a marked change. In the presence of anaphylactic fever, on account of the motor unrest, the vomiting, the tenesmus, etc., the nitrogen-balance becomes negative. If these accompanying symp-

toms are controlled by the use of opiates, the nitrogen-balance then becomes positive. However, in the behavior of the nitrogen metabolism a number of factors must be borne in mind. According to the size of the sensitizing dose, the intervals of administration, the amount of the antibodies produced, the relative individual or race susceptibility, the size of the repeated dose, and the site of its administration, there may result in one case fever or in another case a fall in temperature, or there may occur an enteritis, hemorrhages, choking, tenesmus, motor unrest, convulsions, apathy, respiratory and circulatory disturbances, and local inflammatory reactions. All of the above manifestations influence singly and in different combinations the protein metabolism. At any rate, the primary effect of the anaphylactic poison is to retard the protein as well as the general metabolism. This restriction occurs without regard to the temperature effects both when the temperature is elevated and when it is lowered. In many cases, however, the protein metabolism is increased as the result of the accompanying manifestations of anaphylaxis, as detailed above.

By means of calorimetric studies Segale has recently studied the effect of anaphylactic shock upon the total energy and tissue exchanges of the body. His observations show that in acute anaphylactic shock there is a fall in the body temperature and in metabolism, but the fall in the temperature is much more rapid than the fall in the metabolism. In chronic shock there is in the beginning synchronous with a fall in the temperature an increased production of heat. The question arises whether this is the result of the anaphylactic poisoning, or whether, as Leschke holds more probable, it is the result of associated manifestations of anaphylaxis, such as motor unrest, etc. At any rate the variations in metabolism and in temperature are not parallel. Finally, however, in chronic anaphylactic shock, as in the acute type, there occurs a fall in the heat production corresponding to the fall in the total metabolism.

Of greater clinical importance than the subject of anaphylactic shock is that of anaphylactic fever. Leschke in conjunction with Hirsch investigated the fever resulting from active anaphylaxis and that resulting from poisoning with anaphylatoxin. They found that both types of fever cause a restriction in the total energy and tissue exchanges. The most significant fact standing out from their experiments is that in febrile conditions the metabolism and the temperature do not necessarily follow a parallel course. The hitherto prevailing individualistic conception of fever must therefore give place to a dualistic conception which draws a sharp line of demarcation between the change in metabolism and the rise in temperature. There are types of fever in which the metabolism may be normal or even diminished. In these cases the influence of the endotoxins would appear to be in abeyance while the products resulting from the parenteral digestion of the disintegrated bacteria come into play as the sole disturbing factors. The main fact to be borne in mind is that all the manifestations of infectious fever are not to be attributed to the same uniform cause.

COCCYGODYNIA.

While the average case of coccygodynia is easily diagnosed, there are occasional cases where confusion is apt to arise unless one is particularly careful in the differentiation of this affection from others occurring in this region and giving rise to pain in about the same situation. Sometimes, also, an error is made that would be easily avoided if one were thorough in getting the history and equally thorough in making the examination. It is unfortunately true, however, that errors in diagnosis have occurred with considerable frequency and, appreciating this fact, Hamant and Pigache (*Revue de Chir.*, January, 1914), have made a rather extensive critical study of this condition. Among other things, they call attention to the fact that coccygodynia has often been confused with, or even been called a symptom of, fissure or fistula in ano, inflamed hemorrhoids, prostatitis, metritis, salpingitis, ovaritis, and retroversion of the uterus. Formerly considered a malady peculiar to adult females, in recent years it has been realized that no sex or age is exempt, cases having been reported even in children under 5 years of age.

Marro (Thèse de Paris, 1912) distinguished three sources of coccygodynia: (1) those of obstetrical origin, following a difficult labor with or without forceps; (2) those of genital origin, accompanying disease of the uterus or its adnexa, or, in the case of the male, chronic prostatitis; (3) those of extragenital origin, (*a*) traumatic, caused by blows or falls, (*b*) non-traumatic, in which he included diseases of the anus, rectum, or musculature of the perineum, tumors, constipation, etc. Hamant and Pigache, however, make the point that coccygodynia is not a syndrome, but should be considered a definite clinical entity, always traumatic in origin, having a distinctive pathology and symptomatology, and always relieved by the removal of the coccyx, no matter what other lesions may be present in the genital or anorectal tissues. They find a chain of symptoms which they consider pathognomonic. Most frequently, after a fall or blow upon the coccygeal region a very sharp pain is experienced in that situation. At other times, this pain is produced in women whose accouchement has been particularly difficult. If, during the following days, it diminishes, even to the point of disappearing upon lying down, it reappears with a hopeless tenacity at the least change of position, and upon making the least movement—walking, going up or down stairs, arising from or seating one's self in a chair, defecation, etc. This pain may be dull, lancinating, stabbing, burning, tearing, gnawing. Rarely there are irradiations along a nerve. The pain is seldom continuous, but is ordinarily provoked by the movements and changes of position of the patient. Still, one may find a continuous pain when coccygodynia is complicated by abscess in that region. When lying down or standing erect there may be no pain; but pain is produced by the least movement resulting in pressure or muscular pull upon the coccyx, and these phenomena may persist for years. Upon examination there may be ecchymosis over the sacrococcygeal region; external palpation soon after the injury

reveals tumefaction and marked tenderness on pressure, while rectal touch gives rise to the most excruciating pain, and the coccyx can usually be felt projecting forward, sometimes forming even a right angle with the sacrum. The coccyx is movable, may be pushed back to its normal position by intrarectal manipulation, but usually soon returns to its former malposition.

In summing up, Hamant and Pigache's conclusions are essentially as follows: The word coccygodynia, which even up to these last few years has been used to designate all painful affections, whatever their nature, situated in the sacrococcygeal region, should be reserved hereafter for those pains, provoked or spontaneous, which are localized exclusively at the coccyx. This affection, characterized essentially by the acuteness and the tenacity of the pain, is the consequence of a luxation or fracture of the coccyx, following a traumatism which may be internal (difficult labor) or external (fall or blow upon the coccyx). Its treatment is strictly surgical —the complete resection of the coccyx curing the coccygodynia definitely and without being followed by any functional disturbances.

We have dealt with this subject at some length because it would seem that the stand taken by Hamant and Pigache, that coccygodynia is a distinct clinical entity, and not a mere symptom of something else, is correct. The sooner this is generally realized the better for a host of sufferers from coccygeal injuries who are now being treated for real or fancied gynecological ailments or classed as simple neurasthenics.

SOMATIC SYMPTOMS IN DEMENTIA PRÆCOX.

As is well known attempts have been made to connect dementia præcox with intestinal autointoxication, anomalies of internal secretion and other somatic causal elements. The connection between the psychoses and low physical vitality is said to be very obvious. Many peculiarities of behavior in these subjects require no further explanation than a purely physical insufficiency, one which cannot, moreover, be overcome by the resources at our disposal.

At the summer session of the Naturwissenschaftliche-medizinische Gesellschaft zu Jena, Medical Section (*Muenchener medizinische Wochenschrift*, August 4), Schultz reports new somatic finds in this affection. The first refers to a blood picture. Blood taken from the lobule of the ear shows an increase in erythrocytes, indicating capillary erythrostasis. This is often found throughout the disease, in incipient cases, chronic cases, relapses, and in end stages. The leucocyte formula shows alterations corresponding to the stage and degree of the disease. The red blood cell picture in dementia agrees with that seen in diseases of internal secretion. The author was able to confirm the finds of Abderhalden and others in regard to serodiagnosis of the disease. Finally dementia præcox agrees with organically conditioned psychoses in exhibiting the phenomenon of adrenalin mydriasis in a very large proportion of cases. Functional psychoses and psychoneuroses do not show this symptom.

THE GASTRIC DISTURBANCES OF CARDIAC INSUFFICIENCY.

ONE of the classical distinctions noted in the gastric derangements of heart disease is that in mitral lesions there is a tendency to dyspepsia, whereas in aortic disease painful manifestations predominate. According to G. Faroy and C. Lian in the *Gazette des Hôpitaux*, June 23, 1914, this distinction is not an exact one. Mitral lesions may be accompanied by painful gastric symptoms and aortic lesions may be associated with dyspepsia. A more rational differentiation may be made between the following two groups of cases: In the first the congestion of the stomach as the result of cardiac insufficiency causes an impairment of the functional capacity of the stomach, and this may occur in all types of heart disease. The second group of cases comprises those in which the periaortic abdominal sympathetic plexuses are involved or in which there is perhaps an intermittent claudication of the stomach. These cases are characterized by the painful epigastric crises that are observed in abdominal aortitis. The dyspeptic cases may be subdivided into three categories. In the first, which includes three-fourths of all cases of cardiac insufficiency, the dyspeptic symptoms are either mild or are else masked by the other symptoms of cardiac distress. In the second category the gastric disturbances are so pronounced that they are complained of equally with the other symptoms, such as dyspnea, palpitation, etc. To the third category belong these cases in which the dyspeptic symptoms alone occupy the foreground, and in which the cardiac impairment may be unsuspected or may be revealed only on careful examination. The symptoms of the cardiac dyspepsias include anorexia, epigastric fulness, eructations, vomiting, etc., in other words, the entire gamut of sensorimotor disturbances of the stomach. In the diagnosis of these cases it is essential to exclude the cardiac disturbances secondary to gastric derangements, the cases of coincident gastric and cardiac distress secondary to uremia, the cases of gastric disturbances resulting from the abuse of digitalis or from other medication, and the cases in which gastric and cardiac troubles are a mere coincidence. If the diagnosis is in doubt, the intramuscular injection of a suitable preparation of digitalis may furnish the proper therapeutic test.

THE JAW-WINKING PHENOMENON.

MORE than seventy cases of this condition have been reported. According to E. A. Cockayne in the *British Journal of Children's Diseases*, August, 1914, the phenomenon consists in the involutary raising of the upper lid coincident with some movement of the jaws, face, tongue or pharynx. Frequently the lid movement is accompanied by ptosis on the affected side. The anomaly is usually unilateral. In addition to ptosis there are often other defects, the commonest being paralysis or paresis of the superior rectus muscle. The movements concerned in the above reflex have been analyzed by Sinclair. In some instances with an associated ptosis the upward movement of the lid occurs when the mouth is opened with a lateral movement of the jaw. In other instances with ptosis the lid movement is synchronous with a lateral movement alone of the jaw. There are other cases without ptosis in which the lid and jaw movements are associated.

Pontico found that almost all the movements were allied to those controlled by the motor branch of the fifth, or by the sixth and seventh nerves. The commonest type of the jaw-winking phenomenon is that in which the lid is raised during ordinary mastication. In some cases the lid is raised to such an extent as to show a large area of sclerotic above the cornea, at the same time that the jaw is moved laterally away from the side of the lesion. The condition is to a certain extent familial and hereditary and tends to disappear. The most commonly accepted theory as to the pathology of the condition is that those cells of the third nucleus which supply the motor fibers to the levator palpebræ superioris are defective and that there is a direct innervation from the motor nucleus of the fifth nerve. The author suggests that a more probable cause of the phenomenon is a defect of the whole motor path concerned in the movement of the upper lid or at any rate of the part above the nucleus of the third nerve. The condition is probably the result of a defective or arrested development.

The Question of Lipoid Antibodies.

A subject of fundamental importance in the determination of the nature of the reaction of the body fluids and cells to the invasion of foreign substances is the problem as to whether substances other than proteins are able to evoke specific antibodies. The fact that the lipoids are to-day receiving so much attention from biological chemists is sufficient warrant for the inquiry as to whether these peculiar substances likewise arouse the production of antibodies. The solution of this problem has been sought by Much and Adam (*Beiträge zur Klinik der Infektionskrankheiten und zur Immunitätsforschung*, Vol. III, Nos. 1 and 2). These investigators inoculated rabbits over long periods of time with lipoids obtained from various sources, such as carcinoma, placenta, muscle, and brain, and in no instances were fat antibodies produced. It was found, moreover, that this failure was due to the fact that water-soluble end-products of the tissues extracted inhibited the formation of the lipoid antibodies. There was apparently evidence of an antagonistic action between two partial antigens. A lipoid obtained from egg-albumin by extracting the latter with ether produced by animal inoculation a strong complement-binding reaction toward this lipoid. On the other hand, the residue of the egg-albumin left after the evaporation of the ether produced a complement-binding reaction toward albumin. What the actual inhibiting substance is in relation to the humoral lipoid antibody production has not been determined. Certain experiments, however, seem to indicate that substances residing in the cell nucleus exercise this inhibition.

The Literature of Military and Naval Medicine.

The problems of medicine and surgery arising in the course of warfare have much in common with those of peaceful times, nevertheless they possess certain elements peculiarly their own. The utilization in the present combat of every known device for wholesale destruction and mutilation, not to mention the application of the latest methods of camp sanitation and preventive medicine to the largest aggregations of men that have ever been assembled for war, bids fair to provide food for comment and discussion for many years to come. Military and naval medicine has long ago been raised to a specialty, and has its own bibliography. There is no dearth in the periodical journals devoted exclusively to this subject in different countries, and there will probably be no famine in material for these journals when the present war is over. England has its *Journal of the Royal Army Medical Corps;* France, *Le Caduceé;* Belgium, the *Archives Médicales Belges;* Russia, the *Journal de Médecine Militaire de la Russie;* Germany, the *Deutsche militärärztliche Zeitschrift*, and Austro-Hungary, *Der Militärarzt*. The Italian services are represented by the *Giornale di Medicina Militare* and the *Annali di Medicina Navale e Coloniale;* Spain has its *Revista de Sanidad Militar*, and the United States has the *Army and Navy Journal* and the *Military Surgeon*. Last but not least must be mentioned the *Bulletin International des Sociétés de la Croix-Rouge*, whose motto, "inter arma caritas," is inscribed beneath the emblem of the Red Cross.

Loewi's Pupil Phenomenon

In 1908 O. Loewi described an observation made by him on dogs and cats from which the pancreas had been removed. When adrenalin was instilled into the eye the pupils were dilated. This was at first held to mean that the pancreas exerts a sympathetic inhibition on the dilator of the pupil. Last summer Loewy and Rosenberg repeated the experiments of Loewi and reported the results to the Berlin Physiological Society (*Berliner klinische Wochenschrift*, August 17). It was found that the pupillary phenomenon occurred under any condition in which there was hyperemia. Hence the discovery of Loewi cannot be due to any internal secretory substance in the pancreas.

News of the Week.

Harvey Society Lectures.—The first lecture of the series 1914-15 will be given at the New York Academy of Medicine, 17 West Forty-third street, on Saturday evening, October 10, at 8.30 P. M., by Prof. Frederick P. Gay, of the University of California. Subject: "Experimental Studies on Methods of Anti-Typhoid Immunization."

Ontario Surgeons Barred from the British Army.—A number of Canadian surgeons who have volunteered for service in the British Army have, it is said, been rejected by the War Office on the ground that they are not qualified to register as British practitioners. Ontario, it appears, has refused the British offer of reciprocity in medical licensure on the alleged ground that the British qualifications were not up to the Ontario standard. The only way out of the difficulty is for the Canadian surgeons to obtain British qualification through examination, since Ontario is apparently unwilling to accept reciprocity in registration.

More Red Cross Surgeons Wanted.—So appalling is the number of casualties in the European war that the regular and volunteer surgeons attached to the armies are utterly unable to take care of wounded, many of whom, after days of suffering, die from sheer neglect. There is work, therefore, for an almost unlimited number of independent surgeons serving in the Red Cross, the only thing in the way being a lack of funds for the support and

transportation of the surgeons and for the needed supplies. The Duchess de Talleyrand (formerly Miss Anna Gould) some days ago asked for four American surgeons, offering to supply them with free tickets to France if they would volunteer for Red Cross work. Nurses are also urgently needed. The *Red Cross*, which sailed from New York two weeks ago with ten surgical units to be distributed among the several nations at war, has arrived on the other side, and the surgeons and nurses have been sent to their designated stations.

Enforcing the Dog Muzzling Ordinance.—Active steps to enforce the dog muzzling ordinance recently enacted by the Board of Health of this city, began on September 15. During the week following 1307 dog owners, who neglected to conform to the requirements of the law, were served with copies of the ordinance, and were warned that prompt compliance was necessary. Following such notification, non-complying dog owners were summoned to court, and during the week ending September 22, 59 were fined by various magistrates, while in 20 cases sentence was suspended. During the month of August 5258 stray dogs and 22,459 cats were seized and destroyed by the American Society for the Prevention of Cruelty to Animals.

Disease Prevention Day.—Indiana has instituted what is called a Disease Prevention Day, on which parades are held and speeches made to impress upon the people the necessity as well as the possibility of conserving the health of the community and warding off disease. October 2 was the first of these days and was celebrated by processions in all the cities of the State. In Indianapolis the procession was headed by seventeen undertakers in the guise of crusaders bearing banners with the inscription "Disease Prevention Crusaders." A float of the Indiana State Medical Association depicted a physician alone in his office gazing at a sign bearing the words: "It's hard on us, but we're for it."

A Low Mortality Rate.—For the week ending October 3, the mortality rate for New York City was 10.58, the lowest yet recorded. This rate is 1.54 points lower than the corresponding week of 1913, an equivalent of a decrease of 165 deaths. All infectious diseases showed a decreased mortality, this being especially true of diphtheria, croup, typhoid fever, diarrheal diseases, and pneumonia. The death rate for the first forty weeks of the year 1914 is 13.81, as against a rate of 14.09 during the corresponding period last year.

Medical Society Elections.—INDIANA STATE MEDICAL ASSOCIATION.—The sixty-fifth annual meeting of this society was held in Lafayette on September 23-25, under the presidency of Dr. John F. Salb of Jasper. The following officers were elected: *President*, Dr. Frank B. Wynn of Indianapolis; *First Vice-President*, Dr. Edgar Cox of Kokomo; *Second Vice-President*, Dr. L. W. Smith of Wabash; *Third Vice-President*, Dr. W. J. Malloy of Muncie; *Secretary*, Dr. C. N. Combs of Terre Haute, reelected; *Treasurer*, Dr. D. W. Stevenson of Richmond reelected; *Delegates to American Medical Association*, Dr. C. H. Hood of Huntington, and Dr. Miles F. Porter of Fort Wayne. The next annual meeting will be held in Indianapolis.

MISSOURI VALLEY MEDICAL ASSOCIATION.—At the annual meeting of this society, held at Colfax, Iowa, during the third week in September, the following officers were elected: *President*, Dr. Granville N. Ryan of Des Moines; *First Vice-President*, Dr. A. E. Jing of Blockton; *Second Vice-President*, J. C. Waterman of Burke, S. D.; *Secretary*, Charles Wood Fassett of St. Joseph, Mo.; *Treasurer*, O. C. Gebhart of St. Joseph, Mo. The next annual meeting will be held in Omaha.

EIGHTH DISTRICT (OF GEORGIA) MEDICAL ASSOCIATION.—At the meeting of this organization at Athens, Ga., on September 24, the following officers were elected: *President*, Dr. Dan. H. DuPre of Athens; *Vice-President*, Dr. Stewart Brown of Royston; *Secretary*, Dr. E. M. Coleman. The next meeting will be held at Franklin Springs.

NORTHERN BERKSHIRE MEDICAL ASSOCIATION.—At the annual meeting held at North Adams, Mass., on September 22, the following officers were elected: *President*, Dr. Lyman Asa Jones; *Vice-President*, Dr. R. D. Canedy; *Secretary*, Dr. H. A. Bushnell; *Treasurer*, Dr. F. H. Howard; *Censors*, Drs. O. J. Brown, V. Adriance, J. H. A. Matte, A. K. Boom and C. W. Wright.

Obituary Notes. — Dr. WASHINGTON EMIL FISCHEL of St. Louis died on September 15 after a long illness. He was born in that city May 29, 1850, and was graduated from the St. Louis Medical College in 1871. After three years' study in Europe he began practice. He was immediately appointed instructor in the St. Louis (now Washington University) Medical School and in 1887 was made professor of clinical medicine. He was one of the founders and president of the medical staff of the Barnard Skin and Cancer Hospital. He was a member of the Advisory Board of the National Tuberculosis Association, the Council of the American School of Hygiene, the St. Louis Medical Society, the Missouri State Medical Association, the Verein Deutscher Aerzte, the American Medical Association, the Association of American Physicians, the St. Louis Medico-Legal Society, and the St. Louis Academy of Science.

Dr. JOSEPH M. HELLER of Osage City, Kans., died at his home in that city on September 19, from disease of the heart. He was graduated in 1877 from the Rush Medical College, Chicago, and practised at Osage City from 1885 up to the date of his death, with the exception of sixteen months at Coffeyville, Kansas.

Dr. B. E. MCSHANE of Milwaukee died at his home in that city on September 18, at the age of 44 years. He was born in Muskego, Wis., and was graduated from the College of Physicians and Surgeons, Chicago, in 1895.

Dr. STANLEY F. DUNCAN, of Quincy, Mass., died in that city on September 23, at the age of 27 years. He was a graduate of Tufts Medical School in 1912.

Dr. ROBERT WHITE died in Cambridge, Mass., on September 27, at the age of 91 years. He was a graduate of the University of Glasgow, a licentiate of the Apothecaries Hall of Dublin, and a member of the Royal College of Surgeons, London. He began practice in Boston in 1844 and retired in 1888.

Dr. JOHN CALVIN FLEMING, one of the oldest and best esteemed practitioners of Burlington, Iowa, died suddenly at the bedside of a patient on September 17. He was born in Huntington County, Pa., on November 24, 1848, and was a graduate of Jefferson Medical College, Philadelphia, in 1871.

Dr. SOLMAN MARKS of Milwaukee died in that city on September 28. He was born in Stockbridge, Vt., July 27, 1827, and was graduated from the Rush Medical College, Chicago, in 1853. He served in the medical corp of the Union Army during the Civil War, and at the close settled in Milwaukee. He was for a time president of the Wisconsin Board of

Health and was one of the founders of the American Surgical Association.

Dr. JAMES NEIL of this city died on September 28 at the age of 86 years. He was graduated from the New York University College in 1850 and had practised in this city for more than half a century. He was a member of the New York County and State Medical Societies.

Dr. ELLIS E. PAPPA of Youngstown, Ohio, died suddenly at his home in that city on September 23, at the age of 82 years. He was born in Bath, Me. He practised for many years in Detroit before going to Youngstown.

Dr. CHARLES FRANCIS GLADDING of Oakland, Cal., died on September 15, at the age of 58 years. He was born in Providence, R. I., and was a graduate of the California Eclectic Medical College, Los Angeles, in 1897. He had practised a number of years in Sacramento and also in Berkeley before going to Oakland.

Dr. C. L. INFIELD of Hudson Falls, N. Y., died in Troy on September 16, at the age of 54 years. He was a graduate of the New York University Medical School and had practised ever since graduation in Hudson Falls.

Dr. WILLIAM FRANCIS BYRNES of Washington, D. C., died suddenly at the home of his brother in Ware, Mass., on September 18, at the age of 67 years. He was a graduate of the Youngstown University School of Medicine in the class of 1873, and had practised in Washington for over 30 years.

Dr. HARRY NEWMAYER died at Philadelphia on September 28 at the age of 24 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1911, subsequently serving as resident physician in the Jewish Hospital and the Children's Hospital. He was a member of the Philadelphia Pediatric Society, the Philadelphia County Medical Society, and the Medical Society of the State of Pennsylvania and a Fellow of the American Medical Association.

Obituary.

LEMUEL BOLTON BANGS, M.D.,

NEW YORK.

DR. L. BOLTON BANGS, whose death occurred on Sunday after a brief illness, was one of the oldest and best known of what may be called the second generation of urological surgeons of this country. He was born in this city on August 9, 1842, and was graduated from the College of Physicians and Surgeons (Columbia University) in 1872. In 1880 he was appointed attending surgeon to Charity (now City) Hospital and in 1885 he became one of the attending surgeons to St. Luke's Hospital. In 1898 he was made professor of genitourinary diseases at the University and Bellevue Hospital Medical School, and held the chair in the same subject at the New York Post Graduate Medical School and Hospital. At the time of his death he was consulting surgeon to St. Luke's, Bellevue, City, St. Vincent's, Post-Graduate, and M. E. Hospitals. He was a member of the New York Academy of Medicine, of the Medical Societies of the County and State of New York, of the American Medical Association, and of the American Association of Genito-Urinary Surgeons, having been president of the latter in 1895. He was editor of the American Text-Book of Genito-Urinary Diseases, and had contributed largely to the literature of his specialty.

Correspondence.

SMEARS.

TO THE EDITOR OF MEDICAL RECORD:

SIR:—The commonplace is more important than the unusual. Consequently the writer of a monograph who takes too much for granted might as well have lost his understanding, so far as conveying the fundamental and elemental facts of his subject to the reader; his book is full of holes; incomplete and still-born. Volumes upon gynecological subjects have been written for many centuries, yet their everyday theme of leucorrhea still furnishes a hiatus between book and laboratory as no mind not specially trained could properly carry out their simple but unexplained order to "Take a culture." Personally I know how to take cervical smears because I was first instructed by word of mouth, but exploration of eight books on gynecology, two on bacteriology, and two on microscopy has failed to yield any information worthy of the name.

Such information in brief would be this: "Cleanse the urethra and cervix, pass a platinum loop to the internal os, and spread this secretion on a glass slide. Express the contents of the urethra and smear these on another slide." Of course a lubricant makes comfortable the introduction of a speculum but it spoils specimens. Vaseline, green soap, or other grease should be carefully wiped out with dry cotton because if not thus removed, from vagina and its introduced speculum, they mix with the secretion, give the smears a coat of grease and present to the laboratory man the problem of staining an oil with an aqueous solution. Should the lubricant contain a germicide, diagnosis and truth will be contradictions.

General surgeons are apt to sweep down the vagina with a finger and wipe the latter on a slide. Inasmuch as this contains the whole vaginal flora, overgrowth and all, it is not very good for staining purposes especially as the lubricant used on the finger is well mixed with the specimen.

The bacteriologist requires the platinum-loop-cervical sweepings with possibly an additional smear of urethral scrapings. More than this is valueless and may be a detriment.

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OUR LONDON LETTER.

(From Our Regular Correspondent.)

WOUNDED—RED CROSS AND AMBULANCE SOCIETIES—BELGIAN REFUGEES—ROYAL COMMISSION'S REPORT—SELECT COMMITTEE OF HOUSE OF COMMONS ON PATENT MEDICINES—OBITUARY.

LONDON, September 18, 1914.

THE King and Queen have spent a good deal of time at the hospitals where the wounded who have arrived from the war field are being care for. In the wards they conversed cheerily with the soldiers who were greatly delighted. Princess Victoria has also visited hospitals.

From various provincial hospitals information reaches me as to the reception of the wounded distributed among them. In one the nurse, showing a visitor around, expressed surprise that so many German wounded had been assigned to her care—a considerable percentage of her cases. The Red

Cross and St. John Ambulance societies pursue their work here and on the continent.

A Red Cross party led by Mr. Samuel Osborn went to Belgium soon after the outbreak of the war and a correspondent sends some remarks on the wounds which came under their observation. The great majority were in the extremities and a considerable proportion were healing so well that the men hoped to be able to return to the ranks. But too many bullet wounds were suppurating as if the first dressing had been defective. This was principally at the exit—the small entrance wound being usually closed as was the course of the bullet. Even in a base hospital carelessness as to asepsis astonished the correspondent who had previously supposed German surgeons to be exigent in this respect; while they were precise in some points, they were neglectful in others, *e.g.* after carefully washing their hands they would finger septic material. And it was the same with their instruments. Plaster of Paris splints seemed to be freely used, though the patients could not be kept under observation. The diet did not commend itself to my correspondent even in a base hospital, but perhaps the stress of war may have interfered with the supplies, though this is not alleged.

Among the numerous Belgian refugees who have fled from German atrocities to this country, not a few are sick as well as destitute and require medical care and nursing as well as food and shelter. The government has undertaken to meet their necessities and several large buildings have been taken by the Metropolitan Asylums Board for this purpose. The Alexandra Palace is one of these and has been prepared for the reception of some 3,000 persons, the work being under the direction of Dr. Herbert E. Cuff, the board's principal medical officer, who will have the superintendence of the sanitary and medical arrangements. Besides such official provisions considerable numbers of refugees are being hospitably entertained as guests in English homes throughout the country. Committees of associations and institutions whose trusts permit are also joining in the work and other committees formed *ad hoc* are extending a British welcome to the victims of the war.

On Monday the clerk of the board reported that the number of the refugees arriving was on the decrease and it seemed possible that the Alexandra Palace might not be required.

In a recent communication of the Royal Commission on Venereal Diseases, issued to the press, there is a reference to the association founded more than ten years ago under the name "The Alliance of Honor." As implied by the name, it is not a medical society, and the physical dangers of the social evil receive slight attention from its promoters compared with the moral question. At first many people did not expect the Alliance to succeed, but it has continued a steady effort in the cause of purity and its members have increased in many parts of the country to such an extent that about 500 branches have been established. The condition of enrolment in the membership is taking a pledge of personal purity. This of course implies an intention to propagate the object as an individual; the association as a body promotes it by public lectures and meetings, the circulation of printed matter, and practically any method of dispelling the lamentable ignorance that prevails as to the dangers that threaten the moral and physical health of those most exposed to temptation, showing them the degradation of any departure from sexual purity, but not ignoring entirely the risk of contracting disease, the effects of which may last for years and may be carried on to the next generation.

The report of the House of Commons Select Committee on Patent Medicines, which I mentioned to you two or three weeks ago, has now obtained general currency and proves to be an important document, inspiring the hope that it may be followed by legislation in the direction declared desirable. Having admitted the existence and sale of certain scientific preparations and some unobjectionable remedies for simple ailments, the committee pass on another class of secret medicines making "grossly exaggerated claims of efficacy," pretending to cure the incurable, injuring the sick by delaying proper treatment or containing dangerous constituents. In these and other ways they are said to be deliberate frauds as none "spring from therapeutic or medical knowledge, but are put upon the market by ignorant persons and in many cases by cunning swindlers, who exploit for their own profit the apparently invincible credulity of the public." This state of things they add "constitutes a grave and widespread public evil." In other countries and in our own Dominions there are legal restrictions to this iniquitous trade and a tendency to strengthen them may be recognized in many places, but in England we have no state officer or department charged with the duty of controlling the sale and advertisement of quack medicines. Successful prosecution for fraud in this matter is fraught with the greatest difficulty, though it may well be admitted as suggested in the report that "the public prosecutor has perhaps not sufficiently tested the powers of the existing laws in respect to such cases."

The traffic in quack remedies being thus uncontrolled is a condition which the committee pronounce to be intolerable. They declare that new legislation to deal with it, rather than mere amendment of existing laws, is "urgently needed in the public interest." Nevertheless, while pointing out the new laws they find necessary their recommendations include a number of amendments which, if secondary, are of little less importance.

Surgeon-Major W. H. Hayes has died at the age of 81. He entered the Indian Medical Service in 1855. He served through the Indian mutiny and was afterwards appointed to the deputy command of Singbkoon in Bengal. He retired in 1879, holding the Mutiny and the Empress medals. He has resided for some years at Faversham and represented that town on the Surrey County Council. He was also a member of several other public bodies.

Progress of Medical Science.

Boston Medical and Surgical Journal.

September 24, 1914.

1. Improved Nursing for the Mentally Ill. W. Channing.
2. The Training of the Psychopathic Nurse. M. A. Nutting.
3. A Comparison of the Drugs Used in General and Mental Hospitals. D. Gregg.
4. Remarks at Conference on Modern Developments in Mental Nursing, February 16, 1914. C. W. Eliot.
5. Analysis of Recoveries at the Psychopathic Hospital, Boston: 1. One Hundred Cases, 1912-1913, Considered Especially from the Standpoint of Nursing. E. E. Southard.
6. Impressions of a General Hospital Nurse Beginning Work in the Psychopathic Hospital (Boston, Massachusetts). M. L. Gerrin.
7. Pellagra and Its Symptoms: The Importance of Mouth and Gastrointestinal Lesions. J. B. Macdonald.
8. Hysterectomy for Hemorrhage: Three Different Indications. H. B. Perry and E. E. Thomas.

3. Drugs Used in General and Mental Hospitals.—D. Gregg states that the problems in medication at mental hospitals lie in the refinement of the use of drugs for purposes of elimination, in decreasing autointoxication, and in rectifying pathological action of the internal secretions. In eliminating substances from the body there is ample chance for skillful medication. There are cases needing mechanical relief by enemata, cases needing to have the fluids drained off by purges, and cases that are already desiccated and need more fluid, although still requiring relief from intestinal stasis. There are acute cases that may even need to be bled to reduce their fluids, or to have lumbar punctures done to lessen an excessive amount of cerebrospinal fluid. There are cases where autointoxication arises from infected teeth or tonsils, or from misplaced or adherent intestines. There are cases where presumably the thyroid, thymus, or pituitary glands, or the reproductive organs, are not functioning properly. In all these directions lie problems in medication for cases in mental hospitals. General hospitals have many lessons to learn from mental hospitals, especially in the management of the deliria. Not the least of these lessons is that depressants, stimulants, and restraint lessen, whereas baths, packs, and elimination greatly increase a patient's chance for recovery.

5. Recoveries at the Boston Psychopathic Hospital from the Standpoint of Nursing.—E. E. Southard analyzes a series of 100 recoveries at the Boston Psychopathic Hospital with reference to the particular share of the element of nursing in these recoveries. He finds that the component of nursing cannot be omitted from these recoveries, brief as was the time of the hospital stay of the majority of the cases. This is proved by the incidence of disorder of heat regulation (fever, hypothermia) in at least 3% per cent. of the cases. The special value of nursing, and particularly of hydrotherapy, stands out from the results of the treatment of alcoholic psychoses, which though they form only about one-ninth of the problem of first care, represent almost nine-tenths of the early therapeutic results. The recoveries in the so-called "recoverable" forms of insanity take too long to be represented in any numbers in this first hundred of recoveries, and it may be suspected that the average hospital stay of three to four weeks is not sufficient for recoveries in groups like manic-depressive insanity. The effect of psychotherapy as applied in the Psychopathic Hospital, is not a rapid effect. The percentage of syphilis in the recovered cases is exactly that of the total intake of the hospital, so that this factor cannot be said to influence treatment unfavorably. Some index of the activities of the after-care service is afforded by the fact that nearly half of the patients either resorted voluntarily or were brought to the out-patient department at one or more periods subsequent to the discharge. The need is apparent of nurses who shall build their psychopathic training on a sound basis of general hospital work.

8. Hysterectomy for Hemorrhage.—H. B. Perry and E. E. Thomas emphasize the facts that cancer occurs most frequently in the uterus, that it develops most commonly near the menopause, that its most prominent early symptom is abnormal bleeding, and that complete extermination of the growth is possible in any organ which can be removed before the rapidly growing condition spreads to the surrounding tissues. In women who have borne children and who subsequently develop cancer of the uterus it usually appears first in the cervix, while in women who have never experienced a full-term pregnancy, the disease more often attacks the fundus. Even eliminating cancer, undue hemorrhage near the menopause should be thoroughly investigated and followed closely, because of the possibility of any one of these conditions, which demand a hysterectomy for absolute relief. In disease of the adnexa the question often arises and is pertinent whether or not the uterus should be removed at the same time. The authors are firm in their belief, basing their opinion on the after-results of previous cases, closely followed and observed, that to leave a uterus after removing both tubes and ovaries would surely jeopardize that patient's future, comfort, and well-being; because a uterus that has been accompanied by diseased adnexa is of itself diseased and infected by the same pathological microorganism and will ultimately become an inert foreign body, or will prove itself a focus from which arise infections that may become general; or the organ may, because of the irritation that must exist, become the seat of malignancy. The removal of the uterus adds but little to the danger and shock of the operation, and should therefore be included in the complete operation.

Journal of the American Medical Association.

September 26, 1914.

1. Chondrectomy or Operative Treatment of Bronchial Asthma. E. W. Andrews.
2. The Surgery of the Knee-Joint. E. M. Corner.
3. The Pharmacology of Sodium Tartrate. W. Salant.
4. Studies in Intestinal Obstruction, with a Report of Feeding Heterologous Jejunal and Ileac Cells to a Human Being. J. W. Draper.
5. Roysing's Operation for Congenital Cystic Kidney. F. B. Lund.
6. Further Studies of the Thompson-McFadden Pellagra Commission. A Summary of the Second Progress Report. J. F. Siler, P. E. Garrison and W. J. MacNeal.
7. Attempts to Transmit Pellagra to Monkeys. C. H. Lavinder, E. Francis, R. M. Grimm, and W. F. Lorenz.
8. The Treatment of Pellagra. C. Voegtlin.
9. Immunity in Tuberculosis. Further Experiments. G. B. Webb and G. B. Gilbert.
10. Lymphocystosis as a Sign of Constitutional Derangement in Chronic Diseases of the Digestive Tract. J. Kaufmann.
11. The Specific Action of Salicylates in Acute Articular Rheumatism. J. L. Miller.
12. Artificial Pneumothorax and Pregnancy. J. J. Mahoney.
13. Intestinal Stasis. M. Einhorn.

1. Chondrectomy or Operative Treatment of Bronchial Asthma.—E. W. Andrews cites the following facts summarized by Garré, Tuffier, and others as somewhat convincing in pointing the way to chondrectomy of the first rib as a measure of great promise in the treatment of bronchial asthma: The want of development or ossification of the first rib cartilage causes loss of mobility of the upper chest aperture. The consequent constriction of the bronchi above causes catarrh and favors tuberculosis in the bronchial mucosa. A furrow often appears where the first rib crosses the apex. This may indicate injurious pressure. Asymmetrical stenosis causes curvature of the dorsal and cervical vertebræ. Spontaneous cure is sometimes seen in apical tuberculosis after natural pseudarthrosis of the first rib has occurred.

4. Studies in Intestinal Obstruction.—J. W. Draper concludes that the power of the liver to pair camphor and glycuromic acid is probably seriously impaired after duodenal obstruction. This can be studied by the method of Tollens, which, however, is cumbersome and may be faulty. Such decreased power of camphor-pairing is presumably an evidence of impaired liver function. This, however, is not reflected in the histological appearance, either grossly or microscopically. The decrease in the water-content of the tissues in duodenal obstruction is about the same as obtained after salivation by pilocarpin for four days or after fasting for seven. As this decrease produces no visible change in either case before euthanasia, it is reasonable to believe that it produces none in intestinal obstruction. The loss is ten per cent. The toxemia in duodenal obstruction arises from an interference with cellular

reactions of the intestinal epithelium. The toxins are at least in part eliminated from the colon and the stomach. If small intestine epithelial cells of healthy animals, are placed in the stomach of duodenal obstructed animals, such animals live nearly twice as long as not-fed control animals. This evidence is strongly opposed to the bacterial theory of origin of the toxins. In addition to the placing of jejunal and ileac epithelium in the stomach of postoperative obstruction cases, an emulsion of them should also probably be used in colonic irrigations for the same indication and purpose.

5. **Rovsing's Operation for Congenital Cystic Kidney.**—By F. B. Lund. (See MEDICAL RECORD, June 27, 1914, page 1193.)

8. **The Treatment of Pellagra.**—C. Voegtlin states that modern conceptions of nutrition and metabolism throw light on the beneficial effect of a liberal mixed diet on the course of pellagra. It is probably more than a mere coincidence that the population of that part of the world in which pellagra is endemic lives on a mainly vegetable diet. Economic conditions seem to influence in a general way the diet of people. A vegetable diet is as a rule less expensive, and persons in poor circumstances limit the consumption of the costly meats and the other animal food to a minimum. Attention is called to the fact that pellagra appeared in France soon after the reign of the first Napoleon, a period which was followed by extreme poverty in the country. France recovered from this economic depression in the latter part of the nineteenth century. With this change in economic conditions partly brought about through the introduction of the more profitable wine industry, pellagra decreased to such an extent that the disease is now very rare in that country. It is impossible to say at present that the food as such is the only factor in the production of pellagra, but even some of the adherents of the infectious theory do not deny that the one-sided diet may be one of the contributing factors in the production of this disease. The recent advances in the field of nutrition suggest new avenues of approach to the solution of this difficult problem. One will have to consider very seriously the following facts: (1) A deficiency or absence of certain vitamins in the diet. (2) The toxic effect of some substances, as aluminum, which occur in certain vegetable food. (3) A deficiency in the diet of certain amino-acids.

9. **Immunity in Tuberculosis.**—G. B. Webb and G. B. Gilbert state that guinea-pigs can probably not be immunized with virulent human tubercle bacilli of cultures from which ten bacilli can cause infection. The minimum lethal dose of different virulent cultures would appear to vary in number. The minimum lethal dose for a *Macacus rhesus* is possibly a little larger than that for a guinea-pig. It is necessary to be guided by the virulence of human tubercle bacilli as tested in the guinea-pig before the application to children. After four years two children each inoculated up to five times the lethal dose for guinea-pigs are still negative to the von Pirquet reaction. In monkeys the decrease of lymphocytes as indicated in differential blood-counts would appear to be more reliable in indicating tubercle infection than the tuberculin tests. Less than ten virulent human tubercle bacilli can infect a child.

11. **Salicylates in Acute Rheumatism.**—J. L. Miller notes that as salicylic acid after absorption circulates and appears in the tissues as a salicylate, it cannot act as a germicide unless the increased carbonic acid tension in the joint, the result of inflammation, reconverts it into salicylic acid. Statistics show that patients receiving salicylates are free from pain much earlier than those not treated. As the treated patients much more frequently relapse than the untreated, however, the total duration of pain in the treated and untreated patients may not be materially different. The period of stay in the hospital of patients receiving salicylates and of those receiving other forms of treatment is the same. Cardiac complications are not less frequent since the use of salicylates. In rabbits the prophylactic use of salicylates is of no value in preventing arthritis after intravenous injections of hemolytic streptococci.

British Medical Journal.

September 19, 1914.

1. Open-Air Hospitals in War Time. R. Saundby.
2. Sterilization of Water Supplies for Troops in Active Service. G. S. Woodhead.
3. Some Points on the Examination of Recruits of the Territorial Force and Their Early Training. B. Hughes.
4. Insects and War; Lice. A. E. Shipley.
5. Cardiac Fibrillation and Its Relation to Chloroform Anesthesia. J. A. MacWilliam.
6. Some Observations on Blood Pressure. G. S. Melvin and J. R. Murray.
7. Ventricular Fibrillation the Cause of Death Under Chloroform. A. G. Levy.
8. The Rôle of Carbohydrate in Nutrition. E. P. Cathcart.
9. Recent Experiments Bearing on the History of Sugar in the Animal Body. J. J. R. Macleod.
10. The Influence of Excessive Water Ingestion on the Excretion of Creatin and Creatinin. D. Burns and J. B. Orr.
11. Some Experimental Work on the Action of Enzymes. E. S. Edie.
12. A Note on a Congenital Anomaly of the Duodenum Encountered During Operation. S. Boyd.

1. **Open-Air Hospitals in War Time.**—R. Saundby calls attention to the fact that in the provision for the sick and wounded during the present war it is quite probable that the accommodation already made will prove insufficient and that large additional space will be needed. In the American Civil War and in the Franco-Prussian War the suitability of wooden buildings was abundantly proved, and with increased knowledge and confidence in the advantages of simple structures it is hoped that no more money will be spent upon structural alterations for hospital use, but that simple buildings will be erected for which there are many good designs to be seen in recently erected sanatoria. Open wards dispense with all need for considering methods of heating and ventilation; windows and doors are not required, but it may be desirable in some places to have sliding wooden screens to afford a certain amount of protection in stormy weather. Flooring may be made of asphalt or simple beaten earth covered with a thick layer of pine sawdust, which can be removed easily with a shovel, and which absorbs all damp to an extraordinary extent.

5. **Cardiac Fibrillation and Its Relation to Chloroform Anesthesia.**—J. A. MacWilliam states that in 1887 he advanced the view that many cases of sudden death depending on cardiac failure are due to the sudden occurrence of fibrillation in the ventricles, the function of the cardiac pump being thus destroyed. Ventricular fibrillation may occur at two phases of the action of chloroform: (1) In the early stage, this being by far the most common case; or (2) at a very advanced stage of the toxic action of the drug when the heart is greatly enfeebled and dilated. In some kinds of animals fibrillation may occur with great regularity as soon as the chloroform is pushed to a certain extent, weakening and dilating the heart. The special incidence of chloroform fibrillation on the ventricles as compared with the auricles is noteworthy. The latter commonly preserve their rhythmic action though they sometimes may fibrillate also.

8. **The Rôle of Carbohydrate in Nutrition.**—E. P. Cathcart as the result of his experiments concludes that both protein and carbohydrate, and almost certainly fat, are all essential for the physiological functioning

of the organism, and that these substances are all replaceable to a limited extent; in isodynamic or any other amount they are not isotamientic—that is, equally sparing. One is apt to overlook the fact that the active material of the body cells, the bioplasm, is a substance of unknown constitution; it is not simply a heterogeneous collection of more or less disintegrated food molecules. Such collections of foodstuffs as one recognizes at present in the cell are probably present there as reserves, not as currency, although Hopkins recently has advanced the view that "the integrity of the metabolic life of a liver cell is as much dependent on the coexistence of metaplasmic glycogen, however small in amount, as upon the coexistence of the nuclear material itself." But even this part of the food which is not utilized for structural repair may be divided into securities and currency. The currency is available at any moment, but the securities have to be liquidated—a comparatively slow process—before they can be used. Now, carbohydrate may be regarded as the currency which is readily available, and fat the security, but a security which cannot apparently be so fully liquidated as to take its place as a universal currency.

9. **History of Sugar in the Animal Body.**—J. J. R. Macleod discusses the controlling function which the liver exercises on the systemic blood-sugar. Since the time of Claude Bernard it has commonly been held that the surplus of dextrose absorbed during digestion into the portal blood is retained as glycogen in the liver, to be subsequently given up to the systemic blood, as this requires it to make good the losses due to tissue consumption. Although there is nothing to indicate that this view is not in general correct when the conditions are strictly physiological, yet there has accumulated a large amount of evidence which indicates that under abnormal conditions the stored glycogen may, in part at least, become removed from the liver otherwise than as dextrose. The author states that the local asphyxia produced in the liver cells by cessation of blood supply is followed by an increased discharge of sugar and lactic acid. In the case of the lactic acid invariably, and in the case of the sugar in nearly all of the author's experiments, the increase was most marked, not in the blood which escaped immediately after the removal of the clamp, but in that collected fifteen minutes later. One may therefore conclude that the local asphyxia of the liver cells causes sugar and lactic acid to be produced in very excessive quantities; and although in this fact alone there is no warrant for concluding that glycogen is the source, yet from numerous other experiments in which the glycogen has been determined one is almost certain that this is the case. Experiments by Embden and his collaborators have also shown that when the liver is profused outside the body lactic acid appears in the perfusion fluid, only provided the liver contains glycogen or the perfusion fluid an excess of dextrose. One may sum up by saying that the products of glycogen breakdown in the liver may comprise, besides dextrose, some colloidal substance and lactic acid.

Berliner klinische Wochenschrift.

August 24, 1914.

Influence of Thyroid Preparations on the Lungs.—Zondek and Frankfurther state that two methods must co-operate in order that our knowledge of the internal secretions shall advance. First we must study the alterations observed when the various glands have been eliminated; second we must investigate the consequences of injecting the active principles of the glands into the circulation, suddenly and in large quantities. The defect phenomena which follow extirpation of the thyroid are known clinically as myxedema and cachexia strumipriva. Again when thyroid substance is present in excess in the circulation we see clinically Graves' disease. Intravenous injections of thyroid substance (iodothyrin) cause a fall of blood pressure and a large, slow pulse, thought to be due to irritation of the vagus center in the medulla. The influence of thyroid substance on respiration has not been studied. The authors first sought to determine its action on the smooth muscle of the bronchi. Thyroid press-juice was tested on the cat and it was learned that various degrees of activity were present from slight contraction to total spasm. The pulmonary blood vessels were dilated. Individual susceptibility and an acquired tolerance were noted as present. Experiments showed that the activities of thyroid press-juice and iodothyrin could not be due to the contained iodine. As is the custom in these reactions, cholin was tested with the result that its possible pressure could not be accused of causing them. In order to eliminate the possibility of toxalbumin influence, ovarian press-juice, which is more toxic to cats than thyroid juice, was found to be without influence on the bronchi. Hence the action on the latter exerted by the thyroid may be regarded as specific; and it could further be shown that iodothyrin acts on the bronchial muscle directly and not by intermediation of nerves. The clinical bearings of this discovery remain to be studied.

Omental Torsion with Inclusion of a Loop of Intestine.—Fritsch states that the first reported case of omental torsion goes back only to 1882 and that up to 1910 at least 78 cases were known to be on record. The author has added a personal case and has found two more of recent date, so that the total is now at least 81. Of this number 63 were associated with internal "hernia" formation. Right sided cases predominate. Causal factors are appendicitis, pericolitis, tuberculosis, and malignant tumors. A type represented by the author's case comprised chronic constipation of aggravated type leading to pericolitis with omental adhesions. No symptoms develop until torsion happens, when with an intestinal loop "herniad" into the twisted mass, obstructive ileus promptly occur. Laparotomy, untwisting the mass and liberation of the so recently incarcerated intestine, are all the steps required, resection not being indicated under the circumstances.

Münchener medizinische Wochenschrift.

August 4, 1914.

Diagnostic Peculiarities of Cancer of the Body of the Stomach.—Baum states that in cancer of the stomach the personal history is vague, this being true especially of cancer of the corpus ventriculi. The tumor is palpable from without in from 63 per cent. to 67 per cent., and in cancer of the corpus in 53.1 per cent. only. The mechanical disturbance is striking and constant in cancer of the pylorus, but is as good as absent in cancer of the corpus. Lack of HCl in the gastric juice is not a constant symptom. It is present in about 80 per cent. of cases according to Hayem. Lactic acid and also the Boas-Oppler bacillus are seen only in retention and are therefore absent in cancer of the corpus. The *x*-ray picture can mislead as in both the negative and positive sense. It may be unable to disclose the presence of a cancer, and has proved to be a disappointment in the early diagnosis of the disease. Again the *x*-ray picture can simulate the presence of a cancer. The gastroscope according to Mayo has not yet been adapted to practical use. Of the various serum tests advocated from time to time only the von Dungern complement-fixation method gives fairly constant results and in the hands

of an expert gives positive results in about 90 per cent. The worth of the Abderhalden reaction is still *sub judice*. The only trustworthy diagnostic resource is trial laparotomy which when performed under local anesthesia is a safe procedure.

Biological Functions of the Corpus Luteum.—Seitz, Wintz and Fingerhut conclude their continued article on this subject as follows: menstruation is dependent on the function of the corpus luteum. The latter contains two substances of which one is the luteolipoid, and has a hemostatic property, so that if incorporated subcutaneously during menstruation, the period is abbreviated. The other substance, lipamin, is a lipoproteid—a leuthalbumin. In animal experiment it effects an accelerated growth of the genitals and when subcutaneously injected will bring about menstruation in the amenorrheic. The two antagonistic substances thus regulate the menses. Therapeutically the luteolipoid is of value in hemorrhages at puberty and in simple or functional menorrhagias. In climacteric hemorrhages it is of value only when the blood coagulation is delayed. It is inert when the bleeding depends on inflammation. In myoma it appears at first to increase the hemorrhage. When dysmenorrhea starts in with flowing the luteolipoid relieves the pain. The lipamin, to establish the menses, must be given over a long time. It ought to be given a good trial in genital hypoplasia.

Hyperleucocytosis from Cold.—Rovighi and Secchi have made a study of this phenomenon with the following results: in guinea-pigs moderate cooling of the body causes a peripheral hyperleucocytosis with notable preponderance of polynuclears. In the central blood the leucocytes and polynuclears are simultaneously diminished. Animals kept in cold air show a persistent peripheral hyperleucocytosis. If the cooling is carried too far there is a diminution in the number of leucocytes. In rabbits the same finds were obtained—hyperleucocytosis and leucopenia. The local application of cold can determine a local hyperleucocytosis. Persistent cold appears to cause destructive changes in the polynuclears, as a result of which their motility is diminished and viscosity increased. Hyperleucocytosis is practically a polynucleosis.

Münchener medizinische Wochenschrift.

August 11, 1914.

Treatment of Shot Wounds in General.—The new military supplement of the *Wochenschrift* (Feldärztliche Beilage, No. 1) is inaugurated with an article by von Angerer, written by request of the editor. The author served as volunteer surgeon in the Franco-Prussian war, and during the interim has practised as a civil surgeon. The differences between war and peace surgery are emphasized. On the battlefield there can be no primary wound disinfection. We can only apply iodine tincture, which the author prefers to "fixation" of the dirt with collodion, etc. The bullet tracts cannot be probed or explored with the finger, nor dilated, nor slit open. Neither antiseptic solutions nor drainage tubes are indicated. These limitations, however, are not applicable in certain wounds of soft parts with extensive openings for entrance or exit, and injury of vessels and nerves. We must now interfere, lay open the shot canal freely, extirpate all badly damaged tissues which would otherwise undergo necrosis, ligate vessels, suture nerves, remove all foreign material, irrigate with saline infusion, and tampon with iodoform gauze. In shot fractures, even if comminuted, fixed dressings can be applied, if the projectile has a small tract. With large wounds of entrance or exit and badly splintered bones we have to decide between resection and amputation. Wounds of the abdomen and thorax have to be treated with expectancy. Laparotomy on the battlefield is quite impracticable. Even trephining for wounds of the skull is done with some reserve. In infected wounds hydrogen peroxide is the antiseptic recommended. Bier's stasis and the hot air bath are used as routine measures. Balsam of Peru is an old standby. For hand asepsis rubber gloves are now indispensable, and hot water-and-alcohol disinfection of the hands when gloves are not worn. For disinfection of the operative field tincture of iodine has superseded older resources. For general narcosis the mixture of ether, chloroform, and oxygen is recommended. Infiltration and conduction anesthesia with ½ per cent. novocain are recommended for reduction of fractures and dislocations, for resections and amputations. With this concentration as much as 250 c.c. of solution can be used. The author, however, appears to limit its use to the upper extremity. For the lower limbs he regards lumbar anesthesia as adapted for military work, but hesitates to recommend it outright on account of serious drawbacks.

Origin of Hemorrhoids.—Schmincke concludes that essentially the hemorrhoidal disease consists in the dilatation of the finer branches of the veins in the hemorrhoidal region. This dilatation is something which increases progressively with advancing years. It is to be referred to the mechanical element in constipation, as a result of which the descending column of fecal matter presses against the small venous ramifications of the hemorrhoidal region. As a result of the simultaneous abdominal pressure these veins are unable to empty themselves with sufficient rapidity. The alterations which appear in the hemorrhoidal veins are explained by functional hypertrophy of the vascular wall with secondary insufficiency. Inflamed piles are due to bacillary infection.

Borderline between Normal and Pathological Temperatures.—Saathoff has devoted years to this subject and concludes that any reading over 37° C. (98.6° F.) cannot be regarded as normal. In other words it forms the superior limit of normal temperature. A single case of slight rise above this mark may have no significance, but if such is frequently noted it means that something is wrong. In a healthy subject leading a free, active life, an occasional rise up to 37.5° C. (99.5° F.) may have no pathological significance, yet a temperature of 99° F. occurring frequently may indicate the presence of some chronic infectious process, tuberculosis being the one first thought of. The 90 per cent. incidence of this affection in mankind should cause us not to disregard minimal uses of temperature.

Deutsche medizinische Wochenschrift.

August 13, 1914.

Treatment of Amenorrhea with Hypophysis Extract.—Kosminski refers to the unsatisfactory character of our treatment of this condition. Until recently our only aim has been to induce a pelvic congestion in the hope of bringing on the menses. At present we are endeavoring to make use of biological stimulation of the ovary. There has always been a small fraction of cases which are amenable to constitutional treatment. These occur in a variety of diseases, as chlorosis, tuberculosis, Graves' disease, etc. Animal experiment has taught that extirpation of the hypophysis is followed by atrophy of the genitals; so that the thought lay near that hypophysis extract might act as a genital stimulant. It is of course self evident that some correlation exists between the hypophysis and ovary, since ablation of both of these bodies causes results similar to each

other. In pregnancy we see marked alterations in the hypophysis, the ovary remaining inactive. After ovarian castration we also see enlargement of the hypophysis. In each case we note the development of alterations in the body at large, of the type suggesting acromegaly and obesity. Genuine acromegaly often begins with amenorrhea. In dystrophia adiposogenitalis we also see hypoplasia of the sexual organs, amenorrhea, and sterility. Hence when a woman develops amenorrhea we have to consider the possibility that the hypophysis may be at fault—that the hormone of this organ of which the office may be to regulate ovulation is secreted in defective quantities. In 1912 we see Fromme prescribing hypophysis extract for amenorrhea. He chose fat women with the idea that these betrayed an anomaly of internal secretion. Of twelve cases he reestablished the menses in five. Hofstaetter broadened the selection of cases by including hypoplasia, infantilism, atrophy following lactation, anemia, cachexia, and nervous states. He had good results in two-thirds of his cases. The author made a research into the subject at Abels' private clinic in Berlin, testing three preparations of hypophysis extract. In twenty-four cases treated his results were favorable in twenty. The selection of material agreed practically with that of Hofstaetter. There were included hypoplasia and late development (infantilism), subinvolution, obesity, preclimateric amenorrhea, neurasthenia, and hysteroepilepsy, and amenorrhea from exposure and adnexal disease. Despite the differences in etiology a few injections produced a flow of blood. The patients also began to feel better. In one case of infantilism in which ten injections had been given the woman flowed so much that ergot was injected. When suppression was due to cold or nervous influence one injection often sufficed. The remedy has thus far, Kosminski says, proved entirely harmless.

Results of Radiotherapy in Carcinoma.—Küstner and Heimann have been using this resource for eighteen months in the Breslau University Clinic for Diseases of Women. Ninety-eight cases of cancer have been rayed, including forty-four of inoperable cancer of the uterus and seventeen inoperable recurrences. There were also seventeen other cases of prophylactic raying and seven in which raying immediately preceded operation. Of the series of forty-four cases the majority had been pronounced inoperable after trial laparotomy. During the eighteen months period eight of the patients died. The indifference or fatalism of these patients is shocking as they make little effort to return for examination. In eight others treatment was a failure, either *per se* or because broken off by the patients. The remaining twenty-eight have all showed signs of improvement. In inoperable recurrences much greater doses must be used. Of the series of seventeen patients one is dead, two proved absolutely refractory, and the others all showed improvement, especially marked in two. Three operable cancers, occurring in two old and decrepit subjects and in a diabetic patient respectively were rayed with startling benefit, the growths having actually disappeared.

Deutsche medizinische Wochenschrift.

August 20, 1914.

Treatment of Threatening Hemorrhagic Diathesis, Leucemia, and Pseudoleucemia.—Grober refers to acute anemic states, other blood changes, failure of nutrition, paradoxic rise of temperature, acquired predisposition to sepsis, and other threatening conditions which follow both loss of blood and failure to produce red cells. Bound up in hemophilia and leucemia alike is the loss of coagulative power. Our time-honored resources in combating these conditions are too well known to require discussion, as are certain modern developments, as soft and medium *x*-rays for leucemia and pseudoleucemia, and adrenlin with a small cocaine addition in hemophilia. Of great promise for the future is serotherapy. Fresh blood serum and certain aqueous extracts of tissues have hemostatic powers. Quite recently a preparation of animal blood plates has been recommended as a hemostatic, to be applied either directly to bleeding surfaces or by intravenous injection. It is marketed under a trade mark name and the author has had no experience with it. He cannot speak enthusiastically of ergot, hydrastis, or calcium as hemostatics in hemophilia. A 10 per cent. solution of common salt injected intravenously in 5 c.c. doses has some value. There are numerous objections to gelatine in hemophilia. While repeated injection of blood serum has both prophylactic and remedial properties, the danger of anaphylaxis makes it necessary to use sera from several different animals.

Extract of Animal Blood Plates as a Hemostatic.—The state of war in Germany may be responsible for the fact that three articles in this number of the *Wochenschrift* are devoted to hemostasis. In addition to Grober's article abstracted above Juliusberger contributes an article on Fonio's discovery that animal blood plates obtained by fractional centrifugalization may be made to yield a blood coagulating substance. Unfortunately the method has been kept secret and the extract is marketed under a proprietary name. It is said to be an excellent styptic in surface hemorrhages. As for its intravenous use the thought lies near that it might cause thrombosis or embolism. The author has injected it into the circulation of patients suffering from hemoptysis and hematemesis with impunity and with good results. In one patient the weak heart action would have favored the development of thrombosis. The author has not yet had opportunity to test the remedy in hemophilia. Another article on this substance is by von Mutschenbacher and describes his experience with it in 100 cases of hemorrhage. He has used it upon the bleeding surfaces which result from separating peritoneal adhesions, etc., in which it is hoped to do away with the need of tampons; further in connection with transplantations and plastic work in which parenchymatous bleeding may prevent the full success of the operation.

Treatment of Ulcus Corneæ Serpens with Ethylhydrocuprein.—Schur relates his experience with this quinine derivative which was originally introduced as a promising chemotherapeutic agent in pneumococcus infections. He sums up as follows: One is justified in regarding ulcus corneæ serpens as a folk malady of the worst kind. Artisans and farmers are the worst victims as they are more subject to slight injuries. The rural contingent naturally come to consultation at a relatively late period. Ethylhydrocuprein, of proved value in pneumococcus infections, has shown itself to be one of our best resources against this evil. Naturally it is best to make a bacteriological diagnosis in a research of this kind, and the author had as material a series of 35 cases known to be caused by the pneumococcus. Of this number 30 recovered under ethylhydrocuprein alone. In the other five cases there were complications—perforation of the cornea or hypopyon—and although the cases were far advanced before treatment the drug did not prevent complications. In cases due to mixed infection—with diplo- or staphylococci—there was improvement; naturally with diplococci zinc must be used as a specific.

Insurance Medicine.

SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

DIABETES AND GLYCOSURIA.

WHAT influence may be looked for when one or more deaths from diabetes appear in the family history? Dr. Otto May, at a meeting of the Life Assurance Medical Officers' Association of London, March 4, 1914, presented a study of 76,333 death claims in his company between 1901-1910. Of this number, diabetes caused death in 1,143, or 1.49 per cent. The family history of the 1,143 cases showed diabetes as the cause of death in forty-one, or 3.6 per cent. A control investigation of 1,143 other cases picked at random during the same period showed family history with diabetes in only twelve cases or 1.05 per cent. A comparison shows 53.7 per cent. of early deaths in the "positive" cases against 21 per cent. in the "negative" ones. A further analysis led Dr. May to suggest that: (1) There is a group in which there is a family tendency, the disease appearing at an earlier age and proving fatal more rapidly than the ordinary acquired type of the disease. (2) The diabetes with family tendency is more likely to appear in the male.

Deductions from such a small number of cases as that presented by Dr. May, while interesting, do not convince. It is almost impossible to find cases in numbers large enough to give conclusive results. For instance, the Medico Actuarial Investigating Committee recorded only 265 cases with two or more deaths from diabetes in the family history, with nine deaths, after analyzing the enormous amount of material at their command. However, statistics and clinical experience, though both are meager, lend strength to the view that there is an influence of heredity, and it may be assumed from a general view of the subject that the occurrence of two or more cases of diabetes in the immediate family history is a point to be considered in rating the risk.

The true diabetic condition seems to accompany some disturbance or change in the nervous system, pancreas, kidneys, or liver. The exact relation is unknown, as changes in these organs frequently occur without the presence of glycosuria, and at other times no change in them can be discovered when persistent glycosuria is present. Obesity plays an important rôle in persons who become very stout in middle life.

The liver and the muscles are the natural reservoirs of glucose, stored in the form of glycogen. The glycogen is reconverted into glucose and reenters the circulation in this form, when needed, to be oxidized for the production of heat and energy. It has been shown that the amount of glucose in the blood varies within the narrow limits of 0.1 and 0.2 per cent. When sugar is ingested in overwhelming quantities, the muscles and liver cannot hold all of it in the form of glycogen and the amount of glucose in the blood exceeds 0.2 per cent. Temporary glycosuria will then develop during the short time required for the consumption of the excess. The assimiliation limit of sugar is estimated to be about 150 to 200 grams of cane-sugar. It has been found, on the other hand, that sugar does not appear in the urine of healthy individuals after the ingestion of enormous quantities of starchy food, and that its presence under such circumstances should lead to the suspicion of a true diabetic condition. Osler has found no evidence to show that the diabetic individual forms any more sugar from a certain amount of food than does a healthy person, and thinks that all evidence points strongly towards the view that hyperglycemia is due rather to an underconsumption of glucose from a lowering of the power of the tissues to oxidize carbohydrates than to an overproduction.

Alimentary or temporary glycosuria should not be confounded with true diabetes, for, while glucose is not a normal constituent of the urine unless found immediately after taking an overwhelming amount of sugar, many of those subject to recurring attacks do not develop diabetes. It must not be understood by this that individuals with a history of repeated glycosuria are not underaverage risks, as it is well known they do not stand up against the shock of disease or injury as well as normal persons.

The Medico Actuarial Investigation gives a synopsis of the results in groups where an examination showed one finding of sugar in the urine on application or in which there was a recorded appearance within ten years. These results show actual deaths, 145; expected deaths, 104.48; ratio of actual to expected deaths, 103 per cent. This does not indicate an unfavorable experience and is explained by the fact that a particularly rigid selection was exercised. The interesting point is brought out, however, that death from diabetes in these cases was six times the regular rate. The committee was informed that the unpublished experience of a large company on under-average lives shows that where sugar was found in more than one specimen at the time of examination, there was a mortality of 200 per cent. Companies doing substandard business, therefore, have good grounds for refusing to insure risks in which glycosuria frequently makes its appearance.

Temporary glycosuria should be treated as follows:

A.—Cases with a history of glycosuria, not found on examination. These may be divided into two classes.

(1) When the glycosuria appeared at a remote date or on one or two occasions, the applicant may be accepted if he has had no treatment and has not been under restricted diet for urinary disturbances during the past year and if three specimens of urine obtained at different hours on successive days are normal.

(2) When the glycosuria has been found repeatedly for a number of years, especially if up to a recent date, the diet statement and three specimens should be obtained, but further precautions are necessary. A test meal is the most efficacious plan, the applicant taking a meal consisting of a liberal amount of starchy and saccharine food in the presence of a trusted and diplomatic representative of the company. Two specimens of urine passed one and a half and four hours after the meal should be obtained. If a test meal is impracticable the examiner should collect the specimens one to two hours after lunch or dinner without warning the applicant of the contemplated visit. The proposal to administer large doses of glucose should never be entertained, the dose advised being large enough to overwhelm the glycogenic function of the liver and cause glucose to appear in the urine of healthy persons as well as severe headaches at times.

B.—Cases without a history of glycosuria, but sugar found at time of examination. The diet statement and three additional specimens, if normal, will answer in these cases.

Book Reviews.

LEHRBUCH DER PSYCHIATRISCHEN DIAGNOSTIK. Von Privatdozent Dr. ADALBERT GREGOR, Oberarzt an der Kgl. Heilanstalt Dösen-Leipzig. Mit 7 Abbildungen. Preis, 4.80 marks. Berlin: Verlag von S. Karger, 1914.

THIS little book on the diagnosis of mental diseases is intended more especially for the student and general practitioner. It is of convenient size and helpful and written in a clear style. The general plan of the book is as follows: There are two parts, the first on general diagnosis of symptoms; the second, on the special diagnosis of the various forms of mental disorders. An outline scheme for the examination of patients is given together with a few brief examples of memory and intelligence tests. The space devoted to the important subject of personality study is only a page, which in view of recent studies, is disappointing. The classification of mental disorders followed by the author is based on the classifications of Ziehen, Kraepelin, and Roemer.

DIAGNOSTIK DER NERVEN-KRANKHEITEN. Von Prof. Dr. ALEXANDER MARGULIÉS in Prag. Erster Band, Allgemeiner pathologischer Teil. Mit 13 Abbildungen. Preis, 3 marks. Berlin: Verlag von S. Karger, 1914.

THIS, the first volume of Prof. Margulies' work, is on general pathology, and is modestly devoted to the student. The difficulties the student finds in the diagnosis of nervous diseases, every one agrees, are due for the most part to the lack of a thorough grounding in the anatomy and physiology of the nervous system. With such a knowledge acquired, diagnosis may be made much easier with the help of such a good work on the subject as this, although the book is more or less of the nature of a compendium. The author's arrangement of text of this first part, comprises ten chapters. The first chapter, on disturbances of motility, naturally treats of the paralyses, the spasmophilia, tremors, and ataxia, and contains several tables and drawings. The second chapter of the book is devoted to disorders of general sensibility; the third, to the significance of altered reflexes; the fourth and fifth chapters to brain diseases; the sixth chapter to the diseases of the cranial nerves; the seventh to diseases of the cord; the eighth, to the examination of the cerebrospinal fluid; the ninth, to disorders of the sympathetic; and the last chapter is on disorders of the internal secretions as affecting the nervous system. A careful perusal of part first of this work will enable the student to grasp the more practical issues of special diagnosis to be treated in the promised second part. The author is a well known Bohemian neurologist and writer. There are many books on the diagnosis of nervous diseases. This may prove to be one of the best.

PRACTICAL THERAPEUTICS INCLUDING MATERIA MEDICA AND PRESCRIPTION WRITING. With a description of the most Important New and Nonofficial Remedies passed upon by the Council on Pharmacy and Chemistry of the American Medical Association. By DANIEL M. HOYT, M.D., formerly Instructor in Therapeutics, University of Pennsylvania; Fellow of the College of Physicians; Assistant Physician to the Philadelphia General Hospital. Second edition. Revised and Rewritten. Price, $5.00. St. Louis: C. V. Mosby Company, 1914.

THIS volume differs in two respects from the majority of works on Materia Medica. In the first place it does not include all the preparations of the U. S. P.; and, further, it includes the most important preparations of the National Formulary and of the New and Nonofficial Remedies, of the A. M. A. This last part, which is called an "appendix," takes up about one-half of the book; and as this part can be purchased in its entirety for half a dollar or less, its inclusion here makes the present volume one of the most needlessly expensive volumes on the market. In the first half of the book we find a brief summary of the physiological action of the main drugs, with an indication of their clinical application; and, so far as it goes, it is fairly satisfactory. The last part needs more editorial care than has been bestowed upon it. Under the heading of Iodipin, we find: "Iodipin acts in the system similarly to the iodides, being taken up in a manner analogous to that described under bromipin, which see." This is quite allowable in the New and Nonofficial Remedies, which contains an article on bromipin; but in the present volume there is no article on bromipin, and so the reference is useless and annoying. The list of preparations and also the prescriptions should receive a thorough revision; at present they are a mixture of English and poor Latin.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics, Materia Medica and Diagnosis in the Jefferson Medical College, Philadelphia; Assisted by LEIGHTON F. APPLEMAN, M.D., Instructor in Therapeutics, Jefferson Medical College, Philadelphia, June 1, 1914. Price $6 per annum. Philadelphia and New York: Lea & Febiger, 1914.

THERE are five chapters in the present number of "Progressive Medicine." That on Hernia is supplied by W. B. Coley; that on Surgery of the abdomen, exclusive of hernia, by J. C. A. Gerster; that on Gynecology, by J. G. Clark; that on Diseases of the blood, diathetic and metabolic diseases, diseases of the thyroid gland, nutrition, and the lymphatic system, by A. Stengel; and that on Ophthalmology, by E. Jackson. All of the contributions are of a high order of merit; and we need only remind our readers that the present number contains Dr. Clark's annual summary of what has been written on the cancer problem.

THE PRACTICAL MEDICINE SERIES. Comprising ten volumes on the year's progress in medicine and surgery. Series 1914. Under the general editorial charge of CHARLES L. MIX, A.M., M.D., Professor of Physical Diagnosis in the Northwestern University Medical School. ROGER T. VAUGHAN, Ph.B., M.D. Volume I. GENERAL MEDICINE. Edited by FRANK BILLINGS, M.S., M.D. Head of the Medical Department and Dean of the Faculty of Rush Medical College, Chicago and J. H. SALISBURY, A.M., M.D., Professor of Medicine, Illinois Post-Graduate Medical School. Price, $1.50. Chicago: The Year Book Publishers.

THIS volume is one of two of the series devoted to general medicine. It is a valuable compend of the year's literature relating to tuberculosis, metabolic diseases and diseases of the lungs, heart, blood, blood-vessels, ductless glands, and kidneys.

Vol. II, General Surgery. Edited by John B. Murphy, A.M., M.D., LL.D., F.R.C.S., England (Hon.), F.A.C.S., President of the International Surgical Congress, London; Professor of Surgery in the Northwestern University; Attending Surgeon and Chief of Staff of Mercy Hospital and Columbus Hospital; Consulting Surgeon to Cook County Hospital and Alexian Brothers' Hospital, Chicago. Price, $2.00. It is hard to imagine a more interesting review of the year's progress in surgery than is given in this volume. The improvements in diagnosis, treatment and operative technique are fully explained. The author is frank in admitting that there are fields of surgery in which no real advance has been made. Reference is made to many interesting cases.

Volume III. The Eye, Ear, Nose, and Throat. Edited by Casey A. Wood, C.M., M.D., D.C.L., Albert H. Andrews, M.D., William L. Ballenger, M.D. Price, $2.00. Reviews of the most important papers of the year have been incorporated in this volume and as usual pertinent comments have been made by the authors. The book will prove a valuable addition to the library of those interested in the specialties to which it is devoted.

A HANDBOOK OF PSYCHOLOGY AND MENTAL DISEASE. For Use in Training Schools for Attendants and Nurses and in Medical Classes, and as a Ready Reference for the Practitioner. By C. B. BURR, M.D., Medical Director of Oak Grove Hospital (Flint, Mich.) for Mental and Nervous Diseases, etc. Fourth edition, revised and enlarged, with illustrations. Price, $1.50. Philadelphia: F. A. Davis Co., 1914.

THE present revision, the author states, concerns itself largely with those portions of the book of especial interest to medical men. Among these it is noted that a few studies have been made on a Freudian basis of certain states of paranoia and hysteria. The section on the "Management of Cases of Insanity from the Medical Standpoint" has been amplified; and a new section has been added entitled "Symbolism in Sanity and Insanity." It would seem, however, to the reviewer that the entire book, in its present form, is too advanced for the average nurse or attendant on the insane, and is better adapted to the medical student.

Diseases of Infancy and Childhood. Their Dietetic, Hygienic, and Medical Treatment. A Text-Book Designed for Practitioners and Students in Medicine. By Louis Fischer, M.D. Attending Physician to the Willard Parker and Riverside Hospitals of New York City; Attending Pediatrist to the Sydenham Hospital; Former Instructor in Diseases of Children at the New York Post-Graduate Medical School and Hospital, etc., etc.; Fellow of the New York Academy of Medicine. Fifth Edition. With 301 illustrations; several in colors, and 43 full-page half-tone and color plates. Price, $6.50. Philadelphia: F. A. Davis Company. London: Stanley Phillips, 1914.

In comparing this, the fifth, with the fourth edition of the same work one notes first of all the great improvement in its physical make-up. Containing nearly as many pages as the previous edition the newer volume is only one-third as thick. This change has been effected by the use of thinner and a better quality paper. The illustrations, besides, show up to better advantage. The text of the book has been greatly revised and improved. In dealing with the subject of nutrition the author now employs larger protein percentages and calls attention to the fact that high fat is now rarely fed. The new Berlin classification of gastric and intestinal derangements is given, food intoxication, weight disturbance, and decomposition being fully described. Articles on anaphylaxis, amebiasis, uncinariasis, acetonemia, and spasmophilia have been added. The illustrations on intubation which have been enlarged are superb, and cross-section illustrations, with the tube *in situ*, have been added. Vaccine and serum therapy are described and clinical cases are cited. There is an entirely new index. The chapters dealing with the infectious diseases of children are particularly well written. On the whole, this book ranks high among the large number of works on pediatrics available for the general practitioner and student.

Diagnostic Methods, Chemical, Bacteriological, and Microscopical. A Text-Book for Student and Practitioners. By Ralph W. Webster, M.D., Ph.D. Assistant Professor of Pharmacological Therapeutics and Instructor in Medicine in Rush Medical College, University of Chicago; Director of Chicago Clinical Laboratory. Fourth Edition, Revised and Enlarged; with 37 colored plates and 171 other illustrations. Price, $4.50. Philadelphia: P. Blakiston's Son & Co., 1914.

The publication of four editions of this work within a period of five years would be in itself a glowing testimonial, if it were not for the fact that the rapid extension and multiplication of diagnostic methods demand frequent revisions and additions to a work of this kind. The author has been alive to the need of maintaining the excellence of his book by keeping it strictly up-to-date. The present edition contains the following new matter: a discussion of the Negri bodies recently cultivated by Noguchi; Weisz's test for urochromogen; Dorrance's method for coagulation of the blood; Kowarsky's method for glucose in the blood; Levaditi and Manouelian's as well as Noguchi's methods for staining the spirochete in the tissues; Lange's colloidal-gold test for congenital syphilis; a discussion of the organism of anterior poliomyelitis recently cultivated by Flexner and Noguchi. There is considerable new matter with reference to the Wassermann reaction and the complement-fixation test in gonorrhea. Among other new topics are the Herman-Perutz reaction for syphilis and the application of Abderhalden's dialyzation method to the diagnosis of cancer and dementia præcox. A new chapter on clinical bacteriology has been added, in which are discussed the differentiation of the more important pathogenic organisms and also the methods of preparation of vaccines. One may criticise the use of the word "tubercular" instead of "tuberculous," in such expressions as "tuberculous pleurisy." On the whole the book contains strikingly few errors or omissions. It is well printed and handsomely illustrated and can be recommended without hesitation to the student and general practitioner.

I. K. Therapy, with Special Reference to Tuberculosis. By W. E. M. Armstrong, M.A., M.D., Dublin. Price, $1.50 net. New York: Paul B. Hoeber, 1914.

"I. K. Therapy" is the name used for Spengler's method of treating tuberculosis. For the benefit of those unfamiliar with bacteriological phraseology it must be stated that "I. K." does not stand for the German Jodekali or potassium iodide, but stands for the German "Immunkörper" (immune bodies). In his book just published Dr. Armstrong gives an excellent exposition of this interesting therapeutic procedure devised by Carl Spengler of Davos.

The book is divided into a number of small chapters treating on immunity, the nature of I. K., its mode of preparation and standardization, and the clinical evidences and practical administration of the product. The underlying basis of I. K. therapy is the fact that the red blood corpuscles are regarded as the great seat of manufacture and the storehouse of the immune elements, only a small fraction of the contents of this reservoir being found in the serous portion of the blood stream. Spengler and his pupil Armstrong compare the antibodies and erythrocytes to the deposit account, while those in the serum represent the current immunity account of the animal. The entire blood of an animal previously immunized against tuberculosis and other bacterial diseases is used in this therapy, of which this monograph of 75 pages gives an excellent idea. The work is recommended to all those interested in the specific therapy of tuberculosis.

Religion and Drink. By the Rev. E. A. Wasson, Ph.D., Rector of St. Stephen's Episcopal Church, Newark, N. J. Price, $1.25. New York: Burr Printing House, 1914.

This book is an attempt to answer the question, "What is God's will for us in the matter of drink?" This is the first examination of this question on so extensive a scale in the English language, and the answer is sought in the Church Universal. Part One, the Bible, discusses the testaments, side authorities, the Gospels, and Epistles. Part Two, the Church, epitomizes the question from the time of the primitive Church and the Fathers on through the temperance movement of the present day. Part Three, the Truth of the Gospel, religion and law, character, the new and living way.

Serology of Nervous and Mental Diseases. By D. M. Kaplan, M.D., Director of Clinical and Research Laboratories of the Neurological Institute, New York City; Serologist to the Montefiore Home. Illustrated; price, $3.50 net. Philadelphia and London: W. B. Saunders Company, 1914.

This is the first book on the subject by an American. Its general plan is as follows: There are four parts and a bibliography. The latter comprises seventy pages, showing the flood of serological literature which has gone before. The first part of the book is on Technology; the second, on the Serology of Nervous and Mental Diseases of Non-Luetic Etiology; the third, on the Serology of Nervous and Mental Diseases of Luetic Origin; and the fourth, on the Therapeutic Use of Salvarsan. Part I comprises an introductory history and considerations of anatomy and physiology, general considerations of the spinal fluid, and methods, and interpretation. Parts II and III show a large personal experience in the application of serology in the study of all of the common and most of the rare nervous and mental diseases. In part IV the directions respecting the use of salvarsan, and the precautions necessary to be observed, are stated specifically. The illustrations of the book are good and many of them original. The entire subject is presented in a clear and temperate way. The attitude of the serologist, says the author, should be one of wholesome skepticism. The entire Wassermann test, for example, should be regarded as of only secondary importance in making a complete study of a case of syphilis. The physician requires to know surely whether the reaction is positive or negative. Laboratories always obtaining a positive reaction should be looked upon with suspicion. "The careful worker will, in the course of time, consider a serum as positive only when it has resisted every attempt at negativation." The chief function of the serologist in the opinion of the author "is not so much to detect every syphilitic as to protect the non-luetic individual from a wrong diagnosis and useless treatment."

The chapter on the serology of the negative types (non-luetic diseases) is very instructive and interesting. We therein note for example that while a pleocytosis may occur, even without syphilis, it may be differentiated from a pleocytosis caused by syphilis, by methods described. Practical information will be found throughout the book but especially in the chapters on the serology of the syphilogenous diseases, and on salvarsan, and the book seems to be a safe exposition of the entire subject.

Society Reports.

NEW YORK ACADEMY OF MEDICINE

Stated Meeting, Held May 21, 1914.

DR. L. EMMETT HOLT, VICE-PRESIDENT, IN THE CHAIR.

THE subject of the evening was "Studies in Cancer" from the General Memorial Hospital.

The Cultivation of Human Cancer Cells in Vitro.—Dr. M. T. BURROWS presented this paper. He said that during the past few months in connection with the work of the General Memorial Hospital he had been testing a considerable number of human tissues by the culture method. In 1910, in association with Carrel, he had tested a considerable number of human malignant tumors, and in but few were any manifestations of life observed. Instead of an active migration and growth of cells as observed about fragments of many tissues of lower animals, the clots underwent a rapid dissolution. The digestion was often striking, involving a large part of the medium about the tissue fragment and taking place within a few hours after the preparation of the culture. In a few cultures of sarcomata the cells remained apparently alive, and migrated over the cover glass subsequent to the digestion of the medium. At a later time he had had the opportunity to test several pieces of tissue and had noted that the growth failed and the fibrin was rapidly digested about the fragment of tissue. This occurrence was more striking in human tissues than in those of animals. The tests of the past few months had been made with either autoplastic or homoplastic plasma, and the specimens of malignant tumors had been obtained from various hospitals. They had included lymphomata, a fibrosarcoma of the axilla, a recurrent chrondroma of the femur, two melanomata, several carcinomata of the breast, a thyroid sarcoma, and adenocarcinoma of the lymph glands of the neck and groin, cystomata, and a recurrent adenocarcinoma of the ovary. When possible the tissue was placed in plasma as soon as obtained, but in a few instances it had been carried a considerable distance and was not transplanted for one or two hours after it had been removed from the body. Whether this procedure was harmful had not been determined. As many successes and failures attended this treatment as when the tissues were cultivated at once. The tissue was cut in small fragments, placed on the surface of a cover glass, and covered with a layer of plasma. The slides were then inverted over the cover and sealed at once. The plasma had in most cases been used pure. In other instances it had been diluted one-half with isotonic sodium chloride solution. Control cultures of normal tissue of dogs and cats were prepared in a similar manner. About the fragments of the lymphomata, the chondroma, the fibrosarcoma, and normal connective tissue taken from the same individuals the reaction in the plasma was similar to that generally seen with the growth of similar tissues of other animals. The clot contracted, showing pitting of the lower free surface about the tissue border. The medium became more clear in this region, the fluid accumulating on its lower surface. No extensive or disorganized dissolution occurred. Fragments of the fibroma lived for eighteen days following several transplants. Connective tissue was grown from some of the carcinomata for a similar period of time while some of the fragments of the lymphomata and chondroma were kept as long as fifty days. No special effort had been made to preserve the tissue for a longer time. Spindle-shaped connective tissue cells were seen to wander out after each transplant until all the living cells had left the fragments. The cartilage matrix continued to spread or flatten out as long as living cells remained within it. Growth and division of a number of these cells was observed. From the fragments of the lymphomata both round and spindle cells migrated into the plasma, the latter predominating even about the fragments taken from the more cellular parts of the tumors. Similar growths were observed from the capsule of these tumors as well as the normal connective tissue of the neighborhood and from fragments of the chondroma. Active growth took place from fragments of cartilage. The fragments of the carcinomata had varied considerably in their ability to survive in the cultures. In but two cases had actual growth of the cancerous element been observed. In the other cases a rapid autolysis with or without active fibrin digestion was observed. This autolysis was most marked about the carcinomata of the breast and thyroid, and one of the ovarian tumors. The medium was digested slowly about many of the fragments of the melanomata. In the case of the melanoma as well as some of the carcinomata of the breast, the liquefaction was less about the smaller fragments, while in others it occurred about all the cancer elements. In all the cancers of the breast autolysis was rapid; in most of the fragments the cancer cells failed to stain at the end of twenty-four or forty-eight hours. Degeneration and fragmentation commenced in some of them subsequent to this time. Most of the carcinomata of the breast and thyroid when transferred at the end of forty-eight hours to new medium showed no further digestion of the clot. About the melanomata this digestion was not general but occurred in conical areas; it took place slowly in all fragments, and continued after many replants. Almost all the fibrous connective tissue fragments grew actively after five or six transplants. At the end of this time growth of this tissue ceased. Migration of epithelial cells was seen about an adenocarcinomata of the lymph glands as well as of an infected epithelioma of the mouth. The author then cited the details of the study of two ovarian carcinomata in which growth was observed. Since these experiments were performed he had, in association with Dr. Lewisohn, tested a carcinoma and a myoma of the uterus and two pieces of normal human tissue. The normal tissues were arteries and peritoneum, removed at a hernia operation. About the fragments of all these tissues, including small pieces of fat, the plasma was rapidly liquefied. The same results were noted in the earlier attempts, but were in sharp contrast to those performed during the winter months of this year. They had not yet been able to determine whether this fibrin digestion and tissue death was the result of some technical error, unidentified bacteria, of exposure, or some individual differences in the tissue. Differences in the plasma did not seem important. The rapid fibrin digestion could be ascribed, on the other hand, to pecularities of many of the epithelial cells. The failure of growth of many of these fragments might be further intimately associated with a failure of the tissues to spread and flatten out or a failure of the cells to liberate themselves from the firm fibrous tissue envelope. Active fibrin digestion was seen about fragments of normal intestine, thyroid, kidney, as well as about fragments of the bladder, ureter, and uterus. It might be observed about fragments containing endothelial cells such as arteries, peritoneum, pericardium, and pleura. Brain tissue showed a more active proteolytic power than fibrous tissue. In this connection it had been of interest to note that the pieces of pancreas tested did not digest the fibrin. This, when it did take place, had been seen only after a latent period of several days. Liquefaction was seen not only when cells failed to grow but during their growth as well. Leucocytes penetrated the clot along the narrow burrows, formed apparently through the digestion of the solid coagulum. The same was true of fibrous tissue cells. During the growth of this tissue a considerable quantity of fibrin might be dissolved. Epithelial membranes and tubes stretched through open tissue cavities between the tissue on one side and solid clots without. The cells survived for a time in many of the fragments where the rapid autolysis had been seen. The failure to stain did not mean that on removal to different environment these cells could not grow. It was further noted that the fragment lost after a time the ability to digest the fibrin. This decreased slowly, to disappear in or about forty-eight hours. It was found then that if the tissue was transplanted at the proper time from the liquefied plasma to fresh medium it would grow. This was illustrated by the experiments on an adenocystoma of the ovary. This tumor was planted in the plasma of a pregnant woman. At the first transplant the medium was liquefied after two hours. Fragments removed at the twenty-fourth hour to the plasma of a normal man reacted differently. From many there was an active growth of connective tissue cells as well as columns of cancerous elements. These experiments gave the first demonstration of the growth of human carcinomatous cells *in vitro*.

The Influence of Diet on Transplantable Sarcoma in Rats.—Dr. S. P. BEEBE said that the first paper published by them upon the question of the effect of diet in cancer had to do with the results obtained when carbohydrate was entirely eliminated from the diet.

They found that if carbohydrate was entirely eliminated there was a smaller percentage of positive takes; the tumor grew much more slowly and a larger percentage showed complete regression as compared with control animals on a full diet. In one experiment twenty-six animals were placed on a special diet and twenty-six controls on a full diet. They were all planted with the same tumor the same day. Every animal planted took the tumor. Of those animals on a special diet which contained no carbohydrate, two died from the tumor, four died from accident or unknown causes, twenty showed complete regression of the tumor. Of the twenty-six animals on the control diet containing carbohydrate, twenty-four died from the tumor and two recovered.

In order to obtain such effects, however, it was found necessary to prepare the animals by feeding them on a special diet for some time—from two to six weeks—before planting the tumor. If a special diet was begun on the same day of planting no difference could be observed between the two groups of animals. The most recent experiment had to do with other modifications of diet; it would be recalled that Mendel and Osborne had shown that the normal growth of a rat was markedly affected by the character of fat in the food. If a healthy rat was placed on a liberal diet containing fat in the form of lard he grew well for a time but finally reached a stage where growth was very slow and finally a loss of weight occurred even though he had an abundance of food. If, at this time, butter was substituted for lard, growth began again at once and continued in a normal fashion. If they were fed on butter from the beginning, there was no evidence of cessation of growth. They had made experiments to determine whether or not such an effect would be produced in tumors as was observed in normal animals. Their experiments had shown that butter was a very effective stimulant to the growth of the Buffalo sarcoma with which their experiments were concerned. The tumors grew much more rapidly in the animals having a butter diet. A much larger percentage of animals were killed by the tumor when the animals were fed on butter. In these experiments it had not been necessary to have a previous preparation of the animal in order to get the results indicated. The tumor growth in the animal fed on butter had been the most rapid and the tumor had reached a much larger size than in any animals that he had seen before. In some instances at the time of death of the animal the tumor mass weighed two and one-half times as much as the rest of the animal. In one instance the weight of the tumor dissected out at the time of death weighed 130 grams, compared with 51 grams of the body of the rest of the rat. In this instance it appeared that the diet favorable to the growth of animal tissue was also favorable to the growth of tumor tissue. Was it not difficult to reconcile such observations with the theory that these tumors had an infectious origin? They had made some experiments to determine the effect of cholesterol but were not yet ready to publish any conclusions.

It would be recalled that Mendel and Osborne had found that certain proteins which were incomplete, chemically, permitted maintenance but prevented growth. They had made some experiments with diet containing protein of this type and they had found that it was possible to maintain an animal in a fairly satisfactory condition of nutrition and yet prevent growth of the tumor. It had been possible to do this likewise in animals which had not been prepared for the planting of the tumor by a previous period of preparation on a special diet. A considerable number of features influenced the results which might be obtained in experiments of this character. Experiments had been made with other types of protein food but they were not yet ready to report results at this time. Enough had been determined, however, to indicate that the character of the diet influences the growth of the implanted tumor to a remarkable degree. These statements were based on their experience with the Buffalo sarcoma. They were not yet prepared to say what results might be obtained with other types of growths.

The Sugar Content of the Blood in Cancer.—Dr. S. R. BENEDICT and Dr. R. C. LEWIS presented this communication which was read by Dr. Lewis. He stated that this paper was based on experiments started three years ago at Cornell Medical College in which rats with transplantable sarcoma were fed on a non-carbohydrate diet. It was found that such rats showed an increased resistance to tumor growth provided that there had been a long preliminary period of non-carbohydrate feeding. There were a fewer number of takes, a greater number of retrogressions, and a slower rate of growth of the tumor in the rats on a non-carbohydrate diet than in those where a mixed diet was employed. When the diet contained carbohydrate the tumors grew luxuriantly. Far more striking results were obtained by Benedict on phloridzinized tumor-bearing rats. The animals were positively hopeless from the standpoint of spontaneous retrogression. Almost at once after the injection of the phloridzin the tumor began to soften. This was followed by a breaking down of the growth and finally by a sloughing of the entire mass. In all cases in which the rats were able to survive the treatment, that is, the effect of the phloridzin, growths as large as 20 by 21 mm. were made to completely disappear. In rats killed by chloroform following the treatment with phloridzin no sign of malignant tissue was found on pathological examination. In these phloridzinized rats there was a condition of complete carbohydrate starvation in that not only were the carbohydrates of the diet excluded but also that the carbohydrate arising in the body from metabolism of proteins was eliminated in the urine. This result might be due to a general malnutrition, which in turn was followed by the effect on the tumor, or it might be that the carbohydrates were *per se* necessary for the tumor growth. That the latter condition in reality existed found support in the literature. In their study of the blood sugar content of cancer patients they had developed a simple method of blood sugar determination which offered certain advantages over the older methods. One very marked advantage was that only very small amounts of blood were required. In general practice they used 2 c.c. of blood, although the sugar was as little as 0.5 c.c. could be determined. The method was based on the red color reaction obtained by heating dextra with a picric acid sodium carbonate solution. The blood was aspirated from a vein through a hypodermic needle into an Ostwald pipette, a little potassium oxylate in the tip of the pipette preventing clotting. The 2 c.c. of blood were discharged into a 25 c.c. volumetric flask, containing 5 c.c. of water. The pipette was rinsed once with water and the flask was well shaken to insure thorough mixing. In this manner the blood was laked, a matter of importance because the corpuscles contained some sugar that would otherwise be lost. Fifteen cubic centimeters of saturated picric acid solution were then added, the contents of the flask made up to the mark with water and then shaken. After filtration, 8 c.c. aliquots were measured out into large Jena test tubes for duplicate determinations. Two cubic centimeters of saturated picric acid solution and 1 c.c. of 10 per cent. solution of carbonate of sodium were added, as well as two glass beads and two or three drops of albolene, and the contents of the flask were evaporated over a direct flame until precipitation occurred. About 5 c.c. of water was then added to dissolve the precipitate; the contents were removed quantitatively to a 10 c.c. volumetric flask, cooled, made up to the mark, shaken, and then filtered through cotton into the calorimeter chamber. The color was compared with that of a solution of picramic acid which had been previously standardized, and from the reading the amount of sugar was calculated. The results obtained in this way compared very closely with those of the Reid phosphotungstic acid method. They had examined the blood of fifty-three hospital patients suffering from malignant growths, making about 200 examinations in all. The blood had always been taken at least three hours after the last ingestion of food. Examination of the bloods of twenty-five normal persons had shown a normal blood sugar content of 0.09 to 0.11 per cent. This figure agreed with those reported in the literature. Of the fifty-three cases, nineteen or thirty-six per cent. had shown a marked increase of blood sugar above the normal, ranging from 0.12 to 0.16 per cent., an increase of from 10 to 60 per cent. above normal. At least 49 per cent. of the cases showed a tendency at least to hyperglycemia. In no case was there a condition of hypoglycemia. In a few cases that had been followed for a long time, although the blood sugar content was normal when they were admitted to the hospital, there had been noted a steady increase with the progress of the disease, reaching a maximum just before death. No special relation between the pathology of the growth and the blood sugar content had been found but during more severe stages of malignant growth there was

certainly a marked hyperglycemia. This was not easy of explanation; it might be that the hyperglycemia was the result of a constant demand of the growing tumor for carbohydrate.

The Treatment of Cancer by Electrical Methods with and without Surgery and Radium.—Dr. ARTHUR F. HOLDING read this paper. He said that the electrical methods employed in the following series of cases were Roentgen deep therapy, effulguration (de Keating Hart) dessication (Clark), and thermopenetration. These therapeutic agencies were combined with surgery, radium, toxins, and vaccines, when such adjuvants were indicated. The results were due not so much to any originality of method as to the correlation of very excellent methods, which had already been described, but which were little understood and seldom utilized by the profession at large. Inasmuch as the cases had been treated only during the past eighteen months sufficient time had not elapsed to warrant a final statement concerning the successful cases. He concluded: (1) That incipient surface cancers could be cured. If they were superficial physical method should be employed. These in the order of their preference were massive doses of Roentgen rays, dessication, radium, destructive caustics, provided the more expensive equipments were not available. (2) Surface cancers, if tending to extend into the deeper structures, demanded surgical treatment, but should also be treated by preoperative massive doses of Roentgen rays, effulguration at the time of operation, and postoperative deep roentgeno- or radiotherapy. By the use of these adjuvants to surgical treatment the percentage of recovery in this class of patients had been materially improved. (3) Beginning cancer of the gastrointestinal tract could be diagnosed with accuracy by recently improved *x*-ray methods. (4) Inoperable malignant conditions cannot be cured by any method of treatment as the ultimate prognosis was 100 per cent. bad. The symptoms could usually be improved by electrical methods and radium. Much time might be lost and the patient's life endangered if one were deceived by the well-known superficial healing properties of radium as well as of the *x*-ray. The fact that lesions of the second degree of malignancy appear at first to improve under treatment indicated only for the first degree, gave a false sense of security and resulted only in therapeutic procrastination. Of the first degree of malignancy there were in their series thirteen cases, nine of which had been symptomatically cured under massive doses of *x*-ray, four were symptomatically cured with radium, and one by a combination of the *x*-ray and radium. Of the second degree of malignancy there were ten cases, four of epithelioma of the skin and six of carcinoma of the breat; all were treated by a combination of massive doses of *x*-ray, radical operation, and effulguration, followed by massive doses of *x*-ray or radium. Three of these patients were still under treatment, five had been discharged symptomatically cured, and two had discontinued treatment. All of these patients who had continued treatment were symptomatically well to date. Of the third degree of malignancy there were a total of 116 cases. Of these six were symptomatically well, twenty-four improved, thirty-eight unimproved, and thirty-seven dead. The only hope for internal growths was to diagnose them in their incipiency. The methods advocated in this paper were very expensive and hence if the work was to be continued sufficient money must be raised to carry it on. This meant for institutions proper endowment and for individuals adequate fees.

General and Experimental Therapeutics in Cancer.—Dr. RICHARD WEIL presented this paper in which he gave a brief survey of the ideals and objects of cancer research as they were now understood. In a paper published two years ago Dr. Ewing critically analyzed the results of cancer therapy and concluded that no single avenue of attack offered the royal road to success in cancer. He urged that in the union of therapeutic methods, in themselves incompletely effective, complete victory over the disease might be hoped for. As a preliminary to the combination of these various methods of attack, years of study devoted to the elucidation of the biology and the physiology of the cancer cell must be postulated. These principles had constituted the motive power of their work. In undertaking the treatment of any case of cancer they had accepted as axiomatic the principle that operation, wherever available, was the method of choice. This rule applied not only to all cases in which operation offered a hope of radical removal of all traces of the disease, but also of those borderland cases, in which radical removal was excluded by anatomical conditions. In all cases of both groups they had made a practice of reinforcing the operation by supplementary measures in order to obviate the possibility of implantation recurrence. They had made it a practice to follow the operation in each case by an immediate, thorough fulguration of every recess of the wound. This procedure was associated with no disadvantage of any kind that they had been able to discover. For a varying time after the operation the site was subjected to intensive *x*-raying. They believed that in this way they had been able to place in the category of curable neoplasms a group of cases which would inevitably have gone on to early recurrence. In addition they had used operative procedures as an adjuvant to other measures, and, finally, they had used it in combination with other modes of attack, as, for example, radium. Thus in a case of very extensive melanosarcoma of the face, both external carotids were ligated, and this procedure was followed by very extensive treatment with radium. The combination of these two measures resulted in the destruction and sloughing of the great mass of the tumor. One margin of the growth, between the internal and external carotids, progressed and eventually led to the death of the patient. The principle, however, was definitely established that vascular starvation was of tremendous importance in heightening the toxic effects of the radium emanations. The physical methods of treatment had been employed as extensively as possible. In connection with many of these procedures they had attempted to establish, by experimental investigations on rat tumors, their mode of action, and the limits of their applicability. It might be said of both the operative and the physical modes of attack that their effectiveness was sharply circumscribed and local in character. It was fair to demand of any rational therapy of cancer that it should be constitutional in character. Of such constitutional procedures there were at the present time only two which seemed to offer any promise or hope, namely, the methods of chemotherapy and immunology. In addition to these they had attempted to develop the metabolic treatment of the disease. They had studied the effects of colloidal solutions of a series of metals, including mercury, arsenic, copper, lead, and solenium upon human cancer. They had concluded that none of these substances were actually toxic to the cancer cell and they had therefore discarded their use. They had also studied the localization of a large series of synthetic dyes in rat tumors. Although it had not been possible to discover any dye possessing a distinctly specific affinity for neoplastic tissue, it was found that certain dyes of the diazo group lodged in larger amount, and remained for much longer periods, in the tumor tissue, than in the normal tissues of the body. Following this lead they were fortunate enough to secure the assistance of the Department of Organic Chemistry of the University at Ithaca, which had put at their disposal a series of compounds of arsenic, formalin, and other substances, with the diazo nucleus. The final report on the effectiveness of these and allied substances had not been made. The use of toxins as elaborated by Coley, was to be regarded as a form of chemotherapy, even though the chemical constitution of the agent was entirely unknown. Closely related to the chemical methods was the attack upon cancer by the alteration of the metabolic environment. There were thus far no cures ascribed to it, but the clinical study of its effectiveness was only in its beginning. The immunological, also called the biological, methods of treatment seemed, in some ways, to offer the most hopeful promise for the future. These were the methods in which experimental investigation had been most fruitful. This method consisted of passive and active immunization. The latter method was credited in the literature with certain apparently indisputable cures. They had made a fairly extensive use of vaccination, not only alone, but in combination with the *x*-ray and other procedures. Although it was too early to form a definite judgment as to the final results, there could be no doubt that vaccination did in many cases produce very marked shrinkage of the tumor, which had, in some instances, gone on to complete disappearance. Only a prolonged study could show whether these successes were only apparent or whether they were real and lasting. By a concentration of all the forces, both of the laboratory and of the clinic, upon the elucidation of the cancer problem, it might be possible to secure some advance in the

cure of the condition, but it was vain to expect early or brilliant triumphs. It is fitting that the work of the memorial Hospital in radium therapy should be discussed somewhat more in detail. Owing to the interest and generosity of Dr. Douglas they had had the advantage of a supply of radium which was adequate to their immediate needs, and which was undergoing constant augmentation. They had felt, however, that the study of radiotherapy could not profitably be conducted along the same general lines as those pursued in the past. It appeared evident that purely clinical studies could not by themselves serve to dispel these difficulties and dangers which had in the past beset the use of this agent. The therapeutic work, therefore, was now carried on in conjunction with the service of a physicist who was attached to the staff, Dr. Bosworth, and already the effectiveness of such a combination was evident in the improvement of their clinical methods. Previously they had labored under the same difficulty which confronted all workers with radium, namely, the limitation of the apparatus and dosage consequent upon the provision of fixed amounts of the element in sealed containers or applicators. The method was of course extremely rigid and inelastic. The installation of an apparatus for the collection of emanations at once dispelled the difficulty. They were now in a position to order in advance any desired amount of radium emanation in a tube of specified size and caliber. Thus at one stroke the limits of its clinical use were enormously enlarged. Time did not permit a detailed analysis of the results of their work with radium. In general its use in superficial epithelioma had been most satisfactory. The effect on malignant tumors of other types were, however, not encouraging. Occasionally they had witnessed the disappearance of solid tumors under its use, as for instance, a mixed tumor of the parotid, but such fortunate results were rare events. Possibly wide experience in the use of the rays and their combination with other agents would enlarge the field of their usefulness.

SECTION ON SURGERY.

Stated Meeting, Held May 1, 1914.

DR. JOHN DOUGLAS, SECRETARY, IN THE CHAIR.

Extirpation of the Parotid Gland for Carcinoma.—Dr. GEORGE H. SEMKEN presented this patient. She was fifty-three years of age, and came under observation on December 18, 1913. Her family and previous personal histories were negative. Six months previously she noted a tumor in the left parotid region. This had increased in size at a moderate rate, but had given rise to no subjective symptoms. Examination revealed a hard, rounded tumor in the posterior parotid region, 4.5 x 5.5 c.m. in size. Its surface was nearly smooth. The ear was elevated in its lower part. The overlying skin was unchanged. The upper cervical lymphatic glands were enlarged. The mass was but slightly movable. There was no facial paralysis. Operation was performed four days after at the German Hospital under general anesthesia by the ether-oil rectal method of Gwathmey. Beginning in front of the left ear, a vertical incision was made, extending down to the anterior border of the sterno-cleido-mastoid muscle, continuing then along this border to the midlaryngeal level. From this point it curved forward and upward, ending in the anterior sub-maxillary region. Two supplemental incisions were made, one proceeding from the upper end of the incision and extending along the zygoma, the second extending horizontally backward, under the ear and across the mastoid region. The skin flaps thus outlined were reflected, and the parotid and upper cervical regions well exposed. The parotid gland, the submaxillary structures and the upper cervical lymphatic structures were removed by block dissection. So far as could be determined, the carcinomatous area was never entered. The recovery was uneventful. An unavoidable, unpleasant sequel was the facial paralysis, consequent upon the division of the seventh nerve. There was also some edema in the cheek, owing to the removal of the cervical lymphatic structures and consequent stasis.

Flap Transplantation for Extensive Cicatrix Deformity of the Hand.—Dr. SEMKEN also presented a girl seventeen years of age, who washed her gloved hands in benzine to clean the gloves, and then, not realizing the hazard, attempted to light the gas. Her hands were severely burned, and it required many months of treatment to heal them. The large loss of skin, the keloidal tendency in most of the scars, and the subcutaneous contractures produced an extensive cicatrix deformity which made it impossible for the patient to resume her occupation as stenographer. The cicatrix of the left hand (which was the subject of this operation) was distributed as follows: A bluish, keloidal cicatrix surrounded the wrist like a bracelet. On the dorsum it extended broadly from the wrist to the bases of the fingers, continuing in long bands down the fingers as far as the nails, most markedly on the middle and ring fingers. The webbing was not injured, and the damage to the distal part of the palm was negligible. Operation was done at the New York Skin and Cancer Hospital. The dorsal part of the cicatrix was removed by careful dissection, from the wrist to the fingers, the first phalangeal segments of the middle and ring fingers being included. The dissection extended laterally from the radial edge of the palm to the ulnar margin of the palm, but involved the dorsum alone. A flap was then outlined on the right lateral chest wall, corresponding to the wound on the dorsum of the hand. The pedicle of the flap was at its lower border. This flap was then raised, temporarily turned down, and the chest wound was closed, partly with sutures and partly with Thiersch skin-grafts. A small dressing was applied to this area. The left hand was then placed upon this dressing, the flap was placed upon the dorsum of the hand and carefully sutured in place. A fixation dressing of plaster-of-paris maintained the position during healing. One week later the second stage of the operation was carried out. At this time the flap had become firmly attached to the hand and was receiving some blood supply from the new site. The further procedure was as follows: The hand was gently supinated to bring the palm into view without tearing the new flap attachment, and a careful dissection was made to remove the palmar-wrist cicatrix. This wound was provisionally covered with saline gauze, and the hand was replaced in the position it had occupied, flat against the chest. By a vertical incision at each end of the pedicle the flap was further outlined and then raised. By lowering the hand and bringing it into full pronation it was possible to roll the wrist and hand into the continuation of the flap, thus adapting the latter to the wound on the palmar surface. As was evident, the pedicle was retained at the lower border. After careful suture of the flap a new fixation dressing of plaster-of-paris was applied. The chest wound had been closed with suture and Thiersch graft. Her recovery was uneventful. The division of the pedicle was begun nine days after the second operation and was completed two days later. The result of the operation was that the scar tissue had been replaced with normal skin and subcutaneous tissue. An adequate blood supply was soon established, and the flap had also received a nearly complete nerve supply. So far as the patient could judge, sensation was as acute in the flap as it was in the uninjured hand. A slight swelling still demonstrated the incomplete lymphatic apparatus.

Supernumerary Ureter Opening Extravesically.—Dr. HENRY DAWSON FURNISS reported this case. The patient was a girl, twenty years of age, whose menstrual history was negative and who had never been pregnant. As long as she could remember she had been wet with urine day and night, and yet voided naturally once or twice a day. The patient was well formed and showed no stigmata of degeneration, nor abnormalities of the genital organs. An examination was made with the idea of finding an abnormally opening ureter, and was conducted as follows: Ten c.c. of 1 10 of one per cent. solution of indigo-carmine was injected intravenously and the patient was then cystoscoped. A normally situated ureter excreting urine in a normal manner was found on either side. The whole urethra and the entire vagina, with the patient in the knee-chest posture, was inspected without discovering the source of the leakage. Still suspecting that the condition was as suspected, the vagina was plugged with wet cotton tampons and wet cotton applicators were placed in the urethra extending just to the vesical sphincter of the urethra, and a pledget of wet cotton over the vestibule of the vagina. After waiting fifteen minutes these were removed, and it was found that the cotton over the urethral orifice was stained faintly blue, while the ones from the urethra and vagina showed no discoloration. Close inspection failed to show the ureter until the patient strained in moving, when there was a discharge of a few drops of fluid from a minute orifice

in the median line just at the lower edge of the urethral opening. From this was obtained in ten minutes a faintly bluish colored fluid of a low specific gravity. The specific gravity was not noted, nor was an estimate of the urea percentage made. It would have been interesting to have had injected all three ureters with collargol to have seen their relations to each other and to the kidney pelves, but this was abstained from as it would have been of no benefit to the patient, and one ran the danger of causing infection, supernumerary ureters being especially susceptible. Operation was performed on June 26, 1913, at the Post-Graduate Hospital. Under ether anesthesia the supernumerary ureter was catherized for four inches with a ureteral catheter. An incision was made over it on the under surface of the urethra, but unfortunately, the incision went into the ureter itself, which was thin walled and dilated to the size of a pencil. This dilatation involved only the distal one inch of the ureter. Thinking the whole ureter would possibly be dilated and that there would be difficulty in dissecting it out, a urinary sound was put through the urethra, which was made to bulge the bladder just over this ureteral sac. An opening between this sac and the bladder was made, and the mucosa of the ureteral sac and the mucosa of the bladder sutured together. Next the floor of the ureteral sac and the external orifice of the ureter were closed with fine catgut, thus producing a fistula between the bladder and the ureteral sac into which the ureter emptied. The vagina was closed over this with sutures of silkworm gut. A retention catheter was put into the bladder and removed on the fourth day, but following the operation the patient had the same leakage as before. The patient was operated on again on July 11. It was found that the leakage occurred from the posterior end of the incision. A pararectal incision was made through the left sulcus of the vagina; a catheter was then passed into the ureter and the ureter was dissected out for an inch and a half. It was surprising how easily this was done and to see how thick the ureter really was, being here the size of a goose's quill. A uterine sound was passed through the urethra and made to bulge the bladder just behind and to the inner side of the normal opening of the left ureter. A small incision was made in the point of the sound which was then pushed into the vagina. A suture was passed through one lip of the ureter, tied to the sound, and in this way the ureter was pulled into the bladder for a distance of three-quarters of an inch. This suture was withdrawn through the urethra and with a needle was anchored just outside the clitoris. One fine suture of plain catgut was passed through a portion of the muscular wall of the ureter and the opening into the bladder, and the vagina closed over this with interrupted sutures of catgut. Following this operation there was not a bit of leakage. Painful urination and a rather severe cystitis followed the operation, but the patient made a good recovery. A subsequent cystoscopic examination showed the ureter implanted as a small, round opening just behind the inner side of the normal ureter.

Total Extirpation of the Tongue for Carcinoma.—Dr. FRANZ TOREK presented this patient and the specimen, which showed the ulcerated part of the carcinoma extending from the left edge of the tongue to the median line, the infiltration having progressed beyond midline. There was extensive involvement of the glands in the submaxillary and cervical regions on both sides. The glands from one mastoid process to the other and down to the clavicles were removed and the lingual arteries tied under general anesthesia. The tongue was extirpated at a later sitting, four weeks ago, under local anesthesia, novain one-half per cent. and suprerenin being employed. The operation was performed without the use of any auxiliary incision either through the cheek or jaw. If the floor of the mouth was not yet involved, or but slightly invaded, the total extirpation of the tongue could be performed through the mouth. A suture was carried through the tongue to serve for making traction. The mucous membrane at the floor of the mouth was divided close to the jaw, then the muscles under the tongue were divided with scissors, beginning with the genioglossus. The division of this muscle liberated the tongue considerably, and when the hypoglossus had been cut on each side the tongue could be drawn forward so far that its ablation close to the hypid bone was not difficult. In cases with extensive involvement of the floor of the mouth it was not advisable to operate without dividing the jaw. There was a distinct advantage in performing the extirpation of the tongue under local anesthesia, the chances of aspiration pneumonia being thereby much reduced. The operation was also facilitated, inasmuch as the suprarenin contained in the local anesthetic, in conjunction with the preliminary ligation of the lingual arteries, rendered the operation practically or entirely bloodless. Local anesthesia might also be employed where the jaw was divided. The patient had no difficulty in swallowing soft and solid food; it was a little more difficult for him to drink water. He was able to speak very distinctly and he gained considerably in weight.

Vicious Circle of the Colon After Cecosigmoidostomy.—Dr. HERMANN FISCHER presented a woman in whom a partial exclusion of the colon had been done by another surgeon for symptoms of chronic partial obstruction of the colon caused by adhesions at the splenic flexure. After the operation all her symptoms were aggravated. She complained of constant pain all over her abdomen, especially along the course of the colon. The rumbling of gas in her intestine was so loud that it could be heard at some distance. This noise was especially annoying and disturbing during the night. The chronic constipation she had been suffering from before the operation became worse, so that she was compelled to resort to daily high enemata, with often very little result. She was exhausted and highly neurasthenic. A series of *x*-ray plates showed the following condition: There was a complete obstruction of the colon at the splenic flexure, no bismuth passing into the descending colon at any time. Some of the bismuth passed through the anastomosis into the sigmoid flexure. The bulk of the bowel contents, however, traveled the old way through the cecum and ascending and transverse colon to the obstruction at the splenic flexure. From there it was pushed back again by an anaperistaltic wave into the cecum. It was clear, therefore, that the bowel was not properly drained by the cecosigmoidostomy and a state of vicious circle had developed. At the operation it was found that the colon at the splenic flexure was twisted around its long axis and held in this position by dense adhesions, which had their origin on the lateral abdominal wall near the spleen. These were cut and removed, after which procedure the gut unfolded itself. The wall of the intestine was normal. Ascending colon and cecum were enormously dilated to the size of a large man's arm, their walls hypertrophic; the cecum was filled with soft feces and was crowded into the pelvis. The base of the cecum was bent upward and the splenic flexure was lying on top of it, making it impossible for the cecum to empty its contents properly through the anastomosis. The dilated cecum and ascending colon were removed up to the hepatic flexure. The opening in the sigmoid flexure was closed and an ileocolostomy done. The patient made an uneventful recovery. She had now a spontaneous movement every day and felt well, aside from some dyspeptic symptoms she had always complained about.

Relaxation of the Diaphragm.—Dr. HERMANN FISCHER made this report. This condition was a very rare one; there were only twenty-three cases reported in the literature. By relaxation of the diaphragm they understood a thinning out and fatty degeneration of the fibers of the muscle and a bulging of the same into the thorax so that the diaphragm reached up to the third or even second rib. This condition had been found so far invariably on the left side, with the exception of one case, in which it was found on the right. The stomach and colon lay before the diaphragm in the thoracic cavity. The etiological factor was not clear. Usually relaxation of the diaphragm was considered to be a congenital condition, but there were cases on record in which the anomaly had been acquired, trauma playing some rôle. This peculiar anomaly had become of surgical interest on account of its difficult differential diagnosis from a diaphragmatic hernia, in which disease surgical interference was sometimes necessary. *X*-ray examination had failed to make a positive diagnosis in these cases, and some had been diagnosed by *x*-ray as diaphragmatic hernias, which later turned out to be a relaxation of the diaphragm, and *vice versa*. The case which he had the opportunity to study in the German Hospital through the kindness of Dr. N. Stadtmueller was of special interest, as it developed during convalescence from a double pneumonia and typhoid fever under their eyes and that it was the first case in which the diagnosis was made by them without a doubt *in vivo*, by a probatory thoracotomy under intratracheal insufflation.

Intrapleural Pneumolysis in Pulmonary Tuberculosis.—Dr. Franz Torek said that it seemed generally to be acknowledged that the pneumothorax treatment of tuberculosis of the lungs was of value in combating the disease, inasmuch as it met the indication of giving the diseased organ more or less functional rest, of permitting the fibrous tissue to contract about the tuberculous foci, encapsulting them, and of causing lung cavities to collapse, discharge their contents, and in some cases to become obliterated. The pneumothorax treatment would not bring about these results under all circumstances, but only in suitable cases. In many cases of pulmonary tuberculosis the adhesions were so extensive that the pleural cavity was practically, if not completely, obliterated. In such cases it was plainly impossible to inject the nitrogen. In other cases, where only a limited portion of the pleural cavity was free from adhesions, the collapse of the lung produced by the injection of the nitrogen would be too slight to be of much, if any, value. In many cases, again, the *x*-ray revealed the fact that while the lower part of the lung collapsed to a slight or fair degree the upper portion remained entirely uninfluenced. In these cases the operation of extensive removal of the ribs on the affected side, from the first or second to the tenth or eleventh, according to Friedrich and others, had been practised, the object being to cause the entire chest wall to collapse with the lung. The trouble with this procedure was that patients who were in a condition to be aided by pneumothorax were unable to stand such an extensive operation. The deaths after this operation occurred either primarily as a result of shock, or, secondarily, as a result of the instability of the mediastinum. The problem had presented itself to the writer whether the collapse of the diseased lung could be accomplished by an operation which would not only be simpler than that referred to above but would also preserve the bony frame of the chest. The solution appeared to him to be found in the intrathoracic separation of the adhesions between the visceral and the parietal pleura, interpleural pneumoclysis, as he had termed it. Tuffier, in resecting the apex, separated that portion of the parietal pleura which covered the apex from the chest wall, but left the parietal pleura attached to the visceral pleura. Baer liberated the costal pleura over the apex in a similar manner, without, however, resecting the apex. This method of operation was followed: Anesthesia was conducted by intratracheal insufflation or other methods of differential pressure to guard against the possible occurrence of respiratory accidents. An incision of ample dimensions, about six inches, was made in the sixth or seventh intercostal space, at the posterolateral aspect of the chest, down to the pleura, and after all hemorrhage had been stopped the pleura was opened. The patient was now placed with the head low, so that if in the course of the manipulations of the lung the contents of a cavity were expressed they might run into the mouth and not into the opposite lung. The adhesions between the two layers of pleura were then separated. This was accomplished by introducing at first only the tip of the finger to separate the adhesions in the immediate vicinity of the incision, the ribs being held apart by retractors. The separation then proceeded further and further, until finally the whole hand was introduced into the chest in order to liberate the more distant parts of the lung. In the course of this procedure bands of adhesions might be encountered that were so dense as to require division with the scissors. When the separation of the adhesions had been completed the lung would collapse as much as the degree of its infiltration would permit; it was allowed to remain in this state of collapse, and was not inflated before closing the thorax. The pleural cavity was closed without drainage. The two ribs which had been spread apart were brought into apposition by pericostal sutures of silk or chromicized catgut, the muscles were sutured with catgut, and the skin with silkworm gut. Following this operation there was none of the pain that was often experienced in the ordinary pneumothorax treatment after the injection of nitrogen. After this operation no tugging on the pleura could take place. Subsequent treatment was similar to that given in the ordinary pneumothorax method. Physical examination, especially with the *x*-ray, must determine to what extent reabsorption had taken place and whether it was time to make an injection of nitrogen. The following accident might occur: if a cavity of the lung extended well to the pleura the wall of this cavity might be injured during the process of separating adhesions. In that case the inspired air would gain access to the pleural cavity through the lung. If, then, owing to the valvelike action of the tear in the wall of the lung cavity, this air was prevented from returning through the bronchus as easily as it had entered, the pleural cavity would continue to fill with air until the intrapleural pressure forced it out between the two ribs that had been separated. In consequence a subcutaneous emphysema would result, the closure of the skin as a rule preventing the air from passing out. The probability also existed that the pleura would be infected from the lung cavity. It was evident that one should avoid this by proceeding with particular caution when separating the adhesions over the lung cavity, the site of which had been accurately located in advance. If one had reason to believe during the separation of the adhesions that the cavity had been perforated it should be sought by inflation and repaired. The writer said he had performed this operation on but one case, and reported it in order that those who had suitable clinical material at their disposal might make further study of the procedure. From the case reported the writer concluded that the operation itself was well borne by a very weak patient, declared by the visiting physicians in the hospital to be an absolutely hopeless case and near death. Secondly, there was the marked diminution of cough after the third day; thirdly, the drop to normal range of the temperature after the third week, and, fourthly, the disappearance of the cavity by *x*-ray picture, not to speak of the subjective improvement. Finally, the operation was easy of performance, the only point of importance in the technique being the avoidance of injuring the cavity. This operation was indicated in cases in which ordinary pneumothorax would be indicated and in cases of bronchiectasis.

Dr. Willy Meyer said that every contribution to the new field of thoracic surgery must be welcome. He therefore had listened with interest to Dr. Torek's remarks. He stated that within the last year pulmonary tuberculosis had clearly become a borderline disease. Cases, particularly those with cavity formation in the upper lobes of the lung, which latter was totally adherent to the chest wall, so that nitrogen insufflation had no effect upon the trouble and which no longer yielded to medical and hygienic treatment, were now referred to the surgeon. Otherwise utterly lost these patients could frequently be greatly improved or cured by operative collapse therapy. This could be done from without, above, or below. Thoroplasty, apicolysis, and unilaterally paralyzing the diaphragm by means of phrenectomy represented the means of attack. All these operations were done extrapleurally. The recently published statistics of Sauerbruch of Zürich, who it seemed had had the greatest number of operations for pulmonary tuberculosis, were extremely encouraging. In more than 100 cases he only had three deaths that could be attributed to the operation. The majority were cured and a great number much improved. The operation most frequently performed was multiple rib resection done under local and regionary anesthesia (thoracoplasty), which was often combined with pneumolysis and the introduction of a paraffin plomb, of late also with artificial paralyzing of one-half of the diaphragm. *X*-ray pictures after phrenicotomy showed that a paralyzed diaphragm rose up to the second or third rib, in this way greatly assisting in compressing the diseased lung. Dr. Meyer personally was in favor of working extrapleurally in these cases. So far he had done the operation only once, following Tuffier's plan of loosening the apex of the lung after resection of the second rib, and carefully making his way into the space between the costal pleura and the endothoracic fascia. The operation could be nicely done under local and regional anesthesia. It had been his intention to close the wound without the insertion of a plomb. However, a venous hemorrhage set in almost toward the end of the operation, most likely from the internal mammary vein or one of its branches, and gauze tamponade became necessary. Four days later a paraffin plomb was introduced, but had to be removed after four days on account of rising temperature. In the further course of the after-treatment a perforation of the pulmonary plus costal pleura occurred, evidently due to an involvement of the pleura in the tuberculous process. The patient, who had been brought on from a sanatorium by his physician, was asked to stay for further treatment, but decided to return to the sanatorium. As far as he could judge he thought there was still more tendency to perforation when the work was done within the pleura and entering the space between the pulmonary pleura of

the lobe which harbored the abscess cavity, and the costal pleura. In many instances these cavities were close to the surface; in many also the pleural cover was involved in the process. Manual perforation would be the threatening complication, no matter how gently separation had been done. An acute tuberculous pyopneumothorax would be the consequence, an extremely grave complication, and an occurrence which also happened in Dr. Torek's case. Dr. Meyer said that if he were to express an opinion at the present moment he would say that according to experience thus far gained extrapleural pneumolysis was less dangerous and therefore preferable to the intrapleural route.

A Case of Cervical Rib with Operation; Report of Five Other Cases.—Dr. HENRY LOWNDES LYNAH and Dr. LEON T. LEWALD presented this specimen, related the history of the case, and exhibited lantern slides of five other cases. Dr. LeWald stated that the specimen had been removed from a woman thirty years of age, who had suffered with cough, spasmodic dyspnea, and loss of voice. The patient was fairly well nourished and the family history was negative as regards tuberculosis or malignant disease. She had had all the diseases of childhood, with the exception of scarlet fever. The cough had been troublesome off and on for a period of about four years and was always aggravated by damp weather. There was no expectoration. The voice was lost at times for a few hours and at other times for ten or twelve days. The most prominent symptom was headache referred to the left side, from which the patient had suffered for about ten years. These headaches had been treated by many remedies, but with little relief. For the past four years the patient had observed loss of power in the left hand and arm and there were constant twinges of pain in the arm. A physical examination failed to reveal any abnormality of the antrum, nose, or pharynx. There were no lingual tonsils. The ventricular bands were normal; the vocal cords were slightly reddened; the arytenoid cartilages were not infiltrated. The left arytenoid did not pull as far apart as the right in abduction. There was no sign of dyspnœa. There was no enlargement of the thyroid, but there was an enlargement of the left supraclavicular fossa, which was firm to pressure and on deep palpation gave considerable pain. There was no tumor projection on the right side. There was no apparent atrophy of the muscles, but the patient's symptoms were undoubtedly due to pressure. A radiograph was taken, which showed that the patient had cervical ribs on both sides of the spine—the right a floating rib with no pressure symptoms, and the left firmly attached. An operation was performed on March 27, 1913. A vertical incision three inches in length was made behind the sternomastoid muscles, and blunt dissection down to the most prominent portion of the rib and then followed toward the spinal column. The great vessels and veins were protected as well as possible and were drawn aside by gentle traction. When the rib was denuded almost to its spine it was divided by a small pair of bone forceps. The rib was raised and dissected from its lower attachment and gently raised so that leverage made the dissection a bit easier. The dissection was carried down to the clavicular end, great care being taken to pull the great vessels out of the way. The articular surface was found to be on the second rib, the cervical rib being the first. This attachment was removed with great care, but the pleura was opened at this site. The rough edges remaining at the spinal attachment were removed with vonger forceps, and the wound closed, except at the lower angle, to allow for drainage. The patient had been free from headache since she came out of the anesthetic and had had no recurrence. Some paralysis followed in the ulnar and musculospiral nerves. These were troublesome, but after three months' treatment with Faradic and high-frequency currents there were no signs of trouble. The cough and husky voice had disappeared. As the patient was a resident of Kentucky it was impossible to present her, but Dr. LeWald said he had seen her five months ago and she was in perfect condition and had the free use of her hand. At times especially in changeable weather, she suffered from some pain in her shoulder. The muscular power of the left hand was as strong as that of the right. Keen and others who had operated on this condition knew that it was a most difficult task, but in certain cases the operation must be performed and the rib removed for the relief of pressure symptoms. Dr. LeWald had studied five other cases from the roentgenological standpoint. He had found that in the majority of cases there were only eleven other ribs. This suggested that the malformation was rather an abnormal development of the thoracic ribs without the addition of an extra rib. In the cases showing twelve ribs, in addition to the cervical one, the twelve ribs were rudimentary. The importance of this finding should be taken into consideration in operating on these cases, for the reflection of the pleura might be close to the cervical rib and injured in the removal of the rib unless extreme care be taken.

Demonstration of X-Ray Plates.—Dr. FISCHER said he would not go into details about the different radiological points that had been mentioned as of importance to distinguish a relaxation of the diaphragm from a diaphragmatic hernia. They were all more or less fallacious in a given case. In studying, however, all the available *x*-ray plates of hernia and relaxation he had come to the conclusion that the presence of an outspoken dextrocardia almost with certainty points to a relaxation of the diaphragm. A complete dextrocardia was never found in hernia of the diaphragm. It seemed to him, therefore, that a dextrocardia was the most important and the most easily demonstrated differential diagnostic point, between the two diseases.

Diaphragmatic Hernia Into the Right Thoracic Cavity.—Dr. M. S. KAKELS and Dr. SEYMOUR BASCH presented this specimen. They stated that true congenital diaphragmatic hernia of the stomach in an adult was comparatively rare, and a diaphragmatic hernia of the stomach in an adult into the right thoracic cavity was very unusual. So far as they had been able to ascertain they believed this specimen to be unique. That it was a true hernia was evidenced from the fact that the hernia had a distinct sac made up of peritoneum and parietal pleura. There were certain regions of the diaphragm where hernia was more apt to occur than at others. These were Larry's space or foramen Morgani, the foramen Bochdaleki, the opening through which the sympathetic nerve passed, and sometimes at the hiatus esophagus. Some of these areas between the muscular portions of the diaphragm were filled in only with areolar tissue and covered only by peritoneum and pleura so that at these gaps the abdominal and thoracic cavities were only separated by a thin layer of connective tissue. Embryologically, the posterior portion was the last to form and in this fact was probably to be found an explanation why congenital diaphragmatic herniæ were more usually found in the posterior half of the diaphragm between the *pars vertebralis* and the *pars costalis*. The specimen which was shown was at this site. The patient was referred to the speaker by Dr. Basch for an exploratory laparotomy for peculiar gastric disturbances.

The patient was 54 years of age. His family history was negative and he had led a regular life avoiding strains on account of an inguinal hernia. Two years ago he experienced pain across the upper abdomen which gradually increased in severity. There was no nausea, vomiting or dyspnea. The pain became aggravated, his hands were cold and face was drawn. A physician was called who administered a hypodermic of morphine which relieved his symptoms. The following day he remained in bed and another physician found his abdomen much distended. He resumed business on the following day. For four or five weeks he occasionally experienced these sharp pains across the epigastrium. About the beginning of December, 1913, he had a similar but milder attack. He continued to have these attacks, beginning late in the afternoon, and getting more severe. They were relieved only by repeated forced vomiting, at first only a little phlegm, but later amounts of sour-tasting and yellowish fluid sometimes as much as two quarts, but never containing any food. These attacks had occurred at first about every two months, but for the past two or three months about once a week. He had lost 35 pounds, and strength was much diminished. On February 26, 1914, an exploratory operation was performed. A greatly distended transverse colon was found covered with enlarged vessels and occupying the region of the stomach. On pulling this out of the way, the gastrocolic omentum was pulled down and the pyloric end of the stomach was all that was seen emerging from an opening high up in the diaphragm on the left side, behind the liver near the left crus, between the *pars vertebralis* and *pars costalis*. The rest of the stomach with the whole of the great omentum was in the thoracic cavity outside of and behind the pericardium. After withdrawing the omentum and the enormously enlarged stomach, the hand was introduced into the opening which was found

to extend upward and inward into the right thoracic cavity through the posterior mediastinum. The heart could be distinctly felt in front of the cavity. The stomach resembled the hour-glass stomach and had to be pulled from the thorax with considerable force and when released receded to its abnormal position. The reduction of the hernia because of the negative pressure above the diaphragm, was unsuccessful. The dome of the diaphragm was so high that no attempt at suturing the stomach to the margins of the opening was made; furthermore the condition of the patient did not permit of extensive operative procedures, such as resection of the ribs and approaching the hernia from the thoracic side. The abdomen was closed. The radical cure of this large hernia seemed hopeless. The patient died thirty-six hours later. At autopsy no pleurisy, pneumonia or peritonitis was found. The sac containing the stomach and the great omentum was found in the right thoracic cavity reaching as high as the second rib. The hernial sac was made up of the peritoneum lining the under surface of the liver, and the parietal pleura of the thoracic cavity. It seemed that the hernia was produced gradually by the stomach forcing its way through a weak place in the diaphragm. There was no history of severe trauma in which the existence of rupture of the diaphragm could be suspected. The history and symptoms were those of indefinite gastric complaints without dyspnea, rather unusual in the face of such a grave condition.

Books Received.

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PSYCHOPATHOLOGY OF EVERY DAY LIFE. By Drs. FREUD and BRILL. Cloth; published by The Macmillan Company; price, $3.50 net; 338 pages.

FEEBLE-MINDEDNESS. By Dr. HENRY HERBERT GODDARD. Cloth; illustrated; published by The Macmillan Company; price, $4.00 net; 590 pages.

TWENTY-FIFTH REPORT OF THE SUPERINTENDENT OF THE JOHNS HOPKINS HOSPITAL. Paper; illustrated; 140 pages; published by the Johns Hopkins Press.

DISEASES OF THROAT, NOSE, AND EARS. By W. L. BALLENGER, M.D. Cloth; illustrated; fourth edition; 1,080 pages; published by Lea & Febiger.

MENTAL DISEASE AND DEFECT IN THE UNITED STATES TROOPS. By Capt. EDGAR KING. Paper; 204 pages; Washington Printing Office.

BLOOD PRESSURE: ITS CLINICAL APPLICATION. By G. W. NORRIS, M.D. Cloth; illustrated; 372 pages; published by Lea & Febiger.

RECREATIONS OF A PHYSICIAN. By A. S. M. CHISHOLM, M.D. Cloth; 328 pages; published by G. P. Putnam's Sons; $2.00 net.

FOOD IN HEALTH AND DISEASE. By WILLIAM TIBBLES, M.D. Cloth; 628 pages; published by Lea & Febiger.

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CHEMISTRY FOR NURSES. By REUBEN OTTENBERG, M.D. Cloth; 141 pages; price $1.00. Published by the Macmillan Co.

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DISEASES OF THE NOSE AND THROAT. By WRIGHT & SMITH, M.D. Cloth; illustrated; 683 pages. Published by Lea & Febiger.

MANUAL OF OBSTETRICS. By EDWARD P. DAVIS, M.D. Cloth; illustrated; 463 pages; price $2.25 net. Published by W. B. Saunders & Co.

A MANUAL OF NORMAL HISTOLOGY AND ORGANOGRAPHY. By CHAS. HILL, M.D. Cloth; illustrated; third edition; 483 pages; price $2.25 net. Published by W. B. Saunders Co.

DISEASES OF THE SKIN. By Dr. KNOWLES. Cloth; illustrated; 546 pages. Published by Lea & Febiger.

THIRTY-SEVENTH REPORT OF THE STATE BOARD OF HEALTH OF NEW JERSEY. Cloth; 831 pages.

Therapeutic Hints.

Prescriptions for Skin Diseases of Children.—Goodhart and Still use the following as routine formulæ for ointments in the treatment of cutaneous diseases in children:

For eczema:

℞ Resorcin, gr. xxxv
Zinc oxide, gr. xxxv
Subnitrate of bismuth, gr. xxxv
Birch tar, gr. xxxv
White wax, gr. lxxx
Soft paraffin, ℥ss
Hydrous wool fat, ℥ss

For ringworm:

℞ Ammoniated mercury, gr. vj
Red oxide of mercury, gr. vj
Essential oil of almonds, ♏ij
Benzoinated lard, ℥j

For scabies:

℞ Sulphur, ℥ss
Ammoniated mercury, gr. iv
Creosote, ♏iv
Oil of chamomile, ♏x
Lard, ℥j

—"Diseases of Children."

The Phenol-Serum Treatment of Pyogenic Processes.—O. Geiger cites the pioneer labors along this line of A. Lorey and B. Küstner. His material consisted of three cases of inflammation and abscess formation of the parametrium, one case of peritoneal abscess, one case of abscess of the abdominal wall, and one case of infected superficial wound. The technique of the treatment was as follows: Three hundred cubic centimeters of serum obtained from one liter of fresh horse's blood was diluted ten times with physiological salt solution and then admixed with phenol to the extent of .5 per cent. of the latter. The phenol-serum mixture was applied locally in the different cases, abscess cavities after evacuation being filled with the serum, or packed with tampons saturated with the latter. The results were invariably a rapid demarcation of the necrotic tissues and a prompt cleaning of the infected region, such changes as have not been observed by the author following as quickly any other method of treatment in similar cases. The explanation of the happy result of this method is a biochemical one. The albuminous substances in the serum in loose combination with the phenol, by virtue of the greater dissolving action on the lipoids thus exerted by this combination inhibits the development of the infecting bacteria, while at the same time no deleterious influence is exerted upon the tissues of the wound or infected region.—*Beiträge zur Klinik der Infektionskrankheiten und zur Immunitätsforschung.*

Serum Treatment of Vomiting of Pregnancy.—T. Spies has essayed this method of treatment with great success in one case of severe vomiting of pregnancy. Le Lorier in 1911 was the first to report the happy effects following the use of horse serum in the incoercible vomiting of pregnancy. In the same year Freud had recommended the use of horse serum in the treatment of the dermatoses, and Mayer had demonstrated the advantage of the use of blood serum obtained from a pregnant woman in the treatment of persistent vomiting in another pregnant woman. Spies injected into his patient two doses of 10 c.c. each of horse serum, at an interval of three days. The vomiting was fully controlled after the second injection.—*La Clinique.*

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Original Articles.

THE MEANS BY WHICH INFECTIOUS DISEASES ARE TRANSMITTED AND DISINFECTION.

BY ALVAH H. DOTY, M.D.,
NEW YORK.

No subject relating to the prevention of infectious disease has been more generally or more vigorously discussed than Disinfection. This is largely due to the fact that a wide diversity of opinion exists concerning this form of protection, for theoretical conclusions have been so confused with the data presented by practical sanitarians that it is difficult for those not personally familiar with this subject to decide under what conditions germicidal agents should be employed as a preventive measure.

In order to obtain a clearer understanding of this subject we must consider not only the various means which have been employed from very early times to the present day in guarding against infectious diseases, but also the theories concerning the manner in which they are transmitted.

Although the term "disinfection" does not appear in connection with the descriptions of the early protective measures, the latter were nevertheless used for the same purpose, *i.e.* to destroy media of infection. During this period there was but little done in the treatment of articles believed to be contaminated which was not farcical or useless; such as incantations, sprinkling presumably dangerous articles or material with the juice of herbs, the burning of so-called magic powders as well as other substances, the offensive ones being regarded as the most potent for this purpose. The burning of sulphur as a protective measure became very popular and may be regarded as the connecting link between the past and the present so far as disinfection is concerned, for it has many advocates at the present time.

The early theories regarding media of infection were naturally founded on the scantiest reliable knowledge, but such as it was it gradually crystallized into what is now known as the "fomites" theory, which holds that infectious diseases are transmitted by various articles or material capable of conveying some active form of infection from one person to another. It will thus be seen that this belief was dominant long before any scientific or definite information was available; therefore it was born in ignorance and I may add has thrived upon it ever since.

The publication of the researches of Pasteur and Koch about 1880 was followed by the most energetic and exhaustive bacteriological investigation throughout the world and one pathogenic organism after another was identified, and it was only needed to determine some way by which these germs could be readily transmitted to satisfactorily explain the sources of infection. The fomites theory, although somewhat aged and worn, was prepared to assume this responsibility, and it was accepted without reserve, for there were but few articles which were not regarded as capable of transmitting infectious diseases from one person to another. The extent to which this was carried is probably known only to those who worked in the field—it is sufficient to say that it reached a point beyond all reason; even iron rails were disinfected to prevent the transmission of yellow fever. Gradually practical sanitarians were able to overcome this rather hysterical condition and a more rational era was established and the true means by which infectious diseases are transmitted were carefully sought for. The result has fully equaled the expectations of those who have been personally and practically interested in this investigation, for we are now in possession of indisputable evidence that many of our former theories regarding sources of infection are erroneous; at least sufficient knowledge in this direction has been secured to justify a most careful consideration of this subject with the view of making such changes as are necessary in our methods of protection against infectious disease.

In the consideration of this matter it is very important that we should carefully analyze the proof for and against the fomites theory, for it is chiefly upon the result of this that we must decide as to the extent to which disinfection is required.

I believe the most important testimony in connection with this subject is the personal experience of practical sanitarians rather than theoretical deductions. I can say very frankly that at first I believed with others that there was sufficient reliable evidence to support the fomites theory, but as my knowledge of infectious diseases has extended, proof of the fallacy of this theory has steadily increased. I am quite sure that this conclusion is shared by others who have had long practical experience in this direction.

It may very properly be asked on what grounds have I based by conclusions; my answer is, my own personal experience, the personal experience of others, and a careful and extended investigation of the subject. In this article I shall refer largely to evidence obtained in connection with my personal experience.

As clothing, rags, and money are regarded as among the most common media of infection, I will refer separately to some instances in connection with the investigation of these articles, the results of which are in harmony with many other researches in this direction.

As an illustration I may say that I witnessed in some of the great storehouses in Alexandria, Egypt, many women and children seated at the base of immense piles of rags which they were sorting over and separating for various commercial purposes. These rags which were really the cast

off clothing of the natives, came largely from the interior of the country where some form of infectious disease almost always exists, yet among the carefully prepared statistics of the British sanitary officers in charge I was unable to find the least evidence that these employees contracted disease through the medium of the rags they were constantly handling; this evidence tallied in every way with results obtained by a similar investigation previously made in this city, at which time rag sorting was a very active and somewhat important business, the work being carried out in close and badly ventilated cellars, yet no reasonable evidence could be obtained, although carefully sought for, that rags constitute a source of infection.

About this same period there existed in New York City many second hand clothing stores which were practically unmolested by the Department of Health. These stores usually occupied the front part of the ground floor of various buildings, the rear being used as living apartments by the proprietor and his family. Second hand clothing of every description, generally of the poorest quality and in the condition in which it was obtained from the owner, and without disinfection, was offered for sale. The members of the proprietor's family, both adults and children, were in the store a greater part of the time, yet a painstaking investigation covering a long period failed to reveal any evidence that infectious diseases were transmitted in this way.

Neither have I been able to obtain proof that bank tellers, cashiers of stores, restaurants, or other places where money is being constantly handled, contract infectious diseases through this source, although it is believed to be a most frequent means of infection. The most convincing proof which came under my observation relates to that part of the work of the Treasury Department at Washington which at the time of my investigation, ten or twelve years ago, dealt with the constant handling of an enormous amount of old and filthy money prior to destruction; even under these extreme conditions no proof existed that diseases are transmitted by this article, yet the statement that a bank clerk, cashier of a store or restaurant, or some one who is constantly handling money has contracted an infectious disease is sufficient evidence to satisfy a community as to the source of infection.

Curiously enough it is seldom considered that those who are constantly handling money or rags or other articles believed to be common media of infection, are fully as liable to contract infectious diseases in the same way that others do, for they visit, ride in public conveyances and attend public assemblages, therefore the fact that they sometimes have infectious disease is neither scientific nor reasonable evidence that infection is transmitted by the articles referred to. The only proper and logical proof of this would be the presentation of evidence that those who constantly handle money, rags, etc., are *more frequently* infected than those engaged in other work. No such proof has been presented nor will it be presented.

During the Spanish-American war it was believed that soldiers returning from Cuba transmitted the infection of yellow fever through the medium of their clothing, and instances were cited where these articles were responsible for various outbreaks of this disease, yet two or three years afterwards the medical commission appointed by the United States Government under the direction of Dr. Walter Reed presented conclusive evidence that yellow fever is transmitted only by the mosquito, and that clothing or other articles take no part in the transmission of infection.

Of all diseases typhus fever has been regarded as probably the most commonly transmitted by fomites; this is so stated in almost all of the text books. An unusual opportunity was presented to investigate the truth of this during the outbreak of this disease in New York City during 1892-3, at which period over seven hundred cases were discovered. These were dealt with by a large number of Department of Health officials who were daily in close proximity to the patients. These men were required to wear no gowns and went freely to and from their homes and the patients, yet in no instance did they transmit infection to their families or friends or so far as it could be ascertained, to anyone else. This is now easily explained for we have learned that typhus fever is not transmitted by fomites, but by the body louse, and furthermore these insects prefer not to leave those who are unclean, for during the outbreak referred to only two or three of the seven hundred cases occurred in the better walks of life, a very large percentage being traced to the cheap lodging houses in the Bowery. It may also be stated that the Department of Health officials referred to, who for years had been dealing with various forms of infectious disease, knew of no instances where there was reason to believe they had transmitted infection to their families or others, although they wore no gowns in their daily official examinations throughout the city.

It has also been shown that fomites do not transmit plague, although this disease was formerly believed to be conveyed from one person to another in this way, for instance through the medium of infected rugs and other material brought from the East, largely by caravans and other means of transportation. I visited Russia some years ago during an outbreak of plague, and found that fomites were regarded as a common source of infection and largely responsible for the frequent outbreaks that occurred in that country. Now it is generally accepted that this disease is transmitted by the flea which infests the rat and also by the infected discharges of those who are suffering from this malady, and not by clothing or other things.

It is true that so far as measles, scarlet fever, diphtheria, smallpox, and chickenpox are concerned no such definite proof exists as to the fallacy of the fomites theory as has been presented in connection with the group of diseases just discussed, yet there are the best reasons to believe that these diseases are also not transmitted by fomites. Evidence of this has come to us from various reliable sources; for instance, it has many times been shown that where outbreaks of these diseases have occurred and have been attributed to infected clothing, etc., they were really due to mild ambulant or unrecognized cases or carriers, which constitute the most dangerous media of infection, for unnoticed and uncared for they are constantly transmitting disease.

Further proof that they are not transmitted by clothing, money, rags, etc., is found in the report of the various School Corps which in recent years have been organized by the Departments of Health in many large cities. These corps are composed of medical inspectors who daily, or at short intervals, examine public school children. Their reports are

extremely interesting, for they clearly show that the increased number of cases of measles, scarlet fever, and diphtheria found among children at the beginning of the school year is not as it was formerly believed, due largely to the infected clothing of children in whose home some form of infectious disease existed, but rather to the presence of actual cases in the school, although in a mild or unrecognized form. These reports have very well demonstrated that what are supposed to be common colds are often found to be mild cases of measles, and apparently an ordinary case of sore throat is often found to be scarlet fever or diphtheria in a mild form. It is fair to assume that under former conditions these cases would not have been recognized.

So far as smallpox is concerned, I may say that each year of my experience with this disease has furnished additional proof that it is not transmitted by fomites.

Reference may be made at this point to the alleged danger of the "desquamation" of measles and scarlet fever as a medium of infection. While this theory is very generally accepted, I believe there is no real scientific or definite evidence that infection is ever transmitted in this way, furthermore the alleged proof of this comes to us largely from the laity, and the busy practitioner has but little time to carefully inquire into the veracity of these stories. I have investigated many of them and have yet to find any reliable evidence that measles and scarlet fever are transmitted through this source, although the theory furnishes a plausible explanation for outbreaks of these diseases, the true origin of which is unknown. I believe that measles and scarlet fever are not only not transmitted by desquamation, but that this belief has been responsible for the extension of these diseases, for children are often released from quarantine at the termination of desquamation, yet with active discharges from the infected membranes. *It is the latter which constitute the true media of infection.*

The aerial theory of infection has also led to many extravagant statements concerning the transmission of infectious disease through the air pertaining largely to the distances which infection may be conveyed in this way, even to the extent of a mile or more; notwithstanding much theoretical evidence to the contrary, I am quite sure there is no practical or scientific proof to support this belief. I have no respect for the theory beyond the fact that infection takes place through the air in close proximity to the patient; besides it is one of the theories which are constantly distracting our attention from the true sources of infection.

It is exceedingly difficult for those who have not had long practical experience with infectious diseases nor have carefully investigated the origin of outbreaks as well as secondary cases, to abandon the fomites, aerial, and desquamation theories, which have so long performed their purpose, for they are plausible and apparently so clearly explain outbreaks of infectious diseases, particularly in isolated places where apparently there are no other possible means of infection, that it seems foolish to look for any further explanation. I am quite sure that those who argue this way have not been impressed by actual experience with the frequency with which mild and unrecognized cases and carriers occur—the ordinary investigation usually stops short of securing satisfactory evidence to this effect.

I believe there is nothing connected with this subject which is so important and which so clearly indicates the great strides which have been made in the protection of the public health against infectious diseases, as the conviction on the part of health officials that success in dealing with outbreaks of these diseases depends chiefly upon exhaustive investigation to ascertain the real cause by which they are transmitted from one person to another.

It is very easy and convenient to accept the belief that germs in their active state are present in the apartment of those sick with infectious disease, and ready at any moment to seize upon a victim, and that protection against this condition is secured chiefly by what is known as terminal disinfection, which refers to the use of germicidal agents in the apartment upon the termination of the case.

It is possible that pathogenic organisms may be found in the sick room and elsewhere; however these are much less in number than it is commonly believed; besides being removed from proper media they are disabled, and in this condition of little danger and can be effectively dealt with by fresh air, sunlight, and cleanliness; besides it is very important to remember that modern sanitation does not guarantee complete safety particularly in connection with preventive measures and attempts to secure this by undue consideration of improbable media of infection often defeats the end in view.

The public is constantly harassed by the fear that infection lurks everywhere, in public conveyances, public assemblages, clothing, money, rags, books, carstraps, etc., and that diseases are commonly conveyed by these means. This is not true except possibly in some rare or unusual instance, and if disease is transmitted in a public conveyance or assemblage it is through the medium of some infected person present and not from the interior of these places or their equipment. For instance we may be in close proximity to a case of smallpox and in this way contract the disease, but I do not believe we will transmit it to our family or others through the medium of our clothing as it is commonly supposed.

The public should know that diseases are transmitted by persons and not things. Such teaching not only does not encourage carelessness but adds greatly to the protection of the public, for it emphasizes the importance of securing prompt medical attention when illness occurs in order that infectious disease may be quickly identified and the necessary precautions taken to prevent its extension.

There is probably nothing more impractical or unjustifiable than an attempt to disinfect money; in the first place there is no necessity for this action and if it were required it could not be effectively or practically carried out. Money is distributed everywhere and it may very pertinently be asked, where and by whom would it be disinfected, what method or treatment would be employed and how often would it be required? The latter is an important consideration; for money after disinfection would be returned at once to the general circulation and the collection of germs would begin again. Furthermore, the germs found on money, with but few exceptions, are harmless ones.

There is an occasional revival of the scare re-

garding the danger of transmitting disease by books; this is also without justification; besides it is very unfortunate for it is a source of considerable worry to those whose chief pleasure consists in reading and who may for a large part of the time be found in public libraries. Practically infection is not transmitted by books although the latter are not infrequently claimed as a source of infection to explain outbreaks of infectious disease the origin of which is not known or has not been carefully investigated. As with money, books could be effectively treated only with steam, notwithstanding statements to the contrary, and this agent would be sure to injure or destroy them, particularly those which are bound with stiff covers. Those who suggest this unnecessary procedure have but little conception as to what it would involve if it were logically carried out, for as books in public libraries are undoubtedly oftentimes read by those having mild and unrecognized cases of infectious diseases it would follow that if there was real danger from this source, books in all public libraries would require some form of treatment. It would be well for those who advocate action in this direction to consider, for instance, the approximate time and labor which would be required in the disinfection of books in the great public libraries of New York, and then to bear in mind that the same theory which calls for the disinfection of books would also call for their redisinfection for germs would, presumably, accumulate as soon as the books were replaced upon the shelves for general distribution.

A large amount of literature has been presented regarding the danger of contracting disease in cars, particularly sleepers, and much money is constantly being spent for the disinfection of these vehicles, yet but little is written or said regarding the danger of possible infection in theaters and other public assembling places where the ventilation is rarely good and where the sunlight never enters and but little attempt is made to properly remove the accumulation of dirt and decomposed matter which is constantly collecting in these places. On the other hand, it is almost impossible to prevent the frequent entrance of fresh air into cars; besides they are flooded with sunlight.

If cars are frequently and thoroughly cleaned with soap and water, for there is nothing else which so effectively removes dirt and greasy matter, and special attention is given the toilets and the drinking water supply, and individual cups are provided, and if the linen used in sleeping car berths is removed each morning and boiled as promptly as possible upon reaching a central station, and fresh linen is used whenever a berth is made up, nothing further is called for so far as complying with reasonable and practical sanitary measures is concerned.

Frequent allusion is made to the alleged danger of the blankets used in the make up of the sleeping car berths; there is no objection to the occasional disinfection of these articles, but why should they be singled out for special treatment in this direction when practically no attention is given to the supervision of bed and bedroom equipment of other public places where many of the rooms have little or no ventilation or sunlight, with questionable bed equipment, these are probably oftener occupied by tuberculous cases than sleeping cars are and less care is observed in expectorating about the place.

It is true that the present method of admitting air into the individual sleeping car berths is primitive and unsatisfactory but while it is unpleasant and a great discomfort, it does not really affect a person's health, for nature is very tolerant of these transient conditions. I do not digress from the subject of this article to speak at length of car sanitation in extenuation of what may be uncomfortable in the arrangements of these vehicles, but there are so many really bad and unsanitary permanent conditions to which the public is subjected, it seems only proper that we should bend our energies towards relieving these rather than to give undue time and attention to matters which involve personal discomfort rather than impairment of health.

The value of strict cleanliness refers equally to the school house and the workshop, and if this is faithfully carried out there is, under ordinary conditions, no need for disinfection.

I do not believe that any reliable proof has ever been produced to show that baggage or cargoes of vessels transmit infection, yet commerce and shipping throughout the world are being constantly annoyed and subjected to great expense and delay by regulations relating largely to disinfection enforced for the purpose of protecting against fomites.

There is no one practically familiar with this subject who does not consider that in some unusual or rare instances infection may be transmitted by clothing, money, or some other article, but this is so uncommon that it is a negligible factor, and we need not attempt to deal with it, but should turn our attention to the common media of infection which will fully occupy our time and which if properly dealt with will surely lead to successful results in the protection of the public health.

Granting, for the sake of argument, that diseases are transmitted by fomites and that there is danger in the apartment where a case of infectious disease has been cared for, then there is good reason to believe that the methods of disinfection hitherto employed have been of little or no value as means of protection.

After three years of careful investigation and experimental work with sulphur dioxide and formaldehyde gas, I found that these agents which in the past have been relied upon for room disinfection were practically worthless, so far as penetration is concerned and that sulphur dioxide cannot be depended upon even for superficial disinfection unless a certain amount of moisture is present. If the air was not sufficiently humid during the experiments referred to, artificial moisture was supplied, yet under these conditions satisfactory results were not always obtained. If with these precautions disinfection was not uniformly successful, how can good results always be expected in connection with the methods of disinfection usually employed, *i.e.* without any attention paid to the presence of moisture, often without proper combustion of the sulphur and with the apartments insufficiently sealed?

The experiments to which I refer did not show that formaldehyde gas possessed any special advantage over sulphur dioxide, so far as room disinfection is concerned, except that moisture is not required and that this gas does not tarnish or otherwise injure the contents of the apartment. It must be borne in mind that in the employment of gaseous or superficial disinfectants the material to be treated is not often carefully spread out with all

surfaces exposed, but is commonly folded or one article placed upon another. Therefore, from a practical standpoint, even reliable superficial disinfectants cannot always be depended upon.

I believe that the protection claimed for room disinfection under any form of treatment, gaseous or otherwise, is questionable, and that secondary cases have not followed as the result of this method, but rather because there is little or no danger from this source.

The very important question naturally arises: if infection is transmitted only in rare instances by fomites and not over long distances through the air, what, then, are the real or common means by which diseases are conveyed from one person to another? I believe we are in possession of sufficient indisputable evidence to satisfactorily answer this question.

We have learned that infectious diseases are transmitted by discharges directly from one person to another by contact; by food and drink, or articles about the patient, or through a very limited space, rather than by such things as clothing, money, etc. In other words, by persons and not things. We know that infectious diseases are also transmitted from one person to another by insects. During the past few years, more than ever before, we have appreciated the frequency with which diseases are conveyed by mild, ambulant, irregular, and unrecognized cases and carriers. The fact that these very common media of infection have not until recently been given proper consideration goes far to account for the popularity of the fomites theory.

Success in the prevention of infectious diseases depends upon the early detection of the case, proper isolation of the patient and the prompt disinfection or destruction of infected discharges and strict cleanliness. In addition, protection must be afforded against certain insects which transmit infectious diseases. Cleanliness in dealing with infectious skin diseases by the frequent removal and destruction or disinfection of the coverings of the body is in line with this protective measure and will go far to diminish the danger from this source.

The detection of infectious disease becomes far easier if we abandon the fomites theory, for then we know that if a case of this kind occurs and no previous one of the same character has been reported, we cannot assume that the disease was contracted through the medium of clothing or some other article, but by a previous case, and that a most exhaustive examination must be made to discover the person or persons affected. This will often take some time, and is more or less trying to the patience of a health official, but it is quite sure to be followed by success. The source of infection will often prove to be a mild, unrecognized case or a carrier.

The most important detail in connection with the care of the patient relates to the prompt destruction or disinfection of the infected discharges as well as the material and articles used about the patient. To this must be added constant cleanliness which means the free use of soap and water. I am aware that soap cannot be depended upon to disinfect; on the other hand, soap and water does not constitute a very healthy medium for the growth of organisms, besides discharges, are viscid and sticky and not readily penetrated by the various disinfecting solutions, although they are promptly released and removed by soap and water.

In connection with this part of the subject I may say that I have had, under my direction, children affected with measles, scarlet fever, and diphtheria, who were treated under the same roof, with only dwarf partitions between the various groups of these diseases, and all under the care of the same nurses who went freely from one ward to another with practically no change of clothing, yet there was no evidence that any interchange of infection occurred. In this service strict cleanliness was demanded, the discharges were promptly removed and immediately destroyed and the skin and affected passages kept carefully cleaned. Rubber gloves were used by the nurses while removing the discharges from the patients, the gloves were then boiled and the hands again carefully washed. It would seem that the result obtained in this way goes far to confirm the belief that infectious diseases are transmitted directly by discharges rather than by fomites or aerial disinfection.

There is probably no form of disinfection which has less practical value than that usually employed in connection with the treatment of the stools of typhoid fever patients. The ordinary method consists in placing a solution of carbolic acid or some other disinfecting agent in the bed pan, the stools being received in this solution and allowed to stand for various periods, the receptacle then being emptied in the water closet or privy vault. This does not properly disinfect the stools, besides it leaves an infected receptacle which is not often properly treated and is unquestionably a source of danger.

Some time ago I carried out a series of experiments relating to the disinfection of fecal matter which consisted in placing this material in the various disinfecting solutions commonly employed for this purpose in private and hospital practice. It was found that it required at least twenty hours to disinfect only the outer part of the mass. These results were confirmed by many similar experiments.

The ordinary treatment of the stools of typhoid fever patients is probably no less valuable than the means usually employed in the sick room to disinfect the hands. This is commonly done mechanically and consists in dipping the hands for a moment or so in a solution of carbolic acid, bichloride of mercury or some other germicidal agent without the previous use of soap and water, whereas it has been found that an immersion of at least a minute is required for disinfection under these circumstances; the viscidity of the discharges must be taken into consideration; it is the removal as well as the destruction of this matter which is called for, and it is for this reason that soap and water is an equally valuable preventive measure.

It is not my purpose in this article to discuss the relative value of the various germicidal agents beyond the statement that there is no disinfectant as valuable as boiling water or steam. They act surely and quickly; boiling water is not dangerous, costs nothing and is always available. I am quite sure that in the future the importance of heat for practical disinfection must be more fully appreciated. Boiling water is best adapted for the sick room, for an electric, gas, or oil stove and a receptacle for holding water may be obtained almost anywhere and at a comparatively small price, and this apparatus may be placed in the sick room or one adjoining it and used for the disinfection of all infected material and articles connected with

the patient. The receptacle should be large enough to admit a bed pan in order that the latter, as well as the stool, may be disinfected at the same time, a very important consideration, for handling the bed pan after the discharge has been removed for the purpose of cleaning or disinfecting it is undoubtedly a source of infection.

A very effective and inexpensive apparatus for disinfection with boiling water in or near the sick room may be constructed of sheet copper, sufficiently large to hold a full-sized bed pan, having some form of metal support to raise it sufficiently high to admit underneath a lamp or gas apparatus for generating heat. The cover of this apparatus should be heavy enough to offset a slight pressure of steam; this, however, is still better provided for by a spout which is attached to the portion of the top of the apparatus not involved in the cover or lid; to the upper part of the spout may be attached a flexible tube extending outside of the window in order that the steam may escape. If any odor exists it may be neutralized by a small amount of permanganate of potassium, or some lime thrown in the water. A large apparatus constructed along these lines with accommodation for eight or ten bed pans was employed for the disinfection of the discharges of cholera patients at Swinburne Island Hospital in 1909-10, with the best results. However, a steam chamber or apparatus is far more convenient and effective for this purpose than boiling water where large numbers are concerned, and should form a part of the equipment of every hospital.

We have been under the influence of some erroneous theories regarding the means by which infectious diseases are conveyed from one person to another; this has led to the employment of various measures which are not only unnecessary, but which have gone far to discourage extended investigation to discover the true media of infection. We have been guided largely by the fomites theory and have assumed that diseases are commonly transmitted by apartments, clothing, and innumerable other articles, which is untrue. Under these conditions it is very easy for a public health official when an outbreak of infectious disease occurs to assume, if its origin is in doubt, that the disease was probably introduced into the community by infected clothing or some other article, yet it is far better for the health of the public that he should disregard the fomites theory and maintain that the disease was contracted from another person and leave no stone unturned until the case is found. I believe that such a policy strictly adhered to is the most important factor in the prevention of infectious disease, for it brings under isolation and observation mild and unrecognized cases and carriers which otherwise would have continued to act as media of infection and which incidentally furnishes support to the fomites theory. When to this is added the prompt destruction or disinfection of the discharges and the material and articles used about the patient and the observance of strict cleanliness we need not be concerned about the alleged danger of transmitting infection through the medium of rooms, clothing, money, books, and other articles which are commonly looked upon as a menace to health.

Assuming that in some unusual instances disease may be transmitted by fomites, we must remember that there are no sane means by which absolute safety can be assured, therefore our efforts should be to secure the greatest protection through measures which are reasonable and practical. I believe this is modern sanitation. There are many members of the medical fraternity who are working along these lines, but the initiative in this important advance must come from public health authorities, for it would not be consistent or politic for physicians in private practice to abandon room disinfection or the use of germicidal agents in other directions, unless such action has not only the approval but the cooperation of health officials. In some sections of the United States this has already taken place with the most satisfactory results.

It is proper that we should proceed carefully, but it is necessary that we should make a beginning, otherwise no progress will be made in this direction. I believe it is entirely justifiable without further evidence to abandon room disinfection in the case of diphtheria, measles, and scarlet fever and recognize that it is the discharges in these diseases that constitute the media of infection and which call for the most prompt and careful attention; in the past, so far as prevention is concerned, we have rather worked on the wrong end of infectious disease, for as a preventive measure the destruction of the discharges and constant cleanliness have been subservient to terminal or room disinfection, which is of very doubtful value.

Having made this start it will be far easier to decide what action shall be taken concerning other details of this subject.

It is unnecessary to refer to the importance of disinfection in connection with the treatment of infected discharges and care of the patient under the direction of a physician, but beyond this the practical value of germicidal agents is entirely overestimated, yet they are purchased and commonly and indiscriminately used by the public as a "cure all" under the impression that extended protection is guaranteed through this source which is not true; besides this belief goes far to mask the inestimable value of cleanliness.

It is very easy to distribute a disinfectant about the premises believing that all germs have been destroyed and no further action is necessary. This is not modern sanitation, for it is required that dirt and filth shall be removed and not treated. This applies equally to the ice box, kitchen, workshop, school, or public conveyance, and can be properly accomplished only by the free and constant use of soap and water and scrubbing the nooks and corners; besides this method teaches the public that cleanliness is an exceedingly important sanitary measure, which, if properly carried out, goes far to aid public health officials in the prevention of disease.

205 West Fifty-seventh Street.

CHRONIC MUCOUS AND MEMBRANOUS COLITIS.

A NEW METHOD OF TREATMENT.

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In considering the treatment of this disease, the first question which presents itself must necessarily be one of its etiology, and at the same time its relationship to catarrhs of the colon. Literature upon this subject gives markedly different opinions ex-

pressed by equally eminent authorities. A good résumé is given by Nothnagel of the various authorities and their views upon this subject as to its cause. In considering it he discusses catarrh as a distinct and separate disease from mucous or membranous colitis, regarding the former as an inflammatory disease and the latter as being, in a majority of cases, purely neurotic in origin. In his discussion in the cause of mucous colitis he divides it into three distinct classes, according to their origin, grouping the first under the title given it by Ewald as a myxoneurosis; this is entirely neurotic in origin. A second group is neurotic in origin, associated with anatomical changes of the mucosa. In the third group are those derived from catarrhal conditions where the anatomical changes are predominant and not associated with the neurosis; these are entitled enteritis membranacea, this last being practically the same as a catarrhal enteritis, but associated with a formation of the mucous membranes or casts as one of its symptoms. The only apparent difference between this condition and chronic catarrhal colitis is that of the presence of mucus in the form of membranes or casts, whereas in the latter the mucus may be in small quantities and not definitely organized.

It is not my desire to laden these remarks with authorities to prove one or the other of the theories as to the origin of the disease, as there are numerous authorities well fortified with data on both sides of the controversy. It does, however, become essential in attacking this trouble for the operator to adopt one or the other of these views, and to direct his line of treatment according to his ideas of its origin. If this trouble is purely a neurotic one, with a constitutional basis for its development, then the line of treatment must be along measures which will correct the constitutional or the neurotic element before results can be obtained, and one must not expect to get results by treating it locally. After a long experience in the observation of these cases, of which I have seen a considerable number, the results of an examination of each and every one with a proctosigmoidoscope, taken together with the clinical symptoms, lead me to believe that in practically all cases this disease has its origin in anatomical changes of the mucosa, brought about by conditions which affect the intestines directly. The nervous symptoms which are associated with it I believe to be a result and not a cause of the disease, for in these examinations of the interior of the bowels, in every case of mucous colitis, I have observed decided anatomical changes in the mucous membranes, either of hypertrophy or atrophy of the glandular elements, or an associated mild inflammatory change. The conclusions which have heretofore been reached by the advocates of the constitutional or neurotic theory have been largely based upon clinical symptoms, with only the sparse material of necropsis, for death rarely if ever occurs from this disease alone. I feel sure, however, with the development of the direct examination of the bowel that more and more evidence will be accumulated to prove that anatomical changes are practically always present to account for the condition.

Again, to separate catarrh of the colon as a distinct disease from a membranous colitis, I believe to be a mistake, and I can do no better than to quote Cohnheim, who says membranous catarrh of the colon, which is still designated by some authorities as "myxoneurosis intestinalis," is rarely a simple chronic, reparable, superficial catarrh of the colon, which accompanies chronic constipation. Since constipation is associated with neurasthenia in a large majority of cases, particularly in women, it follows, therefore, that "membranous enteritis" is also met with in hysterical and neurasthenic patients. The neurotic theory contends that the mucous secretions and accompanying spasm of the bowels, with its pain, is purely an overstimulation from a highly sensitive nervous system, without any anatomical basis. Further, with successful treatment the neurotic symptoms have cleared up. Membranous enteritis disappears as soon as constipation is cured, and this is the best proof of the theory of its origin, since, notwithstanding the cure of constipation, the hysterias and neurasthenia often become still more aggravated and persistent. In other words we may find either present without the other. Mucous colic, or colica mucosa of Nothnagel, is an acute exacerbation of chronic membranous colitis.

These views of Cohnheim thoroughly agree with my observations. In other words, I can only think of membranous colitis as a later stage in the trouble, which began as a chronic, subacute or acute catarrh of the rectum, then hypertrophic, finally an atrophic colitis, which has progressively increased in severity and extended from the rectum to the sigmoid and into the colon. A continuous progressive disease, with names suggestive of distinct entities but in reality one and the same.

Having adopted this view of the trouble, I have directed my treatment along these lines. The method which I am about to relate has given me very encouraging results in all cases where there were no outside factors in the abdominal cavity which would keep up an irritation of the colon or rectum, or where it was secondary to heart, liver or kidney involvement.

A floating kidney rubbing up and down the vertical portions of the colon as it descends and ascends with respiratory movement, has been known to cause a subacute inflammation, as quoted by Tuttle; the removal or fixation of the prolapsed organ has relieved the catarrhal condition of the colon. Such a condition has not been within my experience.

Adhesions resulting from old inflammatory conditions, either attached to or running over the colon, sometimes cause obstructive stasis of the feces, so that the condition starts up an inflammatory state which, when relieved, permits the bowels to return to their normal condition, when proper treatment has been instituted.

A subacute inflamed appendix has been known to be a factor associated with mucous colitis, although it has been suggested by some that the appendicular trouble is a resultant of the catarrhal condition and not contrariwise. It is hardly necessary to go into the symptomatology of this trouble, as we are all familiar with its predominant symptoms of constipation, colic, intermittent diarrhea, with large or small quantities of mucus, either formed or unformed, mixed with cellular elements and small particles of fecal refuse, and in nearly all cases nervous or neurasthenic symptoms.

The visual picture through the proctoscope of the mucous membranes in the hypertrophic form with enlarged glands shows the mucous membrane congested, giving to it the characteristic granular appearance. In the atrophic form the glands are almost entirely obliterated and the mucous membrane presents a smooth, glistening appearance, with the small vessels coursing through it, clearly defined and sharply cut, a picture not unlike that made by

the vessels seen in the retina ophthalmologically.

The method I have been using in treating these cases has been by fuming crystal iodine, or one of its salts, forcing the fumes into the rectum and colon with slight pressure. In experimenting with a number of salts for vaporization by heat I found that iodoform was the one to give me the quickest and most easily controlled amount of vapor, but, owing to its ill-smelling character, it was very disagreeable to handle. I attempted to use thymol iodide, but this required a higher temperature to break it down and was not so satisfactory. I then resorted, as originally, to iodine crystals and have been using these since in my treatments. They are not so satisfactory as the iodoform in generating the fume, but are more agreeable to work with.

The apparatus consists of an ordinary 500 c.c. Florence flask, with a double perforated rubber stopper connected with pressure tank or bulb on one side, the glass tube entering into and extending to about 2½ cm. from the bottom of the flask, an exit being provided by a right angle glass tube with its inside end close to the top. The exit is connected with a short glass tip by rubber tube about 25 cm. long. The patient, if a man, is placed in the knee-chest position and, the proctoscope being introduced, the gas is blown through it into the bowels until the patient complains of cramps or too much distress. (If the patient is a woman she is placed in the Sims position.) The air is then allowed to escape and the insufflation is repeated, so that altogether the vapor from two grams of iodine crystals, or 1½ grams of iodoform, is used. The iodine is fumed by means of a small electric stove, placed under the flask; a bunsen burner or an alcohol lamp can be used; I did not find them so easy to regulate, but they are adaptable where electricity is not available. As fuming takes place at a slight temperature, not much heat is needed.

The glass tip inserted through the anus a few centimeters may be used without the use of the proctoscope in cases where patients grow weary of its insertion; but the proctoscope aids dilatation.

In the early stages of the disease this treatment is given each day for a period of ten days, and then at less frequent intervals so that the treatment extends over a period of six to eight or twelve weeks. The result has been that the constipation was relieved and the patient had regular normal stools. The mucous membrane assumed a more nearly normal appearance, and the mucous secretion ceased.

The preliminary treatment before the injection consists of the patient irrigating his bowels thoroughly, so that he presents a clean intestine, each time before his regular treatment. He is instructed, of course, along the line of diet and regular habits, as I believe that unless the constipation itself is relieved the primary factor in the disease is not removed. The benefit of the treatment is two-fold. First of all, the intestines are dilated gently by the pressure of gas within them. If there is a tendency to ptosis, it lifts them up into their normal position. At the same time the deposition of the iodine occurs throughout the entire bowel and acts as a local agent just as we use it as a local antiseptic or alterative for the mucosa in any part of the body. In other words, this is a method of making a direct application of the iodine to parts of the body which are ordinarily unreachable.

In confirmation of the fact that the iodine is deposited throughout the bowel, before adopting this method of treatment, with Dr. Spencer, my then assistant at the Baltimore Medical College, I experimented upon dogs, injecting the gas by a similar apparatus, killed the dogs, and tested for and found the iodine throughout the large bowel. Indeed, we found that the iodine was deposited in a large degree quite far up in the small intestines. But we can hardly expect this to reach so far in the human subject, because doubtless a greater amount of pressure was used than a patient could stand.

It also became of importance that we should know whether there was a possibility of rupturing the intestines. We removed the intestines of a dog and found that the rupture did not take place until a pressure of some 417 mm. of mercury was reached. Before any such point as this is reached in a human subject the patient begins to complain so much that we have a danger signal long before there is any real danger.

In further confirmation that the iodine vapor does pass up through the colon, I took occasion to use it in a case in which I had done an appendicostomy, and I found that the air escaped through the opening of the appendix with a distinct iodine odor. Again, to show that there is no danger in cases of ulceration, I used it in two cases in which there was extensive ulceration of the colon, one of tuberculous and the other of syphilitic origin. The patients felt no untoward effect, nor did the treatment apparently give any beneficial results. I feel, therefore, the method is a perfectly safe one, and the cases I have thus treated were markedly benefited and the majority were apparently cured.

Case I.—L. S., a child five years old, parents both healthy giving no unusual condition except the father when he was a child, had a tuberculous knee, which was left ankylosed. The little boy developed colitis with the usual symptoms of alternate constipation and diarrhea and abdominal distress, also discharge of mucus. He described his pain in a most graphic way when he said his stomach "fretted" him. Upon examination he showed the usual condition of mild congestion. The neurasthenic or depressed condition, so often associated with this trouble, was remarkably shown on one occasion, when this little fellow, who was of a very cheerful disposition, came into the house crying over the fact that his father had neither father nor mother as he had. Another occasion he was overcome by grief, because of his father's lameness, a condition which had existed all of the child's life. The depression entirely disappeared with the relief of his colitis.

Case II.—Captain E., aged 54 years, army officer. Lived many years in the West Alkali country, drinking the water. Developed marked constipation, followed by distress over ascending, transverse, and descending colon. Some tenderness over the appendix. The appendix was thought to be the cause of the trouble and was removed six years ago, in Philadelphia. He was confined to the hospital and was treated over a period of three months, then he left the hospital not at all improved. When I first saw him he complained of abdominal tenderness and soreness, and accumulation of gas and intestinal colic. This would be relieved by cleaning the intestines out with oil. Proctoscopic examination of the rectum and sigmoid showed it to be a case of atrophic proctitis and sigmoiditis, extending throughout the visible tract. The surface was glistening, the mucosa was thinned out to the extent of practically obliterating all the crypts, the small blood-vessels were prominent and under the mucosa looked not unlike the picture one sees of the retina when viewed through th ophthalmoscope. From the presence of mucus coming down in large lumps and strings I diagnosed the condition as atrophic colono-sigmo-rectitis and treated it accordingly. I made every effort to regulate the bowels and correct constipation, for which I used high injections of olive oil, 1½ liters at night, cleansing the lower bowel next day with salt solution and topical applications of extract of krameria. This benefited him greatly, but as soon as treatment was suspended his old symptoms returned. I then began to

use iodine vapor, distending the colon thoroughly. This treatment was continued over a period of six weeks, the amount of mucus was decreased, the bowels became more regular, distress from gas was relieved and the patient had fewer attacks of colic. His general spirits were better. His condition was materially improved, when he was transferred from Baltimore.

Case III.—Mr. W., aged 24 years, medical student. He gave a history of mucous discharges and constipation, covering a period of five years, following an attack of typhoid fever. There were the usual symptoms of colic, constipation, and general malaise with tenderness especially over the caput ceci and sigmoid flexure. Of especial interest were two attacks of accumulation of something in the colon, one described as a lump in the right side, the size of a large orange, which remained for over a month, and disappeared eventually, but with marked intestinal colic; doubtless this was a fecal mass. Another, not so large, occurred on the left side, several months later, with similar history. The examination abdominally and proctoscopically, showed his case to be one of atrophic colitis with ptosis of the colon. No treatment other than iodine vapor was used over a period of thirteen weeks, with entire relief, with no recurrence, now after a period of over a year.

Case IV.—Mr. R., aged 34 years, a clergyman, who was compelled to give up his ministerial duties because of nervous prostration and neurasthenia. He came to me after taking rest cures, milk cures, and stomach lavage. His symptoms were those of mucous colitis, marked depression, weak spells, sense of impending breakdown. The treatment given him cleared up the intestinal symptoms, relieved his constipation when aided by 5 minims of tincture of belladonna. While he has not yet taken charge of a church, he has repeatedly filled pulpits for other pastors, without any recurrence of his nervous manifestations. He still complains of some tenderness over his appendix, which I believe is subacutely inflamed, and have advised its removal; this he has not consented to do.

I believe his case one of colitis, reflexly set up by an inflamed appendix, which, while it has been relieved by the iodine vapor, will, I think, recur in the course of time unless his appendix is removed.

These several cases illustrate three types, with the cardinal symptoms of mucus, colic, and depression.

Altogether I have treated thirteen cases presenting similar conditions with this method, in each instance marked benefit has resulted; and with exception of four, I feel that cures can be claimed for them, although time is necessary to show its permanency.

I therefore present these observations, believing they may be of some help in the treatment of a disease which does not yield readily to other means.

Vapor of iodine in other conditions has been made use of and I can claim nothing for originality along this line. The application of volatile drugs to the intestinal mucosa is a method which may readily be used, and I present it hoping that such use may be further extended.

817 Park Avenue.

THE EMPLOYMENT OF SKIAGRAPHY IN THE DIAGNOSIS OF ENLARGEMENT OF THE THYMUS GLAND.*

By D. BRYSON DELAVAN, M.D.,

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Enlargement of the thymus gland, whether associated with the condition known as "Status lymphaticus" or otherwise, can no longer be called a pathological curiosity. Cases occur with sufficient frequency to have brought the subject prominently forward, and a considerable literature upon it has, during the past ten years, been developed.

*Read at the thirty-sixth annual meeting of the American Laryngological Association.

Indeed, there are few large clinics in which accidents due to this cause have not occurred to patients under operation. Diagnosis by ordinary means is often difficult, and the only intimation of trouble comes too late. Another difficulty lies in the relative infrequency with which illustrative cases present themselves to individual observers. The average clinical attendant may never have seen one until he finds himself confronted with the fatal occasion. Recently the skiagraph has been called into requisition, with results both valuable and interesting, as shown by the following cases.

Case I.—R. S., aged seven, of American parentage, a slender, anemic looking boy, with weak heart, contracted chest, and history of frequent attacks of illness. Both tonsils were enlarged and the upper pharynx was filled with a large mass of hypertrophied lymphoid tissue. His physician in Philadelphia had made the diagnosis of probable enlargement of the thymus gland. The symptoms due to the nasopharyngeal condition, however, were so urgent that, after a careful examination of the patient, we advised operation. The case was seen in consultation by Dr. Herbert Carter and Dr. Norton, of New York, who also failed to demonstrate the presence of thymus enlargement. In view of this difference of opinion a skiagraph was taken by Dr. Cauldwell, of New York. The picture showed the thymus to be absolutely normal. The patient was operated upon, Dr. Thos. L. Bennett administering ether. In the course of the operation nothing unusual happened, the growths were successfully removed, recovery was rapid and satisfactory, and up to the present time the child's condition has been all that could be desired.

Case II.—I am allowed to report this case through the kindness of Dr. John E. MacKenty, of New York. A child two years old was brought to his clinic to be operated upon for hare-lip. The patient's skin was rosy but white, his hair was scanty, the muscles of his neck were thick, his hips were large, and the body in general was too fat. The operation under general anesthesia lasted one-half hour. Six hours after operation the patient suddenly died. A skiagraph was immediately taken and an autopsy made. The autopsy showed an immense hypertrophy of the thymus, thus confirming the remarkably clear finding of the skiagraph.

I have presented these two cases because they seem to typify to a remarkable degree the value of the *x*-ray in deciding questionable conditions of the thymus gland. It would have been easy to secure an indefinite number of plates representing the same thing. The multiplication of examples, however, would add little to the weight of the argument already so fully sustained by these. Without doubt, the use of the *x*-ray before operation would result in the saving of lives. The examination of every child, therefore, would seem desirable. But it will be said the examination of all the children in attendance at a large clinic with our present facilities in the *x*-ray department would be impracticable, even if the fluoroscope could be depended upon. Unfortunately, at the present time, the fluoroscope seems out of the question, for there are several reasons which make it impracticable. A fluoroscopic examination would require at least twenty minutes of time, ten minutes being consumed in accommodating the eye to the dark room. Again, the struggles of the average child would make the procedure extremely difficult. Finally, even under favorable conditions, recognition of the conditions present in the examination of this part of the body in the infant is often impracticable.

In view of this, dependence must be placed not upon fluoroscopy, but upon the skiagraph. A good skiagraph, skilfully taken and well interpreted, will give far the best information. Here again we are

confronted with difficulties. The ideal conditions would obtain, of course, in private practice, where expense might not be an obstacle and where the services of a good *x*-ray specialist would be at command. Even here the way is not always clear, even in the matter of expense.

In clinical practice the making of skiagraphs at the rate of say twelve a day would require the equipment and services of a full department as such matters are now organized and conducted in our best hospitals. Take, for example, the *x*-ray department of St. Luke's Hospital, New York, one of the most complete in the country. Under its present conditions it is fully capable of executing the work of a large general hospital. For it to meet the demands of an out-patient clinic of even moderate size would require the practical reduplication of the staff and plant, of course, at great expense. Granting the value of skiagraphy, how, then, can it be made a practical resource in this connection? As a matter of fact few clinics are connected with institutions supporting an *x*-ray department, and as we have already seen, such a department adequate to the other needs of the institution would be overwhelmed by the flood of work thrown upon it by the throat clinics.

The answer to this would seem to be, first, in the possibility of so reducing the expense of skiagraphy as to bring the use of it within more reasonable financial limits. Next, to simplify the process, especially to the end that less time be consumed in the execution of the work. Finally, to impress upon the minds of the managers of hospitals the value of skiagraphy in this class of cases, and urge that as far as possible proper provision be made for attending to them.

Again, since to examine all would be impracticable, it should be urged that in any suspected case an *x*-ray examination be made before operation is attempted.

In conclusion, careful instruction should be given to clinical assistants, to the end that they be warned as to the dangers of operating upon patients having enlarged thymus, and that they may be made competent to diagnosis such cases when presented to them.

40 East Forty-first Street.

ALCOHOLISM AS A FACTOR IN DISEASE.

By DELANCY CARTER, M.D.,

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Alcoholism, as a factor in disease, comprises, directly or indirectly, a great area. In fact comprehends the whole armamentarium of diseases and ills to which the human body is heir. This is a broad statement, and yet one that is so absolutely proven as to make it an axiom. The question naturally comes to us, why is it that alcohol causes such devastation to the human system? To prove this we must penetrate to the very vital forces which we call "Life"; those vibrating ions, which by means of their vibrations produce electrical energy, causing the different factors, which go to make up the whole, to perform their several functions in order that the vast machine, which we understand as life, may be complete in all its parts.

Alcohol is a protoplasmic poison. What is a poison? A poison is defined as any substance which acts on living cell and tissue to destroy their power and impair their activity. Alcohol has been shown, according to our latest authorities, to be distinctly toxic to the ameba, the simplest form of protoplasmic life. The action of alcohol on the cells, when saturated with different solutions, is typical of the effect on the higher factors of the human system. First narcosis, then paralysis and loss of action, which is death to the cell. This coincides with Prof. Kraepelin and his co-workers' idea of progression, that it is not the first drink, nor the second, nor fifth that intoxicates; it is the sum of the first, second, and fifth that intoxicates. Prof. Kraepelin makes out a very strong case against alcohol. He has been investigating for twenty-five years the psychic effects produced by drugs, with the view of getting a most comprehensive knowledge of the incipient symptoms and processes of mental disease. He wanted to find the least common multiple, as it were. To this end, with his wonderfully equipped psychological laboratory, he attempted, artificially, to produce on normal individuals simple sets of psychic derangements that he might study the various phenomena in their beginning and development, and apply the knowledge to the study of mental derangements. He used as drugs, bromine, caffeine, sulfonal, and opium but found alcohol the best drug to work with; therefore concentrated his efforts in that direction. With instruments of the greatest precision, he and his colleagues, some of the most eminent scientists in the world, established the fact that alcohol caused degeneration; that it affects all the faculties; the more definite and higher the faculties are, the more definite and measurable the results; also that the physiological and psychological action of alcohol is cumulative, and if continually used even in small doses the harm is increasingly manifested. They emphasized that the ordinary or average human being cannot preserve his stomach and brain in it for years without injuring both; that the powers of coordination are certain to be impaired, and the destruction of his tissue hastened.

The experiments regarding the effect of alcoholic solutions on cells are confirmed by a great variety of studies in other directions, showing that alcohol is a direct protoplasmic poison, and that this poisonous action is due to the retarding power of the cell to absorb oxygen. Other eminent writers have shown that alcohol is not only a narcotic and paralyzing agent of protoplasm in all forms, but also injurious to cell life.

We know that alcohol diminishes the vitality of the body, and the resisting power to overcome disease. An eminent London physician, Prof. Laitiner, brought out this fact very prominently with results of his laboratory studies, extending over several years, and in the examination of over three hundred persons showed that the normal resistance of the red blood corpuseles was diminished in all cases where alcohol was used, and that the bactericidal power of the serum against disease was very much impaired. The microscopical, pathological effects of acute alcoholic poison on the human system is practically unknown, as it is impossible to obtain material for these examinations in sufficiently fresh condition from cases of delirium tremens that have died from the effects of their debauches. We get the results from experiments on the lower animals treated precisely in the same manner, and these show that tissue changes in all the different factors that comprise the human system.

Alcohol is a chemical poison as well. The sensation of coldness when applied to the body is due to

its rapid absorption of water. When alcohol is taken in the mouth as a beverage, this dehydrating effect is so pronounced as to produce irritation. This would rapidly lead up to inflammation, therefore water is taken with it to counteract its corrosive action. And we can follow along its action on the mucous membrane of the throat, of those who commence the habit; follow it up to its inevitable conclusion. We find that the parts coming in contact with alcohol in the shape of the various concoctions combine with it.

After a time the parts become sodden, lose their sensibility until the paralysis is so great on the end plates and nerves of sensation that pure alcohol will not feel too corrosive for the confirmed inebriate.

This chemical absorption of water by alcohol extends to every tissue with which it comes in contact, until it reaches the point of saturation. The feeling of warmth in the stomach is the first stage of irritation which eventually extends to inflammation. The dehydrating property is very marked. An examination of the blood shows this in the shrunken blood corpuscles, and diminished number of phagocytes. The temperature is lowered, and the functional activity is reduced. While there are some organs which suffer more than others, the corrosive effect is not noticed in all the organs alike. The liver, kidneys, and brain tissues are the ones which show the most marked lesions, and this we can very easily understand from the nature of the function of these organs; in other cases they are less. So there is no question about the conditions which follow the use of alcohol; absorption of water from cell and tissue; the degenerative changes that occur from the coagulation of the albuminous particles; the deposit of fibrin, and the pronounced disturbance of the balance necessary to carry on the uniform workings of the vast machine known as the human body.

The effect of alcohol on the circulation is most marked, the increased action of the heart, the hyperemia of the face, and many other signs. We can measure with great precision the rise and fall of the heart's action. The muscular output, from the increased action of the heart, is followed by a similar diminished output in the exact ratio to the high level which it has attained. This toxic action, due to the suspension of the control centers and vaso motor paralysis, can be studied on the mucous membrane and the congestion of the face, and it extends to the liver, kidneys, brain, and all vascular organs.

The physiological effect of deranging and paralyzing the circulation of the blood in the veins and arteries is followed by a diminished absorption of gases, defective distribution of nutrient plasma, and obstruction in the eliminating of the waste products. The result is depression, fatigue, and finally organic changes due to poisoning and starvation.

The effect of alcohol on the brain and nervous system is most marked. Prof. Kraepelin began a series of observations to determine the effects of alcohol on the brain and nervous system. He assumed a normal standard of sensory and mental activities in different individuals; then gave spirits and compared these conditions with what existed before, so as to determine the exact action of alcohol on the person. These experiments were carried on for many years and indicate with uniformity that alcohol in small doses both impairs and diminishes the activity of the senses and that the derangement is measurable, although not recognizable by the person operated upon. Thus a person able before the use of alcohol to distinguish letters or hear sounds at a certain distance, after the use of alcohol suffers the impairment of both vision and hearing. This impairment can be stated in exact figures.

Spirituous liquors contain from 40 to 56 per cent. alcohol; sherry, madeira, and port, 18 to 20 per cent.; Silician wines, malaga, and moselle, 16 to 20 per cent.; champagne, 9 per cent.; Rhine wine, 10 to 12 per cent.; clarets, 9 per cent.; malt liquors and ale, 5 to 8 per cent.; beer, 2.5 to 5 per cent. of alcohol. Spirituous liquors may be considered as acting in ratio to their alcoholic content; wines vary in their acting either from the ethers which they contain or in some instances as far as digestion is concerned in proportion to the solid matters, rather than to their alcoholic content, which does away with the old impression that alcohol is a digestive stimulant.

On studying the effects of alcohol on the digestion, we find that it stimulates the flow of saliva, and also the concentration. In large quantities alcohol is positively toxic, retarding and even preventing digestion, and protein metabolism in particular. It is evident that although alcohol may be used by the body for energy, the metabolic changes are not similar, and it must be a question of some moment from whence the body draws its energy, whether it is from alcohol, fats or carbohydrates; it is evidently possible for the body to use alcohol as a food product but the changes in metabolic results show that while being consumed as a food, alcohol may simultaneously exert its drug or toxic action. The possibility of alcoholic action in the increasing of muscular action is not definitely settled. The possibility shown of alcohol in moderate doses furnishing energy for muscular work is a far different question from the possibility of alcohol as a part of the diet for muscular labor. General observations and results of practical tests on a large scale show such beverages to be of doubtful value or even harmful. Alcohol apparently increases the power of fatigued muscles, although it does not restore them to the same power that they had before the fatigue. It is only temporary and of short duration, followed by greater fatigue, which more alcohol stimulates until the parts become paralyzed and unable to respond to any stimulants. Alcohol will thus enable a short spurt to be made, but it will not give sustained muscular power and it is followed by a depression of energy below the normal.

Besides functional disorders which alcohol produces, other more serious and permanent tissue changes take place. There are at least three distinct changes following the use of alcohol—fatty degeneration, atrophy or shrinkage of the tissues, fibrosis or fibrous thickening of the organ. According to Dr. Campbell of London, these changes, as might be expected, are generally more pronounced in the alimentary canal and in the liver, but no tissue is exempt from these changes. The result is a permanent organic disease which is never entirely curable. This is the real nature of the chronic gastric catarrh from which the drunkard is liable to suffer. The stomach wall itself has become permanently diseased and a varying portion of its glandular organs have been destroyed; sometimes ulcers form in the wall and give rise to much pain and distress; later cancer may develop on the site of these chronic ulcers or in the scar that is left

behind. The net result in any case is a distinct weakening of the normal power of digestion.

No digestive organ suffers more than the liver from the pernicious effects of alcoholic drinks. The first step is congestion as a result of the irritation which is set up. This congestion is followed by atrophy or shrinkage and more or less fatty degeneration. The most striking change is the marked increase in the fibrous tissues which constitute the supporting framework of the organ. Normally there is just enough of this tissue to hold the organ properly together and maintain its natural form. The abnormal increase of the supporting tissue takes place at the expense of the glandular or working tissue of the liver, and the direct result is that the liver is steadily and gradually reduced. Ultimately the organ becomes shrunken in size and often presents irregular nodules, giving rise to the name Hob-Nail or Gin Liver. In the later stage the liver slowly and permanently loses its function and finally becomes a useless organ. The use of alcoholic beverages leads to the formation of abcesses in the liver, and on acount of its irritating effects may finally produce a malignant disease. Alcohol, so far as the digestive organs are concerned, not only interferes with their digestive function, but also destroys their natural power of protecting the body from disease.

The action of alcohol on the brain is still a subject for dispute. Binz holds that alcohol first stimulates then depresses. Schimiedeberg, Bunge and others that the apparent stimulation of alcohol is a paralysis of the higher functions, and that alcohol depresses from the beginning. Kraepelin claims to have proven by his experiments that in the early stages of its action, alcohol stimulates the motor functions of the brain, but all reactions requiring nicety of judgment are dulled even by small doses. Kraepelin has also shown that small doses diminish the accuracy and ability to add numbers, or to learn numbers by heart. Smith has shown that this is especially noticeable when small doses of alcohol are taken daily, and that when the alcohol is cut off the ability to add and memorize returns. It is also noticeable that the tendency to erroneous judgment is increased, the subjects experimented upon believing that they had performed their reactions under alcohol, when as a matter of fact, the reactions were diminished in accuracy and rapidity. Alcohol in moderate doses does not increase the quality or vigor of mental processes, and the flow of ideas with the feeling of mental richness is due to the removal of normal inhibition. Alcohol clearly tends to lessen the power of clear and consecutive reasoning and lowers the acuteness of the senses. After large doses the judgment is lost, the power of self control and will are in abeyance, all idea of proportion is gone, the sense of responsibility and restraining impulse is destroyed, and finally the motor power for speech and motion disappear, and torpor and coma supervene. The result of the continued action of large doses is the permanent loss of these mental functions, and the chronic alcoholic becomes an irresponsible animal. Since Austia has classified alcoholism as a nervous disease, it has so been generally considered.

In the heart we find lesions resulting from direct poisoning and from associated conditions. Fatty degeneration of the muscles is the common lesion, brown atrophy combined with fatty degeneration is the second most common, brown atrophy alone is the third, and fibroid myocarditis is the fourth. There are often various combinations of the above lesions, and while fatty infiltration is said by most observers to be more common than fatty degeneration, the reverse held true in others. That brown atrophy of the cardiac muscle is caused by alcohol seems to be true, for after excluding all cases in which carcinomas are present, and in which there was any sign of healed or active tuberculosis, in 125 cases there remained 23 hearts from individuals under fifty-five years of age in which this degeneration was present. The secondary effect on the heart is shown through the circulatory system, and from disease of the coronary arteries we obtain fibroid myocarditis, and in the enormous hearts of beer drinkers, which are produced by the large amount of fluid passing through the blood-vessels. The arteriosclerosis produced by alcohol or secondary to the kidney lesion produced by it, is also the cause of cardiac hypertrophy and later of fibroid myocarditis. Alcoholic poisoning is usually considered as a cause of arteriosclerosis and atheromatous degeneration. Lanceraux states that atheroma of the aorta and vessels is rare in alcoholism. The experience in this country is the reverse. It is characteristic of arteriosclerosis that the lesions are unevenly distributed in the body and the peripheral arteries may seem unaffected while the aorta or central arteries may be extensively degenerated. Atheromatous degeneration is a frequent cause in alcoholism of anurism, apoplexy, and embolism. Cabot, in studying the frequency with which arteriosclerosis may be made out in the radial arteries in alcoholics, comes to the conclusion that it is noticeably present in more than 67 per cent., but the atheromatous degeneration from alcohol is more commonly present in the aorta and the vessels, although it is sometimes extensive in the aorta and but slight in the vessels of the neck, and in other cases the reverse is true. The aorta and the other vessels may show slight atheromatous changes and yet the coronary arteries be extensively calcified. In 53 men dying under 50 years of age, atheroma was extensively shown in 9, moderate in 26, slight in 14, and absent in 4. In 19 women atheroma was extensive in 6, moderate in 6, slight in 6, and absent in one. The most common condition in the lungs are edema, congestion, and various forms of pneumonia, such as lobar, bronchial and septic. It is also common to find tuberculosis in various stages. The old idea that alcohol is a preventative is proven to be unfounded, and it is unquestionably true that alcohol reduces the resistance of the body and distinctly predisposes to tuberculous infection. Pulmonary emboli from cardiac thrombosis and embolism of the pulmonary arteries are also found. The liver has always been considered as especially prone to show changes from chronic alcoholic poisoning, with fatty degeneration and cirrhosis, as the two special forms of degeneration. The enlarged cirrhotic liver seems to be the most frequent, and the true biliary, the least frequent. Clinical experience in Bellevue Hospital, New York, suggests that the extreme degree of cirrhosis does not occur as commonly as it did twenty years ago; this is accounted for by a greater consumption of malt liquors.

In the spleen chronic congestion and fibrosis are the two most common pathological conditions. Other conditions in their order were, acute congestion, brown atrophy, amyloid degeneration. In the pancreas the great frequency with which fibrosis occurred was very noticeable. The effects of alcohol on the kidneys is the one marked factor in disease.

It has been frequently demonstrated that the urine after a single alcoholic excess, often contained abnormal elements indicative of transient irritation or of slight inflammation.

Kuhlden has shown in his animal experimentation that there is fatty degeneration and necrosis of the renal epithelium, hyperemia of the veins and capillaries with hemorrhages, and he considered that with longer duration of the experiment chronic interstitial nephritis would appear as a result. Formad found in alcoholics who died suddenly a marked hyperemia of the kidneys with noticeable enlargements in beer drinkers, the enormous amount of fluid taken produces a functional hypertrophy when arteriosclerosis has developed, the chronic forms of kidney diseases necessarily follow. It was noticeable that in all the autopsies made there were no normal kidneys. Chronic parenchymatous nephritis was the most common, next in order was chronic interstitial nephritis.

The stomach shows various abnormalities due to alcoholic poisoning, chronic gastritis being the most common. An inflammation of the gastric mucosa covered with mucus is common in acute alcoholism and the acute sooner or later goes into the chronic form. The bladder is very apt to be distended in those who have died suddenly, and over 25 per cent. of both sexes were found in autopsy to have chronic cystitis.

That alcohol produces sterility is well known, well-marked atrophic changes being shown in the ovaries on examination. In the men the testicle did not show such great changes, although some under the microscope showed sclerosis. Lancereaux has proved this, and Simonds observed that 60 per cent. on post-mortem examination showed azoospermia.

It has long been noticed that alcohol has a special affinity for the higher nervous centers, and especially for those coming in the clinical aspect of the disease. Inherited or constitutional defects cause great variation in the effects of alcohol on the individual nervous system, and it is difficult to estimate between the lesions caused by alcohol in previously normal persons, and those inheriting various defects; that a previously weakened nervous system will show earlier and more extensive lesions seems logical, and is true, but the idiosyncrasies of normal persons to alcohol present great variations. Serious nervous diseases are produced by alcohol in persons of previously normal constitutions; some individuals will die of somatic degeneration and retain normal cerebral tissue, while in others the brain and spinal cord seem to suffer early. The lesions in the central nervous system seem to be brought about either by degeneration of the cerebral arteries or from direct action of alcohol on the nerve cells; the latter is the most probable reason. Edema and congestion of the membranes are usually present and were found in 72 per cent. of the cases of men's brains examined in autopsies, and 51 per cent. of the women's. Adhesions of the dura to the skull, with an increase of the pachionian bodies are common and very frequently there is thickening and adhesion to the "pia mater." Clinical experience demonstrates the fact that cerebral degeneration from alcoholic excesses is more common among women than among men. Microscopical examination of the cerebral tissue shows an intense degree of atheromatous degeneration of the minute vessels which are enlarged, tortuous, unevenly distended usually by fusiform dilatation, and their tissues covered with nuclear proliferation. About these vessels the spider or glia cells are crowded in great abundance. These so-called scavenger cells form with their branching processes a thick connective tissue belting, densest just underneath the pia, converting the outer fourth of the cortex into a closely walled layer, much diminished from the normal thickness, and often closely mapped off from the under layers. Sometimes the cellular elements of the glia predominate, but in later cases many of the protoplasmic masses have disappeared, leaving a dense connective tissue structure in which the remaining nuclei are thickly sprinkled. The perivascular spaces are often filled with lymphoid cells. The axis cylinder shows a loss of medullary investment and is itself greatly swollen and often irregularly fusiform. The white matter of the cortex shows equally extensive atheromatous changes in its vessels, and in the fusiform and sacculated dilatation are seen deposits of hematodin granules; not infrequently the vessels are plugged and the diseased wall found ruptured with extravasatious blood and hematodin crystals in the surrounding areas.

The changes found in the spinal cord are similar to those found in the cerebral cortex; the vessels of the posterior and lateral columns are more involved than those of the anterior columns. The characteristic change is an obliterating endarteritis, the lumen of the vessel being encroached on to such a degree that the intima is thrown into ridges.

The pia of the cord often shows thickening and evidence of inflammation and extension downwards of cerebral pia mater or a coincident chronic inflammation. The connective tissue processes from the pia into the cord are thickened, the media raphé of the posterior columns and the peripheral zone of the cord being the area of election for the sclerotic processes. The paralysis produced by peripheral neuritis was described by Magnus Huss as due to lesions of the central nervous system. The acceptance of the neuron theory has caused us to revert to the ideas of the older writers and realize that in the majority the neuritis of alcoholics is of central origin.

That alcohol reduces the resistance to infectious diseases is well known and generally recognized. Bares clearly shows that in epidemics of cholera the disease claimed the majority of the alcoholics, and when they were attacked the chances for recovery were comparatively small. In pneumonia the mortality is by far greater than the average. In 1,100 cases in Bellevue Hospital in 1904 over 50 per cent. of those who gave a history of alcoholism died, and this was the ratio in all the other hospitals where the statistics were gathered.

The moderate use of alcohol is a relative term, moderate for one may be excess for another, and the popular fallacy that moderate drinking can always be kept within the bounds of safety and sobriety, and left off any time, has ruined more lives than the white plague. As a rule, all habitual drunkards were once moderate drinkers. The accustomed dose under normal conditions will not be sufficient under abnormal conditions. In my extended experience the habitual drunkard in the great majority of histories commenced with the flattering assumption that he would be immune from the habit, even when the amount consumed was getting slowly but progressively larger, until the subconscious moderate drinker became the conscious habitual drunkard, and he awoke to the fact that his mentality was weakened and his will power

gone. The result of chronic alcoholism does not end with the individual, the children often come into the world handicapped as idiots or weak-minded.

Howe, in Massachusetts, found that 145 out of 300 idiots were descendants of drunkards; Beech in England, found in 430 idiots, 31 per cent. were children of alcoholics. This ratio was found prevailing in the statistics of all the European countries.

The diseases that are traced directly to and are caused by alcohol may be eumerated as follows:

Dilirium tremens is the most important. This develops as the result of chronic alcoholism, and its occurrence does not run parallel to the amount taken, for idiosyncrasies are strongly marked here. Dilirium tremens develops after a suspension of a bout of heavy drinking. Symptoms of insomia, with restless, broken sleep, tremulous hands, extreme depression of spirits, frightful imaginations of horrible hallucinations of sight and hearing prevail. There is a condition of chronic alcoholism, but more especially following acute and chronic delirium, which is rarely noted. Dana is the only one who describes it; he calls it wet brain alcoholism or serous meningitis, there is no true inflammatory process but an extensive transudation of fluid in the meninges.

Acute hallucinosis of drunkards or acute paranoia, or acute persecutory insanity, this is closely related to dilirium tremens, and there are cases which seem more like connecting links than belonging clearly to one or the other. The patients suffering from this form of alcoholic psychosis are generally younger than the delirium tremen type. Chronic alcoholism is also counted as a separate disease. The amount of liquor when taken daily will produce the lesions and symptoms of chronic alcoholism, varies with the individual; most men who partake of moderate doses, dilute their alcohol with large amounts of water, and the effect produced is less than when taken in concentrated forms; but when once the condition of chronic alcoholism is developed the following symptoms result: weakening of the will power and blunting of their normal natures, they become untidy and slovenly in their personal habits, careless in their ways of doing things, doubtful about promises, a lack of responsibility to the community as citizens, ceasing to care for the ordinary decencies of life. Alcohol more than any other drug can reduce a man from a standard of honor to the lowest depths of depravity and lack of moral perception. This is more particularly noticed among women, due to their different temperamental characteristics.

Dipsomania or periodical inebriety. In some cases alcoholism exhibits itself in the form of periodical attacks. These patients are often total abstainers between attacks, and struggle against the desire when it comes on. Some authors believe these attacks are related to periodical epleptical explosions. Thelat defines the chronic alcoholic as one who becomes drunk whenever the opportunity offers, and the dipsomaniac as one who becomes drunk when the attack seizes him.

Alcoholic trance, automatism, or pathological drunkenness occurs in psychopathic, hysterical, or epileptic patients, traumatic injuries to the skull, or after a sunstroke. Alcohol produces disturbances of consciousness, which deviate from the ordinary sequences. The same condition has been seen in those who have been injured through the excessive use of alcohol. One of the simplest expressions of this condition is that where the patients after using much smaller amounts of alcohol than formerly, become drunk and are utterly oblivious the next day to everything that had occurred. In the more pronounced cases they lose their identity or knowledge of their environment while on a debauch, and find themselves in a distant city, all occurrences from the time they started or began their debauch, until coming to themselves being a total blank. The better name for this condition is alcoholic amnesia.

Korsakoff's psychosis. For many years there has been recognized among alcoholics a condition of delirium combined with polyneuritis; this was finally classed as a distant and separate psychosis by Korsakoff, and is now generally called Korsakoff's psychosis or syndrome. Mentally there is a loss of orientation and a marked defect in the power of retention of new impressions, and loss of memory for the recent past, and also for events during various periods of the patient's life; there is a strong tendency to confabulation, and to fabrications of the most absurd character, and even hallucinations together with polyneuritis. This usually occurs in the prime of life, and is said by some authors to be more common among women.

Arteriosclerosis. Alcohol as well as other poisons plays an important part in this disease. They may act, as Traube states, by increasing the peripheral resistance in the smaller vessels, in this way raising the blood tension or possibly altering the quality of the blood and rendering more difficult the passage through the capillaries.

Acute and chronic gastritis, acute hemorrhagic pancreatitis, aortic and mitral incompetency, and nearly all the heart murmurs are the common result of chronic inebriety. Out of 150 cases of cancer of the stomach, 77 gave a history of chronic alcoholism. Chronic parenchymatous nephritis is caused to a great extent by continual consumption of alcohol, as is chronic interstitial nephritis in conjunction with arteriosclerosis and cardiac hypertrophy. Polioencephalitis results from chronic alcoholism. Alcoholic cirrhosis of the liver is one of the most common of the functional diseases of the organ, the reasons for this form of disease having been fully explained by the action of alcohol on the cells, then tissue changes, and lastly degeneration of the parenchyma. Alcoholic neuritis is a special form of nerve disorder due to alcoholic poisoning.

According to Dr. L. D. Bulkley of New York, alcohol has a prejudicial effect on cell life, both vegetable and animal, and pathological studies have demonstrated degenerative changes in almost all the tissues of the human body as a result of alcohol taken internally. It is natural, therefore, to suppose that the skin suffers with the rest of the body, and clinically this is shown to be the case, often from the moderate use of alcoholic drinks. A great consideration in regard to the effect of alcohol in connection with diseases of the skin relates to its effect on the capillary circulation. All experiments and observations show that by its sedative action on the vasoconstrictor center of the medulla alcohol causes a slight paralysis of the nerves controlling the capillaries of the skin and the sense of flushing after its use in any quantity is well recognized. This dilatation of the cutaneous capillaries leads to a greater flow of blood to the surfaces of the body, and, of course, to a greater congestion of the diseased parts, which congestion is one of the chief features in many dermatoses, most difficult to con-

trol. With this congestion there is also an increased action of the perspiratory glands, with modified secretion. Another result of alcohol is to be mentioned which may have some bearing on its influences in diseases of the skin, namely, to its effect on the muscular tissue. Finally we have to consider the effects of alcohol upon metabolism and the final results of both anabolism and catabolism, which have so much to do with many diseases of the skin.

The following diseases of the skin are directly or indirectly influenced by alcohol. Syphilis. One of the first to dwell specifically on the effect of alcohol was Renault, who speaks very strongly in regard to the harmful influence of alcohol in syphilis, which is now a well recognized fact. Rosacea. Perhaps the most striking illustration of the effect of alcoholic drinks on the skin is found in the well-known acne rosacea of drunkards. Acne. Another disease characterized by redness and enlargement of the capillaries of the face. Eczema, psoriasis, erythema, and angioneurotic edema are among the remaining skin diseases which can attribute considerable of their severity to the continual use of alcohol.

Among the diseases of the eye which are influenced by the use of alcohol are: Acute and chronic conjunctivitis, amblyopia, amaurosis, and keratitis. That alcohol has a disturbing influence on the tissues of the eye, ear, nose, and throat is only expected from its effects on the tissues of the body.

Alcohol has a selective affinity for those cells which are most highly responsive to stimuli. The neurons are such cells and are universal in their distribution throughout the body. This affinity may show itself as a disturbance of cell metabolism, or again as a chemical reaction, but in either case the result is the same, functional irritability, cellular overstimulation, and eventual destruction from actual organic changes being easily demonstrable. The eye with its peculiar highly differential elements, its close cerebral connections, its great vascular supply, experiences alcoholic activity, first by disturbed, then distorted, then diminished, and finally loss of vision. The effect of alcohol on the mucous surfaces of the eye is associated with the same conditions with the nose, ear, and throat.

The ear, situated as it is in an unyielding bony case, with its peculiar nervous and lymphatic development, its close cerebellar association, is also sensitive to alcoholic influences, as illustrated in nystagmus, vertiginous symptoms, and the various ataxias.

The nose with its mucous surfaces is also very sensitive to alcoholic irritation, congestion, inflammation, hypertrophy, hyperplasias, and accessory sinus activities, and often an atrophy with ozena. The throat, pharynx, and larynx yield from a double attack, first the point of entrance directly, and the nervous, vascular, and lymphatics indirectly and reflex results following its absorption. The peculiar vocal effect of laryngitis and eventual establishment of chronic inflammation along the whole respiratory tract may result from the use of alcohol. Furthermore, the lessened resistance of the tissues furnish a fertile field to bacillary attack and tuberculosis. Syphilis, sarcoma, and carcinoma are concomitant results of alcoholic activity. Finally, in all eye, ear, nose, and throat work alcohol holds in many cases a direct relation, and in all cases is a contributing element in its pathological results.

118 East Eighty-fifth Street.

THE DIAGNOSIS OF TYPHOID FEVER.

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The notion has become prevalent that an early diagnosis of typhoid fever is generally difficult, and sometimes impossible. It is difficult indeed if one relies upon the symptoms described in the books as being of most importance, which are: the course of the temperature, the diarrhea, the character of the diarrheal discharges, tenderness and gurgling in the right iliac region, tympanites, and the eruption.

The value of these highly praised early diagnostic symptoms is very questionable, because: The temperature is only in exceptional cases an aid to diagnosis after the patient has been under observation for several days. Diarrhea does not occur at all in many mild cases, and in most cases the patient has taken laxatives or enemata before the physician was called. Iliac gurgling is not peculiar to enteric fever alone, and occurs even in healthy persons. Tympanites and tenderness may occur in many other diseases besides typhoid fever. The eruption, a very important sign, does not appear until five or six days after the onset of the disease, and is absent in many cases.

Which, then, are the means of making an early diagnosis of typhoid fever in order to apply modern means of treatment, as vaccine therapy and high caloric feeding?

1. Do not neglect at any time to consider the possible presence of typhoid fever in case you are consulted by a patient who has been "indisposed" for several days.

2. Usually the first and by far the most common symptom of which patients in the early stage of typhoid fever complain is headache. Whenever a patient complains of headache which has lasted several days the physician ought to think of typhoid fever.

3. The next thing to do is to count the pulse, which will generally be found to be slightly accelerated (84 to 110).

4. Then one must take the temperature and count the respiration. If there is elevation of temperature, acceleration of pulse with the normal ratio of respiration to pulse, *i.e.* 1-4, and a continuous headache, typhoid fever may be strongly suspected.

5. Next inquire if the patient has had chills occurring frequently and irregularly for several days.

6. Nosebleed is an occasional early symptom of little significance.

7. The most scientific and accurate way of making an early diagnosis of typhoid fever is by means of a blood culture demonstrating the presence of *B. typhosus* in the blood.

The diagnostic agglutination reaction of Greenbaum-Grübler known best, although undeservedly, as the Widal reaction, appears rarely before the beginning of the second week, and is therefore a late symptom of typhoid fever.

Differential Diagnosis of Typhoid Fever.—In rare instances typhoid fever may simulate cerebrospinal meningitis, or acute nephritis, or the infection may be very severe from the start, and take the character of a profound septicemia. It may simulate malaria, from which it is distinguished by the temperature curve and the examination of the blood. A diagnosis of typhoid pneumonia, *i.e.* a pneumonia caused by the typhoid bacillus and of typhoid-malaria (a double infection due to *B. typhosus* and the malaria parasite) should not be made unless their presence is demonstrated by

laboratory tests. From miliary tuberculosis and tuberculous peritonitis, it is distinguished by blood cultures, by the Widal, and the tuberculin tests.

Chronic and acute pulmonary tuberculosis are sometimes mistaken for typhoid fever, but in these conditions thoracic symptoms are more marked, variations of temperature are less regular and more extensive, and sweating is more common and more profuse.

Appendicitis is sometimes mistaken for typhoid fever. A careful physical examination, and, if need be, an operation will decide the question, for it is better to remove a normal appendix than to mistake a diseased appendix for typhoid fever. In appendicitis no time should be wasted by laborious blood examinations.

Chronic ulcerative endocarditis may be very similar to typhoid fever. Its differential symptoms are chills, irregular fever, substernal pain, endocardial murmurs, no rose spots, no abdominal symptoms, a more or less leucocytosis, the absence of the Widal reaction, and positive blood cultures showing other organisms than *B. typhosus*.

Catarrhal enteritis may be differentiated from typhoid fever through the absence of epistaxis, bronchitis, high fever, enlargement of spleen, and rose spots. Blood cultures and the Widal test will be found to be negative.

A lobar pneumonia which is a septicemia with a localized process of acute inflammation in the lung may be the beginning of typhoid fever, or, if caused by the pneumococcus or another organism or by a mixed infection (two or more organisms) may cause a toxemia like that of typhoid fever. The differential points are daily physical examinations of the chest and abdomen, a careful study of the pulse and respiration, especially of their ratio to each other, and the examination of the blood (agglutination tests and blood cultures).

Other diseases simulating typhoid fever are:

Epidemic influenza.—In this disease the temperature is usually not so long continued; there are no rose spots, a negative Widal, and the Pfeiffer bacillus is ordinarily present in the blood.

Uremia.—This is characterized by the absence of rose spots, and the Widal reaction. The urine shows diseased kidneys. The condition of the heart and arteries, and the previous history are suggestive.

Severe cases of trichiniasis.—The patient gives a history of having eaten salted or raw pork. There is edema of the eyelids, swelling and pain of the muscles, dyspnea and eosinophilia. A piece of the deltoid muscle for the examination for trichinæ should be obtained.

Typhus fever.—This is rare. The onset is sudden, the delirium early, and the stupor profound. The fourth day a macular and petechial rash appears which lasts 12 to 14 days. The disease terminates by crisis. There should be a blood examination. The diagnosis of this malady has been put on a scientific basis by the discovery of the bacillus of typhus fever by Dr. Harry Plotz of Mount Sinai Hospital, New York City, and is easy in epidemics after the diagnosis of the first cases has been made.

Relapsing fever.—There is a sudden onset, with chill and intense general aching. The duration of a single attack is six to seven days. The temperature falls suddenly below normal, and the attack is repeated in a week. Three to four relapses may occur. Blood examinations reveal the spirillum of relapsing fever.

Of late it has become very fashionable to label blood infections simulating typhoid fever but giving a negative Widal reaction as paratyphoid fever. But paratyphoid fever can only be differentiated from typhoid fever by the agglutination test of the blood serum, and by cultivation of the organism obtained through blood cultures. I have not seen an infection of this kind in St. Francis Hospital for the last seven years, a sign that it must be very rare.

Puerperal septicemia.—In this condition there is a high temperature with a quick, feeble pulse. The single fact that the patient has been confined a few days previously ought to lead the physician to doubt very strongly the existence of typhoid fever. In addition there is usually a wide daily range of temperature, profuse perspiration, and often great prostration.

1070 Tiffany Street.

SYRINGOMYELIA.

WITH REPORT OF A CASE OF MORVAN'S TYPE OF THE DISEASE.

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Of all the diseases to which the nervous system is liable, the rarest and at the same time the most interesting is syringomyelia. The name was invented by D'Augers Ollivier in 1837, but he applied it to any cavity in the spinal cord, whether physiological or pathological. The association of a definite group of clinical symptoms with the cavity formation in the substance of the cord was first brought out by Schultze of Dorpatt and Kohler of Prague. Heretofore the disease had been undoubtedly confounded with amyotrophic lateral sclerosis, but with more careful observations the diagnosis of syringomyelia was made more and more frequently. Morvan's disease, which was originally described as a separate disease in 1883, has been now universally considered as a variety of syringomyelia, and there appear to be no grounds for classifying it as a separate morbid entity.

The disease is supposed to be more prevalent in Europe than in this country, but that may be due to the fact that cases are recognized there more frequently than they are here, although at best it is an uncommon disease. Males are more frequently affected than females, and the most usual time of onset is between ten and twenty-five years of age. The onset in the case here reported was at fourteen years. Heredity apparently plays no part in the etiology of this disease, but some congenital peculiarities are frequently present, especially changes in the skeleton, and some think that the occurrence of acromegaly, sometimes associated with syringomyelia, may be more than coincidence; but there is no definite information obtainable on that question as yet. Trauma is frequently mentioned in the anamnesia, as it is in many other diseases. It probably has nothing to do with its onset, and was absent in this case. Syphilis plays no direct part; whether it may do so indirectly is still an open question.

On examining the cord of a patient who has died from syringomyelia, the first thing noticed is the enlargement and flattening of the affected region, usually the cervical portion of the cord. The other parts of the spinal cord usually appear normal, and the membranes are clear unless there has been an

associated meningitis. One section of the cord is soft, and when in the region of the enlargement it may appear necrotic, with a cavity formation of varying size. The cavity is usually situated in the posterior gray commissure, posteriorly to the central canal of the cord, or in the base of the gray matter of either of the posterior horns. The cavities so formed are of neuroglial origin, the process being called gliomatosis, a term which separates it from the malignant tumors of the nervous system, and yet conveys the idea that it is formed of neuroglia, or the connective tissue of the nervous system. The actual mode of formation is still in doubt, but the theory most favored is that the material undergoes a sort of compression necrosis with softening and cavity formation as a result.

Douglas D.—Age 17, born in the United States. Father is a Canadian, aged 47, who has always been well. Mother was born in the United States, age 43, now dead from peritonitis. Patient had one brother six years older than himself who died of scarlet fever. There were no other brothers or sisters and none of his paternal or maternal relatives have ever had any nervous disease whatsoever. There are no insane, epileptic or tuberculous members of the family. His mother suffered no untoward accidents during the period of gestation. Patient was full term baby and birth was normal. Up to the age of fourteen years, patient was in all respects a normal boy always healthy.

When about fourteen years of age he first noticed that he was losing the strength of his right hand and that the muscles were getting thin and wasted. He could no longer throw a baseball nor hold objects as well as he could formerly. This trouble with his fingers progressed for a few weeks and then a flexion contracture developed. About this time he began to stoop very badly and it was for his round-shoulderedness that he first sought treatment, not paying much attention to the loss of power and atrophy of his right hand. He went to a well-known orthopedic hospital and was given a brace for his shoulders. This was about six months after the onset. The atrophy and loss of power which started in his right hand had now progressed to the arm and shoulder. The shoulder brace did no good and four months later he obtained another brace at a different hospital, but at neither place was any attention given to his underlying nervous condition.

About one year from the date of onset his left arm began to get weak but it became swollen and edematous, not wasted and atrophied like the right. The loss of power was however more complete in the left arm and the deltoid muscle almost completely paralyzed so that at the present time he can not raise his arm to the level of his shoulder. It was during this time that the patient noticed that the nails on his fingers were brittle and that ulceration was going on without there being any sense of pain. These painless whitlows became worse and he has since lost in succession the distal phalanges of his thumb and of the first and second fingers of his left hand. The nails on his right hand have been ulcerating at long intervals for the past three years and at the present time the beds of the neils are exposed on all the fingers of his right hand, yet he has no sensation of pain and in all probability whitlows will develop there as tney have previously done on the left hand. His appetite is good. Bowels are regular. He has no diminution or increase in sexual desire and has no sphincter troubles.

On physical examination we see a moderately well nourished boy with marked stoop due to weakness of shoulder and back muscles and a well developed scoliosis to the left. His face is rather expressionless and immobile, but not paralyzed. Eyes are normal in all respects. Teeth are poor. Tongue protrudes normally. Sensation of taste is normal. His lungs, heart, and abdominal viscera are normal. Skin and patellar reflexes are present. Station and gait are normal. His arms are abnormal. The right hand and arm are atrophied and the power of movement is very weak. The left hand has lost the distal phalanges from the thumb and first and second fingers and it is reddish, swollen, and slightly edematous. The shoulder muscles are paralyzed on the left side and the limb is practically useless. The testing of sensations is interesting. There is no dissociation of sensation but complete anesthesia over an area beginning from a line passing between the mastoid processes behind and from the notch in the thyroid cartilage to the mastoid processes in front, down to a line passing from the level of the third rib in front to the sixth dorsal spine behind and including both arms. This whole area is anesthetic to touch, pain, heat, and cold. The deep muscle sense is lost and the patient cannot tell in what position his hand is, nor can he place the other hand in a similar position. He can, however, touch the end of his nose with fair facility with the eyes closed. In his spine there is no evidence of bone disease nor of spina bifida either frank or occult.

The patient is perfectly happy and works around the ward on Randall's Island where he now is, until the development of his whitlows force him to desist. Just at present the disease seems to be quiescent, but the prognosis is of course very bad. He has received no medicine, there being none which has any effect on the disease and he not having had any symptoms to be relieved.

The case is interesting because of its rarity, because of the overlooking of the underlying trouble by two hospitals, and because of the unexplained etiology. At the present moment it looks as though the symptoms were caused by the pressure of the gliomatous material alone. Whether any dissociation of sensation will later develop is hard to say, but continued observation will be well worth while.

108 West Ninety-fourth Street.

RHINOLITH OF SEVERAL YEARS' DURATION IN A CHILD OF EIGHT.

By BARNET JOSEPH, M.D.,

NEW YORK.

FORMERLY RESIDENT PATHOLOGIST, KINGS COUNTY HOSPITAL, LATELY ASSISTANT TO THE CHAIRS OF PATHOLOGY AND ANATOMY, LONG ISLAND COLLEGE HOSPITAL, AND UNIVERSITY OF VERMONT, COLLEGE OF MEDICINE.

Rhinolith is a concretion in a nasal cavity. McFarland[1] claims that it is of common occurrence. The case herewith reported is the first I have observed in the examination of the nasal cavities of over a thousand patients and almost a like number of autopsies and dissections. From a perusal of the literature it is evident, however, that the condition is not infrequent.

S. R., eight years old, was one of a number of children who came for examination for admission to the Summer Camp of the Free Synagogue. She presented no abnormalities excepting slight asthmatic breathing in various regions of the left side of the chest. Keeping in mind that asthma in children is almost invariably the result of a nasal condition, I examined the nasal cavities and saw what I thought at first to be inspissated secretion in the upper half of the left nasal cavity. Attempts to remove it proved that, though movable, it was wedged between the turbinate and the septum, and that it was of stony hardness. Finding that the nares would admit a small artery clamp, I tried to crush the mass. Instead, however, it broke and came away in three parts. (See the illustration.)

The patient apparently had suffered no marked discomfort because of the concretion. The mother stated that the child was subject to colds almost all of the time and discharged mostly from one side of the nose. *The latter phenomenon, it should be remembered, is a characteristic of foreign body in the nasal cavities,* and in the case of children, or mentally defective adults, should especially attract attention.

The causative factor in this case appears to have been a fall on the face about five years ago. The child bled profusely from her nose for half an hour. The bleeding was checked, presumably by adrenalin.

The stone consisted of undefinable detritus, cal-

cium phosphate, carbonate, and hemosiderin. The latter constituent, found only in old, decomposed blood masses, proves that in this instance, at least, the nucleus was a blood clot. That a blood clot may be a responsible factor is vouched for by Moldenhauer, quoted by Felt.[2] In this connection it must be noted that a nucleus is not always found in a rhinolith.

It is remarkable to what size a rhinolith may grow. Thus Montague and Lake[3] obtained one weighing 48 grains; J. F. Hill[4] could not save all of the specimen from one case, but what he did weighed 275 grains; Botey[5] records the largest size—110 grams.

It stands to reason that the size of the concretion determines greatly the course and variety of symptoms. One of the principal effects of a stone of any size is a consequent atrophy of the mucous membrane. A reabsorption of the turbinates follows in time. In my case, there were marked granulations and the nasal cavity appeared abnormally widened.

FIG. 1.—Rhinolith, natural size.

Though the finding of foreign bodies is common enough in the nasal cavities of children, rhinolith is rather rare. Felt quotes a case of Ball's, of a child of four.

Though Handford[6] reports a case of foreign body in the nasal cavity for twenty-seven years, and Heberton[7] one of forty, it cannot for a moment be imagined that individuals so afflicted are in any sense comfortable. J. F. Hill's patient apparently suffered greatly for twenty-five years before he saw her and relieved the condition.

Only a minute need be spent in examining the nasal cavities of general patients, but the same may be the means of saving some of them much suffering from sinusitis, middle ear disease, chronic hoarseness, etc.

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2051 FIFTH AVENUE.

Tracheobronchial Adenopathy.—Francesco Amenta reports a case of asphyxiation in a child seven years old in which caseous tuberculous lymph nodes occluded the trachea. The clinical history had been the occurrence of repeated attacks of suffocation, of a violent cough without expectoration, of an intense general cyanosis, and of cold sweats. In cases of this nature the diagnosis from croup or from false croup is easy, but from a foreign body in the larynx the differential diagnosis is difficult. Attacks of pseudo-croup occur in the adenopathy of measles. In these cases the horizontal position of the patient seems to aggravate the attacks, whereas in tuberculous tracheobronchial adenopathy the vertical posture intensifies the attacks. —*Rivista Ospedaliera.*

Medicolegal Notes.

Privileged Communications—Purpose of Statute.—The object of the North Dakota statute prohibiting a physician being examined as a witness, without the consent of his patient, as to any information acquired in attending the patient, which was necessary to enable him to prescribe or act for the patient, is held to be to inspire confidence in the patient and encourage him to make a full disclosure to the physician of his symptoms and condition, by protecting against physicians making known to the curious the ailments of their patients, particularly when afflicted with diseases which might bring reproach, criticism, unfriendly comment, or disgrace upon the patient if known to exist. When a party to a litigation seeks to exclude the testimony of a physician on the ground that it is privileged, the burden is on such party to show that it is privileged. To make it privileged, two facts must combine, namely; the physician must have acquired the information while attending the patient in his professional capacity, and it must also have been necessary to enable him to prescribe or act for the patient. In an action for breach of promise of marriage, an offer was made to prove that the physician who attended the plaintiff during confinement, on a subsequent visit to her, was told by the plaintiff that she did not have intercourse with the defendant until about 6½ months prior to the birth of a child, that she never had any talk with the defendant about marriage, and that the reason she let him have intercourse with her was that she thought, if she became pregnant, he would marry her. It was held that, under the circumstances surrounding the visit, it was apparent that such information, if given the physician, was not necessary to enable him to prescribe or act for the plaintiff, and that therefore it was not privileged under the statute.—Booren v. McWilliams, North Dakota Supreme Court, 145 N. W. 410.

Negligence—Expert Evidence—Condition of Blood at Time of Injury.—In an action against a physician for negligence in setting a broken leg it was held that no one may expect as strong a leg after as before a fracture, and no physician or surgeon is held to a guaranty of results; but he is held to the exercise of the skill and learning of the profession generally in the community in which he practices. Whether he did that or not in a particular case may be proved either deductively or inductively, and the usual and customary treatment of physicians and surgeons in the particular locality may be shown in order to ascertain whether or not the defendant exercised the skill required of him.

It was also held that competent physicians and surgeons who have examined the result and learned of the treatment or knew what treatment should have been given, if assured of the patient's prior condition of health, and of his own care and treatment of the fracture, may properly give an opinion as to whether or not they found such results as usually follow from the customary treatment of such a case by men possessing the usual skill and learning of their profession in the locality where they practice. Such testimony must of necessity be admissible, for it may happen that the injured man is incapable himself of accurately describing the treatment given.

It was held admissible to show the condition of the plaintiff's blood at the time he was injured. He was not complaining of any infection, and blood troubles arise from infections of various sorts; but the evidence showed that the condition of the plaintiff's blood might have had something to do with the success of the treatment given him by the defendant. Every infection of a wound does not result in harm; to some extent this depends upon the condition and consistency of the blood, its normal or subnormal admixture of proper elements, and whether or not it has the usual powers of resistance within itself.—Baker v. Langan, Iowa Supreme Court, 145 N. W. 513.

X-Ray Photographs as Evidence.—In an action for personal injuries the physician who attended the plaintiff after his injuries, was present when an *x*-ray photograph of the injured limb was taken, saw the negative before it was delivered to the photographer to be developed, and identified the exhibit as the impression on the glass which he saw when it was taken. It was held that his testimony sufficiently proved the accuracy of the photograph to justify its admission in evidence, the physician having practised for 15 years, though without experience in taking *x*-ray photographs.—Prescott & N. W. R. Co. v. Franks, Arkansas Supreme Court, 163 S. W. 180.

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CRANIAL MURMURS.

ALTHOUGH cranial murmurs have been recognized for a long time, particularly as indicative of intracranial aneurysm, the literature concerning them is very meager. Oppenheim, in his work on "Tumors of the Brain," calls attention to the frequency with which murmurs, rhythmical and synchronous with the pulse, may be heard over the cranium of individuals affected with some cerebral disorder. As the result of an experience comprising thirty cases, he concludes that this phenomenon indicates in most instances the presence of an aneurysm of the basal arteries of the cranium. Meyer has pointed out that the cranial murmurs are not constantly present in the case of intracranial aneurysms, nor are they always indicative of this condition. He has shown that the same sign may be produced by brain tumors, particularly if these compress a large blood vessel. Above all, the same observer has emphasized the fact that cranial murmurs can be detected in infancy before the closure of the anterior fontanelle without the presence of an intracranial affection. Rachitis, hydrocephalus, and anemia in older children may give rise to the same clinical sign. Severe anemia in adults is sometimes accompanied by the presence of a systolic murmur audible over the entire cranial vault. A congenital narrowness of the carotid foramen may be a cause of this phenomenon. Gowers has alluded to the presence of the latter in some cases of exophthalmic goiter and in cases of compression of the sympathetic nerve by tumors. D'Alloco reported a case of atheroma of the cerebral arteries in which a cranial murmur had been detected during life.

An important study of this subject has been made by H. Köster (Zeitschrift für klinische Medizin, Vol. 80, Nos. 5 and 6). He points out that in order that a cranial murmur may be detected the patient should be required to hold his breath. Prolonged and attentive auscultation is necessary. The phenomenon may disappear and reappear even during the course of the same examination. Its intensity is diminished or it may entirely vanish upon compression of the carotid. Sometimes the murmur has a whistling or musical sound. The material upon which Köster's study was based comprised sixty-six cases which are classified in the following groups: (1) Cases in which the murmur is associated with intracranial changes. (2) Cases without symptoms of disease of the brain, but with an anemia of high degree. (3) Cases with neither intracranial nor hemic changes. The general conclusions reached from an analysis of these cases are as follows: Cranial murmurs are present only in relatively rare instances of intracranial disease, and then have neither a general nor a local diagnostic importance, since the murmurs may arise with the most diverse changes in the cranium, irrespective of their localization. Of far more frequent occurrence are the cranial murmurs in the anemias of adults. These murmurs arise when the count of erythrocytes is less than 2,500,000 and the percentage of hemoglobin is less than 40. The percentage of hemoglobin appears to be of greater significance in relation to cranial murmurs than the reduction in the number of red blood cells. The anemic murmurs are heard loudest and sometimes exclusively in the parietal and temporal regions, and probably arise within the cranium, particularly in the carotid artery. In isolated instances in which neither intracranial disease nor severe anemia is present there may be heard cranial murmurs that are transmitted from the vessels of the neck. As an indiaction of the presence of intracranial disease a cranial murmur is of value only when the presence of a severe anemia can be ruled out. From the viewpoint of prognosis such murmur is of value in the case of a severe anemia, when the disappearance of the murmur indicates that the hemic condition has improved.

THE CHOICE OF A PRESERVATIVE FOR ANTIMENINGOCOCCUS SERUM.

WHEN one considers the site of injection and the amount of serum which is generally used in the treatment of cerebrospinal meningitis it must be admitted that the instances in which disagreeable symptoms appear are remarkably few. There have been offered two explanations for the development of collapse during, or shortly after the administration of serum in these patients. The obvious one that they are due to increase of intraspinal pressure because of a too rapid introduction of the serum is certainly true in a small percentage of cases, but Hale has shown (Hygienic Laboratory Bulletin, No. 91) that in the majority of instances the blood pressure falls abruptly, whereas it should rise if the intraspinal pressure had been unduly raised. He was able conclusively to demonstrate on dogs and cats that fatal symptoms accompanied by collapse and falling blood pressure resulted from the injection into the subarachnoid space of serum of solutions containing trikresol, the substance most generally used for the preservation of these sera. This substance, when introduced in close proximity to the vital centers seems to have a specific affinity for them and is able to bring about a fatal disturbance when given in exceedingly small doses.

More recently Voegtlin (Hygienic Laboratory Bulletin, No. 96, p. 87), working with dogs and monkeys, has been able to confirm Hale's work and

to extend it to other substances. He found that phenol produced a similar effect when used in a somewhat larger dose and that formaldehyde was even more toxic. Chloroform, however, whether in serum or in Locke's solution, caused a moderate rise in blood pressure even when the influence of the anesthetic (ether) was eliminated. This rise was followed by a slight fall and then a rapid recovery to the normal. In no instance were there any untoward symptoms, even though the dose was as high as 9 c.c. for a dog weighing 7.7 kilos. Chloroform is, of course, a perfectly satisfactory preservative from a bacteriological standpoint.

Voegtlin emphasizes the desirability of using gravity for the injection of such sera rather than a syringe, since with the latter it is extremely difficult to carry out the injection at a properly low pressure. The effect of the presence of choloroform on the antibodies contained in the antimeningococcus serum was not determined. The only objection mentioned is that a cloudiness develops in the serum on long standing due to a partial precipitation of the proteins, but it is claimed that this has no effect on the value of the serum. It would seem then that it would be advisable to discontinue the use of trikresol in such sera as are intended for intraspinous use. In its place chloroform might be substituted or the sera could safely be stored in sterile sealed glass ampoules.

TREATMENT OF BULLET WOUNDS OF THE ABDOMEN.

As a rule a bullet in traversing the abdomen causes multiple openings in the gastroenteric canal, and as a result of division of a number of small blood vessels, an effusion of blood mixed with the contents of the intestines takes place in the peritoneal cavity. If the amount is not excessive the effusion gradually sinks into the lesser pelvis. Laparotomy made as late as the second day after the injury may reveal an absence of blood in the abdominal cavity proper. The effusion in the lesser pelvis is usually infected through the admixture of intestinal contents, so that a pelvic abscess may often complicate the bullet wounds and their immediate sequelæ.

Professor Payr, the well-known surgeon of Leipzig University, now engaged in war activities, foresees the important role of these abscesses for the prognosis of small calibre bullet wounds of the abdomen. In an article in the new Military Supplement of the *Muenchener medizinische Wochenschrift*, August 18, he proposes measures to anticipate and deal with them. In recent wounds he would simply perform a minimum laparotomy above the symphysis, under local anesthesia, and insert a hard rubber drain into the lesser pelvis, thereby endeavoring to prevent the formation of an abscess. If, however, the patient is not seen until 48 hours have elapsed, he would first make sure of the existence of a pelvic abscess, and if one had formed would evacuate it through the rectum. Should this prove impracticable because of the absence of a circumscribed fluctuating mass beside the rectum, he would even make a parasacral opening with a view of draining the whole of the lesser pelvis. This step is justifiable because under the circumstances pelvic peritonitis often becomes generalized and fatal. The coccyx must be enucleated in order to secure the necessary drainage.

Payr does not discuss the treatment of the wounds themselves, but it is understood that in time of war this must be very largely conservative and expectant. Intestinal perforations sometimes close spontaneously. Laparotomies can seldom be performed in field hospitals, and in any case it is out of the question to deal with each unit directly in multiple injuries. The comparatively simple measures he advocates are believed to be able to prevent much mortality, but this can be decided only by the future.

VAGARIES OF MEASLES.

At a recent meeting of the Société Médicale des Hôpitaux, Garnier and Georges-Lévi Franckel (*Presse Médicale*, July 1, 1914) reported an epidemic of atypical measles affecting nine individuals. The disease was characterized by an incubation period of ten days, an invasion period of two to four days, and an eruption beginning either upon the face or upon the trunk, having a rapid evolution and terminating without desquamation. In two infants there was a complicating bronchopneumonia and in three adults there was an inflammatory arthritis. There was no adenopathy. By analogy with typhoid and paratyphoid fevers, the suggestion is made that one may speak of measles and of a so-called "fièvre paramorbilleuse (paramorbillous fever)."

The fact that some individuals are permanently immune to measles and that others enjoy a temporary immunity is commented upon by J. K. Friedjung (*Wiener medizinische Wochenschrift*, 1914, No. 18). The incubation period which has been definitely established by Panum as thirteen or fourteen days may however in some instances be as much as twenty-one days. The cause of this prolonged incubation period is attributed to an inherited relative immunity. The occurrence of secondary attacks or relapses of measles has not, in the opinion of this observer, been definitely established, and must, at any rate, be exceptionally uncommon.

The Study of Tropisms in Tissue Cultures.

The artificial cultivation of tissues has supplied a new field for the investigation of many biological problems. One of these is the nature of the influences that govern the direction of growth of any group of cells or any tissue. Thus it has long been recognized that the regenerating nerve fiber in growing out toward the periphery of the body is subjected to the influence of some tropism. Fischer demonstrated a chemotropism exerted in the case of proliferating epithelium when drops of oil tinted with scarlet red attracted toward them the growth of the epithelial cells. Eugenio Centanni (*Pathologica*, June 15, 1914) pursued various investigations along this line with interesting results. He studied the effect upon the direction of the artificial growth of tissues by bringing close to them capillary tubes containing other tissues or chemical substances. He found that when the growing tissue is in proximity

to another tissue from the same animal there is a positive tropism between the two. There is an exception, however, when the second tissue is obtained from the suprarenal gland, in which case there is exerted a negative tropism upon the first tissue; that is to say, the first tissue grows away from the suprarenal tissue. Solutions of suprarenal extract exert the same influence in this respect as the suprarenal gland itself. Drugs belonging to the nervine group, such as strychnine, caffeine, nicotine, morphine and chloral, appear to exercise a positive tropism on growing tissues, whose proliferation is stimulated in the direction of the chemical solution. This stimulating influence is most pronounced in the case of chloral.

Cancer Problems

It is often said that a disease which never undergoes spontaneous involution is beyond all therapeutic aid as far as a cure is concerned. If this were true the many recorded cases of spontaneous cure of cancer must then be explained by the therapeutic nihilists on the basis of a wrong diagnosis. At a recent meeting of the Berlin Surgical Society (*Berliner klinische Wochenschrift*, August 3), von Hansemann represented this pessimistic view. He even disputed the diagnosis of malignancy in those cancers of the face which yield to arsenic paste, for he said it is certain that arsenic cannot cure cancer. Bier, without actually gainsaying this viewpoint, cited numerous instances in which undoubtedly malignant growths responded decidedly to non-surgical measures. In one remarkable case injections of pig's blood caused striking clinical improvement in a cancer of the tonsil with regional lymph-node metastases. He was inclined to behold in a combination of radiotherapy with blood injections future possibilities of cure. Rotter reported a case of spontaneous cure of rectal cancer, confirmed by autopsy, at which another malignant growth was found in the greater pelvis.

Stretching of the Sciatic Nerve.

This method of treatment of sciatica, of which little has been heard within recent years, has been applied with good results in seven rebellious cases of this condition by Giulio Nannini (*La Riforma Medica*, July 25, 1914). By means of an incision on the posterior aspect of the thigh just below the buttock, and by the separation of the muscles, the nerve is exposed and isolated and is then subjected to firm traction in such manner that the entire length of the nerve responds to the mechanical stress. The traction should be continuous and not a series of sudden or violent jerks. During the first few days following the operation the patient experiences a vague pain, but this is less than before the operation; later there is a feeling of paresthesia in the distal part of the limb, a feeling as if this were about to fall off; still later all symptoms disappear and on the tenth to the twelfth day the patient begins to walk. The modus operandi of the stretching operation is difficult to explain. Of course the rupturing of adhesions is an important item. But the traction on the nerve causes vascular and nutritional changes in the parenchyma of the nerve and in the perineurium, which changes may be important factors in the cure.

Uremia as a Terminal Manifestation.

It has been shown by a number of clinicians that whatever the actual cause of chronic nephritis may be, it is nevertheless associated with a chronic and progressively increasing uremia. This condition has also been observed in acute mercurial anuria, and toward the lethal stage of such infections as pneumonia and typhoid fever. D. Dumitresco and A. Popesco, in the *Presse Médicale*, June 27, 1914, present the results of their observations which show that, in diseases which during their cause are not accompanied by an increased nitrogenous content of the blood, there is, as death approaches, an increase in the amount of urea in the blood, a condition which the above authors designate as a terminal uremia. This condition shows a more or less abrupt increase during the agonal period, and a less marked increase during the preagonal period. In cases of violent death occurring in the midst of health this terminal condition does not occur. There is a slight increase in the nitrogen in the blood during the first few hours after death—as it were, a post-mortem uremia.

News of the Week.

An Experiment in Health Administration.—Under the direction of the Health Commissioner of New York an area on the east side of the city, bounded by Scammel, Division and Clinton Streets, and the East River, has been marked off as a "health district," in which will be tested the value of a method of local health administration. This consists in the proposed government of the district, for health purposes, from within the district itself with the cooperation of a local volunteer health board, instead of from Department headquarters, and in the control of field workers by a local director in the place of various bureau chiefs. This plan aims at the avoidance of overlapping by different bureaus or departments concerned with health matters, and at increased usefulness through the establishment of intimate neighborly relations between the Department of Health and the local community. The development of the plan is under the control of Dr. Shipley.

Feeding the Prisoners.—The following is the daily ration given by the British War Office to its prisoners of war: Bread, 1½ pounds, or biscuits, 1 pound; fresh or cold storage meat, 8 ounces, or preserved meat, half ration; fresh vegetables, 8 ounces; butter or margarine, 1 ounce; condensed milk, 1-20th of 1-pound tin; tea, ½ ounce, or coffee, 1 ounce; sugar, 2 ounces; salt, ½ ounce. The German soldier who would be hungry on such a ration must have a Gargantuan appetite.

St. Luke's Day Service.—On the evening of Sunday, October 18, St. Luke's Day, there will be a special service for physicians and nurses at Calvary Church, Twenty-first street and Fourth avenue, New York. The rector, the Reverend Theodore Sedgwick, will conduct the service and addresses will be made by Drs. Howard A. Kelly of Baltimore and William H. Jeffries of St. Luke's Hospital, Shanghai.

Harvey Society.—The second lecture in the Harvey Society course will be delivered at the Academy of Medicine on Saturday evening, October 24, at 8:30 P.M. by Dr. Thomas Lewis of London. Subject: "The Excitatory Process in the Heart."

Minnesota State Medical Association.—At the annual meeting of this Association, held in St. Paul on October 1 and 2, the following officers were elected: *President*, Dr. John T. Rogers of St. Paul;

First Vice-President, Dr. L. M. Roberts of Little Falls; *Second Vice-President*, Dr. E. S. Muir of Winona; *Secretary*, Dr. Thomas McDavitt of St. Paul; *Treasurer*, Dr. Earle R. Hare of Minneapolis.

Removals.—Dr. B. Michailovsky has removed to 235 West Seventy-first street, west of Broadway.

Dr. Bruno S. Horowicz has removed to 448 Central Park West, corner of One Hundred and Fifth street.

Cornell University Medical College opened on Wednesday, September 30, 1914, with an enrollment as follows: For the degree of M.D. first year, 55; second year, 28; third year, 32; fourth year, 20; special students (work not leading to the degree of M.D.), 12; for the degree of Ph.D., 5; making a total of 152. All students now registered, with the exception of those pursuing the combined seven years' course leading to the degrees of A.B. and M.D., are graduates of Arts and Science, or Doctors of Medicine doing advanced work. Students in the combined course present the baccalaureate degree before they are admitted to the second year in medicine.

The Efficiency of the Eye Under Different Conditions of Lighting.—On Monday evening, October 19, at the Museum of Natural History, Seventy-seventh street and Central Park West, Professor C. E. Ferree of Bryn Mawr College, will deliver a lecture on the above subject before the Section on Astronomy, Physics, and Chemistry.

Obituary Notes.—Dr. Thomas Opie, one of the founders of the College of Physicians and Surgeons of Baltimore, and dean of the institution from 1872 to 1905, died at the home of his daughter in Washington, D. C., on October 6, aged 72 years. Dr. Opie was born in Martinsburg, Va., and was educated at the University of Virginia and the University of Pennsylvania, receiving his medical degree from the latter in 1861. During the Civil War he served in the Confederate Army, first as a private and later as a surgeon in the Twenty-fifth Virginia. After the war he practised in Baltimore, and was for many years professor of obstetrics at the College of Physicians and Surgeons and sugeon to the Baltimore and Bayview Hospitals. He was a member of the American Medical Association and the Medical and Chirurgical Faculty of Maryland, and one of the charter members of the American Association of Obstetricians and Gynecologists.

Dr. Raymond B. Coonley of Detroit died in that city on September 19, at the age of 25 years. He was a graduate of the Medical Department of the University of Michigan in the class of 1913.

Dr. Benjamin F. Wyman of Kitchings Mill, S. C., a graduate of the Medical College of the State of South Carolina, Charleston, in 1869, and a member of the South Carolina Medical Association and the Aiken County Medical Society, died at his home, from pneumonia, after a short illness, on September 30, aged 74 years.

Dr. Herbert E. Bennett of Mentone, Ind., a graduate of the Starling Medical College, Columbus, O., in 1879, died suddenly from heart disease, on September 27, aged 50 years.

Dr. Harry D. Belt of Chicago, Ill., a graduate of the Medical College of Ohio, Cincinnati, in 1897, and a member of the Illinois State and Chicago Medical Societies, died at his home, after a short illness, on September 29, aged 40 years.

Dr. William Henry Downey of Taunton, Mass., a graduate of the Harvard University Medical School, Boston, in 1898, and a member of the Massachusetts and Bristol North District Medical Societies, died at his home on October 1, aged 49 years.

Dr. Alonzo M. W. Westfall of Prairie City, Ill., died at his home on September 28, from acute dilatation of the heart, at the age of 70 years.

Obituary.

WASHINGTON EMIL FISCHEL, M.D.

ST. LOUIS, MO.

Dr. Washington Emil Fischel died in St. Louis September 15, 1914. Although a great sufferer during the last months of his life, and knowing that the end was not far off, such was his courage and powers of endurance, that few of his associates and friends knew of his condition until a short time before his death. Dr. Fischel was born in St. Louis, May 19, 1850, and received his degree of M.D. from the St. Louis Medical College in 1871, and subsequent degrees from the universities of Prague, Vienna, and Berlin, after which he returned to his native city, and began a general practice of medicine in 1874. His exceptional ability being soon recognized, he was invited to fill a chair in the St. Louis Medical College, and from that time he became an important factor in everything concerning the college.

In the making of the St. Louis Medical College into a self-governing adjunct to Washington University, in the joining together of the St. Louis and the Missouri Medical Colleges, and in the final merging of these united colleges into Washington University as the Washington University Medical School, Dr. Fischel played a very important part. Later, when it was thought advisable to reorganize this school, he was again an active and wise assistant in the work to be done in filling the many vacancies that ensued in the school. After this reorganization, Dr. Fischel continued to serve the college as clinical professor until his death.

When the Barnard Free Skin and Cancer Hospital was built, through the generosity of one public-spirited citizen, and it became necessary to interest the public in its maintenance, Dr. Fischel's popularity and influence were material aids in the very successful results obtained. He continued to be a useful member of the staff of this hospital until he died.

During his long and successful career in St. Louis, Dr. Fischel filled many honorable positions in the medical world, and was a member of many societies for the promotion of medical and other sciences, as well as those for purely social purposes. Burdened with a large practice, and with seemingly so little time for his own diversion, he never neglected his social duties, and was never happier than when surrounded by his family and friends, and was always the life of any party of which he was a member.

In the passing away of Dr. Fischel the community in which he lived has sustained a loss that will be greatly felt. His attainments in his profession and his work for civic good won for him the respect of all, and his kindly disposition and the deep, affectionate interest which he displayed towards those for whose well being he was working gained for him a place in their hearts that will be hard to fill. As a friend, as a successful physician, and as a good citizen, for Dr. Fischel was all of these, he will be greatly missed.

N. B. Carson, M.D.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

WAR ITEMS—THE SELECT COMMITTEE ON SECRET AND PROPRIETARY MEDICINES — FURTHER REPORT — OBITUARY.

LONDON, September 24, 1914.

THE war is the uppermost subject with every one you meet in the most casual way. The many hospital beds set apart for the wounded have so far provided for the arrivals. From some hospitals many of the resident staff have proceeded on active service. So have a considerable number of men in private practice who have been able to arrange for friends or assistants to carry on work during their absence. The payment is sufficient to secure from loss those with a limited clientele, but some long-established practitioners will no doubt make a sacrifice by going to the front. The medical corps has also its "roll of honor" in the list of casualties, already too long to repeat it here. The work of the Red Cross has in several instances been insufficient to protect those engaged in the work of mercy from injury or death at the hands of some German soldiers. It is to be hoped, however, that these will prove to be exceptional.

At Louvain we have the opposite picture—Dr. Noyous and his wife staying in the town to look after the wounded who could not be removed when the order was issued for everyone to leave before the further bombardment. A leaflet has been issued giving explicit instructions for the prevention and treatment of sore feet, which if only followed by the troops will save them much suffering.

Mr. G. H. Makins, C.B., surgeon to St. Thomas' Hospital, has joined the staff of the P. M. O. of the Expeditionary Force as the consulting surgeon.

The dependents of the men at the front are being looked after. A committee of the medical, the pharmaceutical, and the health insurance societies having been formed to provide them with medical and other relief. The Prince of Wales' Fund will defray the cost of the scheme.

Continuing my account of the Report of the Select Committee on Secret Remedies I should tell you that some distinction is made as to so-called medicated wines, of which large quantities are sold. They undoubtedly lead in many cases to intemperate habits, and it is well that the committee recommends that any proprietary remedy containing more alcohol than the amount necessitated for pharmacological purposes should show on the label the proportion present.

Passing by the articles which are classed as (*a*) genuine scientific preparations, and (*b*) unobjectionable remedies for simple ailments, there are, it is said, many secret remedies making grossly exaggerated claims of efficacy; causing injury by leading sick persons to delay in securing medical treatment; containing in disguise large proportions of alcohol; sold for improper purposes; professing to cure diseases incurable by medication, or essentially and deliberately fraudulent. This last class (*c*), the character of which is thus explicitly stated, the committee declares contains none which spring from therapeutical or medical knowledge, but they are put on the market by ignorant persons, and in many cases by cunning swindlers, who exploit for their own profit the apparently invincible credulity of the public. This they add constitutes a grave and widespread public evil.

The next point in connection with this exposure of the traffic is that in other countries and in some of our Dominions there are severe legal restrictions and a tendency to still further strengthen law against these articles. But in this country there is no officer and no department charged with the duty of controlling this trade, though it is possible the public prosecutor has not sufficiently tested the powers of the existing law in respect to such cases—consequently the traffic in quack medicines is practically uncontrolled, an intollerable state of things urgently demanding new legislation for the protection of the public. In what directions? After such a full exposure of an extensive evil it might be supposed the committee would recommend a drastic procedure. They are evidently impressed with the important part that the pretended secrecy of these medicines plays in deceiving the public. Yet they are not prepared to require the formula of every alleged remedy to be shown on the label. Nevertheless, they say it is improper that under the protection of the law enormous quantities of alleged remedies should be sold, the composition of which is unknown to any person except the manufacturers of them.

Therefore, they recommend that the formulæ of all secret remedies should be required to be communicated to a competent officer appointed under the authority of a minister of state. So far, good—that would be at any rate a sort of half-way house to the end they seem to think desirable. What is more hopeful still is that they would have the administration of the law governing the advertisement and sale of all secret and proprietary remedies combined under the authority of one department of state—this department to be that of the Minister of Public Health, "when such a department is created." Thus they adopt as practically sure to be carried the proposal for such a minister to be appointed, which has for years been the measure demanded by a very large number of ardent reformers.

An octogenarian doctor, retired long since, says that when he began to study for the profession, more than half a century ago, the demand for the appointment of a Minister of Health was most popular, and in many directions an early compliance with this desire was expected. Now that the idea is endorsed by a parliamentary committee there should be some hope of its realization, but it will demand determination from a strong government to accomplish it; for although non-political acts often pass easily enough on the recommendation of a select committee, if they do not touch the pockets of any section, this proposal is certain to excite the most intense opposition from those who are deriving enormous incomes from the sale of these quack medicines and to whom the committee has applied the terms of "ignorant persons" and "cunning swindlers."

Sir Henry Greenway Howse, consulting surgeon to Guy's Hospital, died on the 15th inst. in his seventy-third year. After taking the curriculum at Guy's, he passed the M.R.C.S. in 1865 and proceeded to the fellowship in 1868, taking the M.S., London, the same year. He was president of the college 1901-3 and a member of the senate of the university 1900.

Dr. A. Wigglesworth, who was on the surgical staff of the Irregular Cavalry in the Crimea, died August 24, aged eighty.

Progress of Medical Science.

Boston Medical and Surgical Journal.

October 1, 1914.

1. Demand and Supply as Related to Nurses and Nursing. F. T. Murphy.
2. *X*-Ray Evidence in Early and Latent Cancer of the Stomach. F. W. White and R. D. Leonard.
3. Traumatic Endocarditis. S. G. Webber.
4. Intraspinous Use of Salvarsanized Serum. C. W. McClure.
5. A Report of the Cases of Lung Abscesses at the Massachusetts General Hospital Clinic. C. L. Scudder.
6. Observations on the Behavior of Neosalvarsan. W. J. McGurn.

2. X-Ray Evidence in Early and Latent Cancer of the Stomach.—By F. W. White and R. D. Leonard. (See MEDICAL RECORD, June 6, 1914, page 1051.)

3. Traumatic Endocarditis.—S. G. Webber states that the severer lesions caused by external violence, as rupture of heart or pericardium, and the rupture or tearing of valves, give rise to symptoms which are recognized very soon or immediately after the accident and are generally fatal at once or after a comparatively short time. They are easily diagnosed, and reports of many such cases are found in medical literature. Less severe injuries may give rise to slight lacerations of the cardiac muscle or to ecchymoses into its substance or just beneath the endocardium which cause only temporary inconvenience, the symptoms thus produced soon disappearing. These slighter injuries may, however, give rise to changes in the valves which develop slowly and can be recognized only after the lapse of a longer or shorter time. These slight injuries have often been overlooked or entirely ignored as causes of valvular disease, the cardiac changes being ascribed to other causes. Several cases have been reported in which the early cardiac symptoms have been absent or of short duration and have seemed insignificant. After an interval of apparently restored health, valvular changes have developed, with their usual consequences.

5. Lung Abscess.—C. L. Scudder reports the details of a series of sixteen cases of lung abscess treated by operation. The following facts seem to the author to be apparent from a study of this group: The bronchiectatic process should be attacked by the surgeon while it is limited to one lobe of a lung. Actinomycosis of the lung must be recognized in its initial stage and vigorously attacked by surgery, for only in this way is there any likelihood of curing this fatal disease. Attention is directed to lung abscess following tonsillectomy. The surgeon should be alert to the occurrence of lung abscess associated with embolism following ordinary surgical operations. An increasing number of intraabdominal infections are associated directly with an infection through the diaphragm of the diaphragmatic pleura, and then of the lung with pulmonary abscess. These cases of subdiaphragmatic origin must be attacked early to prevent subsequent damage intrathoracically. The *x*-ray is of great value in the diagnosis of lung abscess. The author believes that this series of cases demonstrates the efficacy of surgical measures in the treatment of abscess of the lung. There were nine deaths and eighteen recoveries, and eleven cases were practically well without cough or sputum.

6. The Behavior of Neosalvarsan.—W. J. McGurn after an extensive experience with neosalvarsan is convinced that when accurately handled it is both safe and dependable; that in preparing and administering this agent a cool room with perfect illumination is of equal importance with strict asepsis; that the beginning of oxidation of neosalvarsan is simultaneous with its exposure to air, that "immediate injection" should be interpreted as forbidding a delay of more than ten minutes from the time of opening the ampoule until the injection is completed, which time can easily be reduced by half; also, that the use of therapeutic agents containing ammonium carbonate or mercury should be withheld or suspended for a period of forty-eight hours preceding and for several days following the intravenous administration of either new or old salvarsan.

New York Medical Journal.

September 26, 1914.

1. Modern Diagnostic Methods in Syphilis. J. A. Fordyce.
2. The Medical Treatment of Intestinal Stasis. R. W. Wilcox.
3. General Paralysis of the Insane. H. W. Mitchell.
4. The Prognosis in Acute Appendicitis. E. M. Stanton.
5. The Consumption Crusade: A Parallel.
6. Some European Clinics. R. J. Manion.
7. The Use of Scopolamine-Morphine in Labor. A. J. Rongy and S. S. Arluck.
8. The Value of the Abderhalden Test for Cancer. I. Levin.
9. Artificial Pneumothorax in Pulmonary Tuberculosis. C. R. Kingsley, Jr.
10. Newer Teachings Concerning Diseases of the Gastrointestinal Tract. M. I. Knapp.

1. Modern Diagnostic Methods in Syphilis.—By J. A. Fordyce. (See MEDICAL RECORD, June 6, 1914, page 1052.)

2. The Medical Treatment of Intestinal Stasis.—By R. W. Wilcox. (See MEDICAL RECORD, September 5, 1914, page 440.)

3. Diagnosis and Treatment of Paresis.—H. W. Mitchell concludes that the hitherto so-called parasyphilitic diseases of the nervous system are now known to be late specific lesions due to the presence of *Treponema pallidum* in the tissues affected. The parasyphilitic conception is no longer tenable. A small percentage of syphilitics, for reasons not clearly understood, manifest types of cerebrospinal syphilis which have always been specially resistant to any known treatment. Thorough and intensive treatment, aiming to destroy the last spirochete in the early stages of the disease, affords the best known prevention. The efficacy of early treatment can be determined only by the use of laboratory methods which should be employed with all syphilitics. Relative accuracy in treatment can thus be substituted for doubt and guess work. The study of the cerebrospinal fluid is imperatively demanded in the diagnosis of syphilis of the nervous system. Intraspinous treatment offers some hope of checking the disease, and is the only route by which spirocheticidal agents can be brought directly in contact with the tissues bathed by the cerebrospinal fluid. More general application of this measure and longer observation of cases thus treated are needed for the final estimation of its therapeutic value.

4. The Prognosis in Acute Appendicitis.—E. M. Stanton states that the following conclusions regarding the prognosis of the disease are now generally accepted by most surgeons: (1) The mortality in cases operated upon during the first twenty-four to thirty-six hours of the attack is almost nil. (2) Cases without peritoneal involvement localized to the immediate vicinity of the appendix can be operated upon with safety at any period of the attack, provided they are in the hands of a competent surgeon. (3) Cases with early peritonitis of greater or less extent are best treated according to the method of Murphy, but like all other forms of peritonitis the mortality in appendicular peritonitis, even when treated by the Murphy method, rises rapidly in cases operated upon after the first day of the peritoneal involvement. (4) Late abscess cases should be drained, with or without the removal of the appendix, according to the exigencies of the case and the skill of the operator. The mortality in this class of cases should not be over 5 or 6 per cent. at the highest. (5) The bulk of the operative

mortality today is encountered in the severe cases operated upon during the intermediate stage of the attack, at a period when there is well-marked peritoneal infection of more than twenty-four hours' duration.

8. **The Abderhalden Test in Cancer.**—I. Levin has applied Abderhalden's method in the diagnosis of thirteen cases of carcinoma. Of these twelve were positive and one negative. Four sarcoma cases were all positive. Of twelve tuberculous cases five were positive and seven negative, and of a series of cases of light nervous ailments four were positive and four negative. The analysis of the results shows that while the test is most frequently positive in carcinoma it cannot be considered actually specific, since the same ferments seem to appear in the serum of noncarcinomatous individuals. The real difficulty lies in the complexity of the phenomena involved in the problem. Carcinoma tissue used for the test consists of cancer cells, connective tissue, and bloodvessels, and consequently must contain different protein substances, some of which may possess characteristics of carcinoma tissue, while other may be analogous to normal tissue. The serum, on the other hand, may contain a variety of specific and nonspecific ferments. All these may combine to give a positive ninhydrin reaction. It is imperative that a great deal more research, both clinical and experimental, be done before a decision can be reached as to the applicability of the test for the clinic. The protein substance which the ferments split up must be made to be more clearly specific and the test itself must be finer and not depend on the behavior of the dialyzer. All these matters are the subject of further research by the writer. But for the present the method belongs to the research laboratory and not to the clinic.

New York Medical Journal.

October 3, 1914.

1. The Modern Warfare Against Tuberculosis as a Disease of the Masses. S. A. Knopf.
2. Nonoperative Treatment of Tuberculous Glands of the Neck. R. T. Morris.
3. The Effect on Blood Pressure of Decapsulation of the Kidney. E. H. Goodman.
4. Postdiphtheritic Paralysis. W. M. Barton.
5. Los Angeles Bronchitis. J. A. Guthrie.
6. Acute Intestinal Obstruction. H. M. Armitage.
7. Expert Testimony from the Standpoint of a Lawyer. A. M. Holding.
8. Quantitative Estimation of Alumin in Urine. M. Kahn and M. Silberman.
9. Newer Teachings Concerning Diseases of the Gastrointestinal Tract. M. I. Knapp.

1. **The Modern Warfare Against Tuberculosis.**—S. A. Knopf pleads that those afflicted with tuberculosis, socially so situated as to be unable to secure the sanatorium treatment at home, be placed in institutions where with the aid of modern phthisiotherapy health and earning capacity may be restored. There should be no uncared-for tuberculous individuals. There should be an increase in the number of sanatoria, special hospitals, preventoria, home sanatoria, seaside hospitals for tuberculous joint diseases, etc. There should be a universal obligatory examination and reexamination of all citizens for the discovery of tuberculosis and other diseases; judicious cattle laws to prevent infection of the human race from cattle; proper housing laws and the supervision of factories and workshops to make dangerous infection impossible; reasonable and judicious temperance laws and rational antialcoholic educational movements; the abolition of child labor and the support of indigent pregnant women a few weeks before childbirth and partly during the nursing period; open-air schools in abundance and equally great attention demanded for the physique as for the brain in primary schools as well as in high schools and colleges; the thorough training of medical men in early diagnosis and special antituberculosis work and a just remuneration for the services they render thereby to the community; special training for nurses and social workers among the tuberculous; education in schools and colleges, factories and workshops, by literature and lectures, exhibits and museums in all that pertains to the prevention of tuberculosis; the furtherance of sanitary living and the avoidance of infection from other diseases. Statesmen should make laws which will render farming more profitable, so as to attract fewer people to the cities and more to the country, and there should be state, provincial, and municipal labor bureaus to adjust the supply to the demand for labor in various localities. Last, but not least, there should be a readjustment of the earnings of the laboring men; there should be a minimum wage which will enable each individual, if he works, to earn enough to live, eat, and clothe himself decently. There must be no underfeeding, no bad housing, more enlightenment, and more sanitary education. Tuberculosis, in order to cease to be a disease of the masses, must no longer be a disease of ignorance, congestion, or underfeeding; in other words, in order that one may combat the great white plague there should be more social justice, more humanity to the unfortunate, more kindness and love for those so sorely in need of it. The war should be against tuberculosis, but never against the tuberculous.

2. **Nonoperative Treatment of Tuberculous Glands of the Neck.**—By R. T. Morris. (See MEDICAL RECORD, September 5, 1914, page 437.)

3. **The Effect on Blood Pressure of Decapsulation of the Kidney.**—E. H. Goodman reports the case of a patient with advanced renal disease in whom a remarkable fall in blood pressure followed a decapsulation operation. Before operation the systolic pressure was fairly high, but the diastolic pressure was unusually elevated, indicating an extraordinary increase of peripheral resistance. After operation both pressures fell—the systolic to normal, and the diastolic pressure to approximately normal, though one day it was as high as 110 mm. Hg. Subjectively the patient was much benefited, and the improvement was so marked that he became, for the first time, hopeful of his ultimate recovery. The edema was less; there was less dyspnea, and the urine was slightly increased in amount.

4. **Postdiphtheritic Paralysis.**—W. M. Barton states that recent experimental and pathological investigations have apparently remonstrated that the diphtheritic process affects the lower neuron throughout its entire extent, including the radicular cell and the peripheral nerve fiber. It is somewhat difficult at the present time to say exactly what portion of the phenomena observed are to be referred to the centrally, and what to the peripherally localized lesions. The alterations in the peripheral portion of the neuron are usually regarded as the most important. The treatment of diphtheritic paralysis with large doses of antitoxin has been advocated in France since 1896. Combe, in particular, is an ardent exponent of the treatment. He believes that every case of diphtheritic paralysis, recent or old, localized or general, should be treated with antitoxin.

6. **Acute Intestinal Obstruction.**—H. M. Armitage states that the three symptoms of importance in this condition are pain, constipation, and vomiting. When the fecal current alone is interfered with the pain is colicky. If strangulation is present the pain is violent and the patient is shocked. Lavage of the stomach and a well-given enema do not relieve the pain. There is generally a history of constipation and also of attempts to move the bowels by the use of cathartics. There may be a history of constipation following a diarrhea. When the fecal current alone is interfered with, violent peristalsis ensues, and if the abdominal wall is not too thick

this will be visible. Visible peristalsis is not as valuable a sign of complete intestinal occlusion as stiffening of the bowel wall, which may be felt upon palpation. The vomiting is persistent. At first it is reflex, but later mechanical. It is not controlled by lavage. Hiccough may be present instead of vomiting. One should operate in those cases in which the patient is not relieved and every effort to secure the passage of gas and feces results negatively. In those cases in which lead poisoning and gastric crisis are proved to be absent, but in which there is no permanent relief from pain, and in which the constitutional symptoms of shock progress, one should operate, although the bowels move slightly and gas passes, because these are cases of incomplete obstruction and a certain percentage become complete. If they remain incomplete, operation offers the best chances for recovery, since even these cases may present the secondary symptoms of toxemia, and death may ensue without the bowel becoming wholly occluded.

7. **Expert Testimony from the Standpoint of a Lawyer.**—A. M. Holding states that the opinion of a medical man is admissible in court with respect to the condition, physical or mental, of a certain individual; the cause of death or of disease; the cause of an injury; the effect of an injury; the effect of a drug or a particular treatment; and the probability of recovery; or with respect to questions perculiarly within the knowledge of the expert. The opinion of a medical expert may be based either on observation or on personal examination or on a hypothetical case stated in court. It must not be based upon mere hearsay or information gained from the statements of others obtained out of court. The expert must not base his opinions upon the voluntary statements of the patient as to his symptoms and the condition of his health, nor upon an examination made at the patient's request for the purpose of securing testimony in the patient's behalf; nor upon the description of the patient's condition given by third parties; nor upon information derived from private conversations with other physicians or experts. The opinions of medical experts are not admissible upon any of the following subjects: (1) Matters that do not come within the province of the physician's skill, for instance, as to what caused certain marks on the throat of the deceased, or as to the position of A when he shot B; questions of law; conclusions or inferences which it is the province of the jury themselves to draw, or matters of mere speculation.

Journal of the American Medical Association.

October 3, 1914.

1. The Surgical Treatment of Exophthalmos. C. H. Mayo.
2. Aperiosteal Amputation. H. H. M. Lyle.
3. Sporotrichosis in the Mississippi Basin. R. L. Sutton.
4. Bilateral Peripheral Facial Palsy, with Report of a Case. T. B. Throckmorton.
5. Pellagra in Minnesota. D. R. Brengle.
6. Pemphigoid of the New-Born (Pemphigus Neonatorum), with Report of an Epidemic. H. N. Cole and H. O. Ruh.
7. Penetrating Wounds of the Abdomen. R. Winslow
8. Aberhalden's Test in the Diagnosis of Cancer. C. F. Ball.
9. A Study of the Ferment Activity of the Blood Serum During Pregnancy and Under Normal and Pathological Conditions. F. H. Falls.
10. The Physician's Field in Infant Feeding. H. D. Chapin.
11. A Consideration of Some Practical Breast-Milk Problems. A. W. Myers.
12. The Feeding of Skimmed Breast-Milk. F. C. Neff.
13. Some Present Day Problems in the Surgery of Gastric and Duodenal Ulcer. H. Collinson.
14. Autoserum Treatment in Dermatology. W. S. Gottheil and D. L. Satenstein.
15. Roentgenological Observations on the Function of the Ileocolic Valve, with Special Reference to the Causation of Ileac Stasis. J. T. Case.
16. The Treatment of Cholera by Transfusion of Saline Solution. W. W. Cadbury and J. A. Hofmann.
17. Duodenal Ulcer. E. R. McGuire, J. L. Botsch and J. Evans.
18. The Duck as a Preventive Against Malaria and Yellow Fever. S. G. Dixon.
19. The Successful Isolation of Erhotinin Crystals from Certain Organs in a Case of Acute Ergot Poisoning. J. Rosenbloom and C. B. Schildecker.

1. **Surgical Treatment of Exophthalmos.**—By C. H. Mayo. (See MEDICAL RECORD, June 27, 1914, page 1194.)

2. **Aperiosteal Amputation.**—By H. H. M. Lyle. (See MEDICAL RECORD, June 27, 1914, page 1194.)

3. **Sporotrichosis in the Mississippi Basin.**—R. L. Sutton concludes that cutaneous sporotrichosis is a comparatively common disorder in the Middle West. In every suspected case a bacteriological test should be made as early as possible, otherwise the employment of powerful antiseptics, such as iodine, may render cultural examinations negative even though the fungus is still present. In the majority of instances the symptomatology of the affection is so characteristic that a mistake in diagnosis is hardly possible if one is at all familiar with the disease.

4. **Bilateral Peripheral Facial Palsy.**—T. B. Throckmorton states that bilateral facial paralysis is much more rare than is the unilateral type. While exposure to cold, drafts, localized congestive conditions, infectious and toxic processes, etc., seem to be largely responsible as direct agents in the production of the peripheral type of facial paralysis, the relationship between the nerve-trunk and its bony canal (Fallopian aqueduct) may not be altogether a negligible factor. Congenital narrowing or stenosis of the Fallopian aqueduct may be more instrumental as a true basic causal factor in the production of peripheral facial palsy than is commonly believed. Hereditary predisposition to peripheral facial paralysis may be present in some individuals.

6. **Pemphigoid of the Newborn (Pemphigus Neonatorum).**—H. N. Cole and H. O. Ruh present the following summary of their study of this subject: In an epidemic of nine cases of infantile pemphigoid (pemphigus neonatorum) it was possible to isolate in pure culture the *Staphylococcus aureus* in all cases in which unbroken vesicles were to be found. In one case the termination was fatal and a coccus was found in the internal organs at necropsy. The epidemic was started from a case of typical pemphigoid of the newborn, which later changed into a clinical picture of dermatitis exfoliativa neonatorum, and as the etiological agent in both diseases is the same the authors believe there should be no distinction between them. Impetigo contagiosa seu vulgaris seu bullosa (streptogenes) should be sharply differentiated from infantile pemphigoid because of its different bacteriological origin. The authors believe that infantile pemphigoid should be placed among the reportable diseases because of its severe epidemic characteristics and high mortality (from 25 to 50 per cent.). Because of the striking results obtained in the authors' epidemic they would recommend the use of an autogenous vaccine in alll cases of infantile pemphigoid.

7. **Penetrating Wounds of Abdomen.**—By R. Winslow. (See MEDICAL RECORD, July 11, 1914, page 86.)

10. **The Physician's Field in Infant Feeding.**—By H. D. Chapin. (See MEDICAL RECORD, June 27, 1914, page 1195.)

11. **Some Practical Breast-Milk Problems.**—By A. W. Myers. (See MEDICAL RECORD, June 27, 1914, page 1195.)

12. **Feeding of Skimmed Breast-Milk.**—By F. C. Neff. (See MEDICAL RECORD, June 27, 1914, page 1195.)

14. **Autoserum Treatment in Dermatology.**—W. S. Gottheil and D. L. Satenstein report their results with this method of treatment in eighteen cases including twelve of psoriasis, two of radiodermatitis, and one each of furunculosis, pustular acne and dermic abscesses, chronic urticaria, and lichen planus. The case

of pustular acne has been very markedly improved, is still under treatment, and is nearly cured; and the cases of urticaria, lichen planus and furunculosis have greatly improved. One of the radiodermatitis cases was a gangrenous one, and the result is characterized as astounding. The patient was apparently in a hopeless condition, was constantly under opiates, and could hardly get out of bed, and the sloughing ulceration had been almost unaffected by the various local and general measures that had been tried. The result of even the first injection was the rapid throwing off of the necrotic tissue, a beginning cicatrization of the ulceration, a cessation of the agonizing pain and the tenderness, and a rapid convalescence. This was a patient who had the symptoms of serum sickness after his fourth injection; the treatment was stopped in consequence of it; at present the patient is perfectly well and attending to his business; the ulceration is three-quarters healed, healthy, and slowly closing up under ordinary surgical local treatment. These patients were given from four to six autoserum injections at intervals of from five days to one week, during which time they were not hospital patients or confined to bed, but could pursue their ordinary avocations.

The Lancet.

September 26, 1914.

1. Dysentery. F. M. Sandwith.
2. Observations on the Improvisation of Apparatus in the Treatment of Certain Fractures in Modern Warfare. J. H. Watson and T. Snowball.
3. A Case of Enteric Fever Complicated by Purpuric Symptoms. G. R. Bruce.
4. Observations on the Composition and Derivatives of Urinary Dextrin. P. J. Cammidge and H. A. H. Howard.
5. A Case of Extrauterine Pregnancy with Prolonged Retention of the Fetus. E. M. Farrer.
6. The Sterilization of Potable Waters by Means of Calcium Hypochlorite. J. C. Thresh.

1. **Dysentery.**—F. M. Sandwith devotes his third lecture on this subject to bacillary dysentery. He states that this type of the disease is met with in all parts of the world, particularly in times of war and famine and in crowded institutions, such as lunatic asylums and prisons. Several varieties of the causative bacilli have been described, differing from each other in detail and particularly in their action upon sugars. The varieties are usually divided into two types: the Shiga-Kruse, which does not ferment mannite, and the Flexner or mannite-fermenting type. To these two types must be added the *Bacillus dysenteriens El Tor*, desbribed by Ruffer in 1909 and found then and since to be the chief cause of dysentery among pilgrims returning from Mecca to the quarantine station at El Tor on the Red Sea coast. The Shiga bacillus is the commonest cause of bacillary dysentery. The incubation period is short—from one to two days. The onset is usually sudden, but may begin with one or two days of diarrhea. Griping pain in the colon is the first symptom, followed very shortly by motions which consist only of a little blood and mucus. The tenesmus is so constant that the patient is hardly content to be away from the bed pan. The fever from an uncomplicated case is seldom above 101° or 102° F., and does not last for more than three to eight days, while in a mild case the temperature may never be above 99°. The stools may vary in the twenty-four hours from twelve to fifty or many more. The tongue is slightly coated or may be clean, but there is no appetite for food. A fatal case gradually develops a rapid pulse, cardiac failure, and collapse, in spite of an apparent improvement in the temperature and in the frequency and appearance of the motions. In gangrenous or fulminating cases the symptoms are severe from the onset, the stools may resemble washings from raw meat, with large sloughs of necrosed mucous membrane, causing death as early as the third or fourth day. The group of symptoms called dysentery in tropical and subtropical parts of the British Empire is usually labeled ulcerative colitis in the United Kingdom, at least outside lunatic asylums. One is confronted by an illogical outcome, for a case diagnosed as ulcerative colitis in a London hospital ward might be relabeled if it were discovered later that the patient had lived in the tropics and that his feces contained amebæ or bacilli; or, again, if he became insane and had a colitis relapse in an institution the complaint would be called "asylum dysentery." The author draws attention to the extraordinary and unexplained prevalence of bacillary dysentery among lunatics. It seems to linger in some asylums as if it were the last remnant of the dysentery which used to be so prevalent in Great Britain. Shiga says of bacillary dysentery: "Always a constant companion of war it has been more fatal to armies than powder and shot."

4. **The Composition and Derivatives of Urinary Dextrin.**—P. J. Cammidge and H. A. H. Howard report the discovery of a process by which the dextrin in a urine can be estimated even in the presence of sugars if free pentoses have been excluded by preliminary tests. This process has enabled the authors to investigate the occurrence of this body in diabetes and other pathological conditions and also to watch the variations that occur in different circumstances. The process is not sufficiently delicate to detect the trace of dextrin present in normal urines, and it is found that the urine of healthy individuals has an iodine coefficient of nought. When carbohydrate metabolism is being imperfectly carried out a high iodine coefficient is obtained. If, however, the interference with carbohydrate metabolism is such that sugar appears in the urine, a previously high iodine coefficient usually falls, to rise again when the sugar disappears. In many cases of persistent glycosuria, too, this movement of the iodine coefficient and the sugar excretion in opposite directions has been observed, a rise in the one being accompanied or preceded by a fall in the other. In severe cases of diabetes, where more sugar is being excreted in the urine than would be accounted for by the carbohydrate taken as such in the food, particularly when a fatal termination is close at hand, the course of the iodine coefficient of the urine and sugar excreted follow each other. These observations suggest that the urinary dextrin is probably a derivative or antecedent of glycogen, intermediate between that substance and dextrose. In the former case the body still possesses the power of breaking down glycogen to a polysaccharide of low molecular weight, but this, instead of being converted into dextrose, which in its turn would give rise to CO_2 and H_2O, suffers irregular oxidation. It is also possible that the urinary dextrin may result from an incapacity on the part of the tissues to form glycogen from dextrose, the process stopping short at the intermediate dextrin stage. In support of this view there is the fact that in mild and intermittent cases of glycosuria the iodine coefficient of the urine vanishes on a carbohydrate-free diet to reappear again when dextrose is added to the food in insufficient amount to bring about a return of the glycosuria, suggesting that when the glycogen stores of the body have been reduced by the exclusion of carbohydrate from the diet the tissues recover to a certain extent their powers of building dextrose into a more complex molecule, but cannot carry all of it beyond the dextrin stage. It has also been found in cases of hepatic disease in which dextrose can be utilized but in which levulose and lactose give rise to alimentary glycosuria, that the ingestion of dextrose is not associated with an in-

crease in the iodine coefficient of the urine. When, however, either of the other sugars is given in sufficient amount the iodine coefficient rises, suggesting that dextrose can be converted into glycogen, but that part of the levulose and lactose can be carried only to the dextrin stage, some being excreted in an even less completely metabolized condition.

British Medical Journal.

September 26, 1914

1. The Evolution of Toxemic Iritis. W. M. Beaumont.
2. Insects and War: The Bed-Bug. A. E. Shipley.
3. The Treatment of Acute Gonorrhea in the Male. W. W. Powell.
4. Discussion on the Treatment of Fibromyomata of the Uterus. A. Donald.
5. Discussion on the Treatment of Contracted Pelvis in Pregnancy and Labor. H. Jellett.
6. Rupture of Uterus Through the Scar of an Old Cesarean Section. A. T. Smith.
7. Further Experiences with Veratrine in the Treatment of Eclampsia. F. W. N. Haultain.
8. Rapid Relief in Acute Lumbago by Manipulation and Active Movement. W. Haig.
9. The Babinski Sign in Transient Functional Diseases. F. C. Eve.

1. Toxemic Iritis.—W. M. Beaumont refers to the frequency with which iritis is associated with arthritis, or at least with arthritic pains. It is noteworthy, too, that the arthritic and iritic symptoms are often so accurately coadjusted that exacerbations in the eye and joint frequently recur synchronously. On the other hand, practically never is acute rheumatism coincident with iritis. In the dyscrasia of syphilis and in that of gonorrhea a source of infection is clear and unmistakable. In traumatic iritis, due to a perforating wound, germs obtain direct access to the iris, and even in operating under the strictest asepsis the surgeon's path of incision may become the road of sepsis. Possibly, too, in sympathetic ophthalmitis toxins are elaborated in the exciting eye which have a specific affinity for the iris and other structures of the sympathizing eye. There is an ill-defined type of iritis arising from a dislocated lens in which there is apparently no path of entry for organisms from without. It is noteworthy that the iritis in such cases shows few signs of inflammation, although there are discoloration of the iris and posterior synechiæ. Such a low form of infection is probably caused by organisms of attenuated virulence. In diabetes the marked tendency to the dermic formation of boils and carbuncles of obviously infective nature may possibly explain the source of iritis, but on the other hand they may be the coeffects with the iritis of a common infection. Iritis, although credited to malaria, is a rare complication in paludal disease, while that which sometimes follows late in cases of herpes of the fifth nerve would seem to be undoubtedly of infective origin. The author has seen iritis in association with adiposis dolorosa, but as the patient suffered at the same time from dental sepsis it was probable that the latter was a factor common to both, inasmuch as adiposis dolorosa is due to an inflammation of the fibrous tissue of the panniculus adiposus. Except in sympathetic ophthalmia the iris does not appear to be readily accessible to microbic invasion following injuries of distant parts of the body. Pyorrhea alveolaris is the most frequent source of toxemic iritis, and the reasons would seem to be, first, the great prevalence of pyorrhea, and, secondly, the fact that the infection in these cases is direct into the circulation, whereas in many other forms of alimentary toxemia the toxins undergo the ordeal of the hepatic furnace.

4. The Treatment of Fibromyomata of the Uterus.—By A. Donald. (See MEDICAL RECORD, August 22, 1914, page 353.)

5. Treatment of Contracted Pelvis in Pregnancy and Labor.—By H. Jellett. (See MEDICAL RECORD, August 22, 1914, page 353.)

7. Veratrine Treatment of Eclampsia.—By F. W. N. Haultain. (See MEDICAL RECORD, August 22, 1914, page 354.)

8. Rapid Relief in Acute Lumbago by Manipulation and Active Movement.—W. Haig believes that the suddenness of onset in acute lumbago is, in the first instance at least, a mechanical one analogous to "crick" in the knee, which may be so severe that but for the necessity of moving on and thereby setting in motion again the muscles which have suddenly come into a state of contraction it would be quite as crippling as an attack of acute lumbago. In view of the undoubted benefit in other conditions from the manipulations of the osteopath it occurred to the author to wonder whether physicians have not hitherto neglected the consideration of the spinal column as a series of individual movable joints. The author describes his method of treatment, which consists of deep thumbing of the lumbar muscles, in process of which a painful area is usually found in either the middle line or to one or other side; fixing the part of the vertebral column below this painful region by firm pressure of the thumb on each side of the spine; and making the patient perform movements of flexion, acute dorsiflexion, lateral flexion, and rotation. The result is the cure of the attack of lumbago, inasmuch as the patient is able to at once return to his work, and in no cases has the author had to repeat the process.

9. The Babinski Sign in Transient Functional Diseases.—F. C. Eve points out that dissections of those dying with organic nervous diseases show that Babinski's sign is due to a lesion in the pyramidal tract. Babinski's sign also occurs in certain diseases, such as uremic hemiplegia, which are too transient to be organic, so that in these diseases the hemiplegia must be due to a transient functional paralysis of the pyramidal tract. Yet in functional hemiplegia due to hysteria Babinski's sign is never present. The author concludes, therefore, that hemiplegia in hysteria is due to loss of function not in the pyramidal tract but in the neurons at some higher level in the brain. And he believes that this reasoning as to hysterical hemiplegia can be extended to other hysterical paralyses.

Berliner klinische Wochenschrift.

August 31, 1914

Diagnosis of Affections of the Pulmonary Apices.—Ehrmann states that differences in the percussion note of the two apices may mean nothing serious, and may be accounted for on anatomical dissimilarities in the two sides; while in other cases pathological alterations may be present but nothing tuberculous. Diminished resonance may be caused by pleural adhesions. It is true also in cadaveric percussion that dullness over the apices may be due to these same adhesions. It is known that in unilateral apical affections there may be anisocoria, or inequality of the pupillary width. The author has made a research into these cases after first giving atropine, 5 to 15 drops of 0.1 per cent. solution by the mouth. The pupils, measured each quarter hour, showed more inequality in apical affections—uni or bilateral—than in normal subjects. These differences could be brought out by adding one drop of 3 per cent. cocaine solution and one drop of 1 per 1,000 adrenalin. The atropin is given to paralyze the motor oculi. The reason why apical disease can increase the irritability of the dilator pupillæ muscle is not apparent.

A New Symptom of Brachial Neuralgia.—Meyer found that in three cases out of seven of idiopathic brachial neuralgia a symptom occurred which he terms "arm (or shoulder) pain with the head held in

the shaving position." The latter is a throwing backward and sidewise of the head toward the sound side. The pain is felt on throwing the head backward, but is intensified when the lateral movement is superadded. The author has never seen any description of such a symptom in literature. The first patient had to shave or be shaved while standing. A second patient grew a full beard rather than shave. When another patient with brachial neuralgia appeared the author was moved to a Sherlock Holmes coup. He bent his head strongly backward, and sidewise a little to the right. The patient at once complained of pain in his left arm with paresthesiæ. From simple pains in the arm, which are common enough, brachial neuralgia is easily distinguished by the induced symptom.

Cancer of the Dorsum Manus in an Old Scar.—Coenen first cites the case of the distinguished German surgeon von Bergmann who developed dysentery in the Russo-Turkish war of 1876 as a result of which he died in 1907. The process had left an ulcer in the colon and in the course of many years an annular scar had formed and caused an obstruction. Somewhat similar was a case of cancer of the back of the hand in the scar of a wound received in 1866, patient now (1913) being seventy-four years old. The scar had thus been intact forty-seven years. The cancer began as a verrucous growth replaced soon by an ulcer which discharged pus and spread until it had destroyed the entire back of the hand down to the bones. It had become frankly cancerous. The arm was amputated and the axilla cleaned out. The microscope showed a squamous epithelioma. The location is by no means rare in very aged men, and there may be a history of inception as a warty growth.

Münchener medizinische Wochenschrift.

August 18, 1914.

Action of Salvarsan on the Fetus.—Meyer has treated a large number of syphilitic pregnant women with special reference to the action of the drug on the placenta and fetus. His results are summed up as follows: the arsenic content of the placenta corresponded with that of the maternal blood circulating in the same. An intact placenta is not permeable to arsenic. A spyhilitic placenta may be traversed by arsenic but the frequency with which this occurs is unknown. Success in the treatment of a syphilitic fetus with salvarsan depends upon successful treatment of the maternal syphilis and is probably prophylactic rather than remedial. The drug is well tolerated by pregnant women. Intravenous injection does not provoke abortion or hemorrhage or fetal death. In a series of thirty-seven syphilitic pregnant women treated sufficiently with salvarsan and mercury combined, living children were born in 97.4 per cent. In a series of forty-three women so treated, 86 per cent. of children were alive on the tenth day and 15.8 per cent. of children gave a positive Wassermann reaction at birth.

Severe, Nondiphtheritic Stenosis of the Larynx in Children.—Köck reports two cases of this condition in detail. Clinically it is, of course, a form of croup. To which form does it belong? It could be one of four separate types of acute stenosing laryngitis. (1) Diphtheritic croup excluded from the outset. (2) Pseudocroup. (3) Atypical pseudocroup. (4) Phlegmonous laryngitis. The typical kind of false croup may also be excluded readily. It is the ordinary, familiar croup of childhood which attacks young children. The atypical form of croup usually attacks children of the school age, is at first an ordinary rhinolaryngitis in which stenosis develops slowly and steadily until severe air hunger demands intervention. The temperature, moderate at first, tends to become high. As a rule the condition rights itself spontaneously from the fourth to the sixth day. Both the author's cases were in nurslings, yet the parallelism with the pseudocroup in older children was unmistakable. One child, who did not make a clean recovery from the laryngitis developed a relapse and succumbed to pneumonia. The second attack of laryngitis was clearly phlegmonous, and the combined condition represented a pyogenic infection. Both intubation and tracheotomy had been resorted to. The case shows that pyogenic infection of the larynx causes greater injury than the Loeffler bacillus. Intubation therefore appears to be contraindicated.

Relapsing Umbilical Colic in Children.—Paula Tobias discusses the disputed significance of this symptom, and the necessity of excluding various familiar conditions in diagnosis, such as appendicitis and gastric or duodenal ulcer. The condition may have a purely angiospastic origin, representing a vascular crisis, and be associated with a vasolabile, neurasthenic or hysterical disposition. Such symptoms, according to some clinicians, forebode the appearance of ulcer of the stomach or duodenum. The treatment which seems to benefit these cases, in the absence of definite causal indications, includes rest in bed, a spare diet, belladonna, Carlsbad water, valerian, and any mild measures of suggestive character, such as strips of adhesive plaster applied to the abdomen. Two cases mentioned by the author were in children ten and thirteen years of age.

Münchener medizinische Wochenschrift.

August 25, 1914.

Diagnosis of the Form of Pulmonary Tuberculosis.—Romberg endeavors to individualize the various types of chronic tuberculosis of the lungs. Most readily isolated is the cirrhotic process. Even a duration of consumption beyond the two-year limit suggests it. The physical and rational signs correspond to the contraction of the lung away from the various portions of the thorax, the heart being drawn over to the affected side. Naturally the involvement of the lung must be extensive to produce the entire clinical picture. It is not difficult to isolate another form of tuberculosis, namely the progressive caseating, cavitary, or proliferative in which we see clinically frequent hemoptyses and profuse coin-like sputum. Infiltration is suggested by bronchial breathing, moist rales of metallic character, and increased vocal fremitus, while cavities are recognized by the characteristic physical signs. It is very common, however, to see these two forms of phthisis side by side in the same subject. In that case positive information as to the presence of each disease is not difficult to obtain. There is a so-called benign proliferative form which is not so readily isolated, because it bears considerable resemblance to the progressive caseating form, which for the most part runs a florid course. A differential diagnosis based on physical signs should hardly be practicable, and this is also true for the clinical history and rational signs as well as the bacillary finds. Under these circumstances the *x*-ray may be of value, because the benign proliferative form gives vague shadows. The consolidation is made up of proliferative tissue and atelectases, and in neither case do shadows result. Only when anthracotic indurations appear do sharp shadows form. The progressive caseating form, on the other hand, which is really a bronchopneumonia gives good shadows at an early period of the disease and these may be seen to increase in size.

Sleep Disorders.—Happich, before discussing the disorders of sleep, seeks a working hypothesis for the nature of sleep. In the most active as well as most passive phase of the brain we alike find hyperemia, which, however, should have a different mechanism in either case. In sleep the vascular dilatation is due to absence of tonus, while in mental activity it proceeds from excitation of the vasomotor center. Activity of the brain during sleep is concerned with metabolism. The brain cells unload their waste which is borne away by the dilated bloodvessels which also supply new building material. Activity of the brain during wakefulness results in, or is associated with, quickened mental processes, increased functioning. We do not yet know to what intent brain cell metabolism can occur during waking hours. The author seeks to prove that very much poor sleep is due to improper sleep positions, since these may interfere with the circulation. As a rule whatever causes active dilatation of the bloodvessels, such as coffee and hot baths, produces wakefulness. So whatever arouses attention has the same result—lights, noises. Drugs to produce sleep naturally should act on the bloodvessels. Narcotics are necessary only in insomnia from arteriosclerosis.

Acute Nephritis a Frigore.—Gehrmann's article on this subject appears in the Military Supplement, although the case reported occurred in a civilian. The idea is doubtless to call attention to the fact that exposure of soldiers in the trenches, etc., may determine a certain amount of renal morbidity. A man of twenty-eight while swimming became exhausted and his comrades were obliged to rescue him. His exposure in the water was from five to seven minutes only, but he was brought ashore in a state of collapse, with air passages obstructed by water and mucus. A half-hour's work was required for reanimation. In addition to routine measures he received oxygen and camphor hypodermics. Soon afterward he voided urine spontaneously which was brownish red like meat infusion, the sediment consisting chiefly of red blood cells. The patient died on the following day of secondary heart failure. Autopsy showed absence of any traumatism which could have caused hematuria. The kidneys, normal to the naked eye, were found to be the seat of an acute hemorrhagic nephritis. The patient had never had any serious illness at any time. This case had almost the force of an experiment, in that a single cause acting in a healthy subject brought about a definite result. But while the cutaneous exposure alone can cause acute nephritis in animal experiment, the internal saturation with cool water must also be reckoned as a factor.

Deutsche medizinische Wochenschrift.

August 27, 1914.

Treatment of Tetanus with Subcutaneous Injections of Magnesium Sulphate.—Falk's contribution is made with especial reference to the possible use of this resource in the present war. Thus far it seems to have been tested subcutaneously in Germany in but four cases (three of tetanus neonatorum) all of which ended in recovery. The intralumbal method has received more attention. According to Stadler success was attained in two-thirds of the cases thus treated. Five especially severe cases treated thus in the Turco-Bulgarian war showed two recoveries. The treatment of tetanus neonatorum has shown the value of the subcutaneous injection of magnesium. Convulsions are overcome, feeding becomes possible, pain ceases, and patients sleep. But the drug appeared to threaten fatal arrest of respiration. In two cases life seemed to be saved by using intramuscular injections of calcium chlorate, as advised by Meltzer. In the third case the magnesium treatment was associated with chloral hydrate clysters and recovery was smooth. A study of the literature shows that respiratory phenomena by no means necessarily develop. Magnesium should never be given by intravenous injection, as it might prove fatal, even in small dosage. In Mielke's (German) case 3 grams daily were injected subcutaneously, his patient being a child of five years. In America adults required from 8 to 20 grams daily, the number of injections being three per day. Concentrations of from 10 to 40 per cent. have been injected. The subcutaneous injection seems to promise much for tetanus on the battlefield.

Protective Typhoid and Cholera Injections.—Fornet writes enthusiastically of the new Leishman vaccine. In 10,000 vaccinated the typhoid morbidity was but 0.5 per cent., while in 9,000 unvaccinated it was 3 per cent. Mortality was tenfold greater in the nonvaccinated, while morbidity was sixfold greater. These British results have been nearly equaled by the Americans. In Germany there is some prejudice against immunizing attempts because the original campaign in South Africa, while technically successful, reduced the mortality only from 12 to 5½ per cent., protection was very brief, and last but not least, there was a marked reaction, local and general. The subsequent efforts of Leishman and Russell led to the use of bacilli subjected to certain temperatures (one hour at 53° C.) instead of boiling the cultures. The lowest possible temperature, in fact, was used to kill. In regard to living cultures, they cannot be considered in connection with wholesale immunization. Fornet, in addition to profiting by the work of the English and Americans has perfected an albumin-poor vaccine with a view of reducing the chances of a reaction to a minimum. It has not yet been tested on a large scale. There appears to be no valid objection to the use of cultures prepared by Leishman's method. In regard to the present status of cholera immunization protection is conferred in 99 per cent. However, this figure does not dispose of the question. We have to ask who should be immunized, when should this be done, and what should be injected. There is great room here for differences in opinion based on individual experience.

Congenital Fissure of the Bladder.—Schliep states that there are three degrees of this malformation, to wit: inferior fissure, superior fissure, and ectopia. The surgeon may either do a plastic operation, suture the bladder wall or extirpate the bladder and divert the ureters elsewhere. While good may be accomplished in the individual case, many patients receive no benefit at all. The method of operative closure gives little hope, as with the necessarily small bladder there is a marked tendency to stone formation and incontinence. The author relates a case of superior fissure of the bladder, a rare malformation, operated on in Professor Bier's clinic. It was in a boy aged eight months. At the root of the penis, above, there was a cleft in the symphysis, through which urine escaped. The funnel like opening was formed of bladder mucosa. The penis contains a urethra and a catheter may be passed through the latter into the bladder. The sphincter is divided by the fissure. Bilateral inguinal hernia coexists. The mucosa which formed the funnel like opening was circumcised, the bladder mobilized, and invaginated by suture. A fistula was left which required operative closure. The patient was able to urinate through his penis. Over a year later he was in excellent condition. The bladder was fully continent, capacity nearly 50 c.c. Cystoscopic picture normal.

Insurance Medicine.

THE HEART IN LIFE INSURANCE.*

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THE mortality from heart disease in life insurance has increased very rapidly during the last twenty years, and the ratio of increase is greater each year. This fact and the vast knowledge on the subject which has come the last few years from the graphic tracings of various instruments makes it well for us to renew our study and discussion of the subject.

In life insurance the heart is a question of diagnosis and prognosis, and may be divided into five groups for consideration.

First—Gross lesions, uninsurable.

(*a*) Aortic regurgitation. First in importance because common and fatal, and easiest of all to diagnose. Ninety per cent. of the cases are due to syphilis, and it is the general effects of the disease that kills rather than the aortic disease. Again, late in the course of arteriosclerosis the process may involve the aortic region, and in a similar way myocarditis from whatever cause may damage the valves. The cardinal points in diagnosis are, enlargement, jumping arteries, and a wide range of pulse pressure. The pulse pressure may be from one hundred to one hundred and fifty mm. and is pathognomonic.

There is usually a collapsing pulse, and a diastolic murmur heard best at the apex. The applicant is likely to be pale on account of the unsustained circulation, and short of breath. It is possible to diagnose this disease by the blood pressure alone.

(*b*) Mitral stenosis. Characterized by a thrill felt most distinctly in the second right interspace, enlargement, a peculiar systolic or presystolic murmur rumbling throughout the systole and ending with a snap, and accentuation and duplication of the second pulmonic sound. Obstruction will certainly lead on to serious hypertrophy, disturbance of the function of the sino-auricular node and the bundle, with auricular fibrillation and other serious heart and also systemic results. It is the most fatal of all organic diseases of the heart uncomplicated at the beginning.

(*c*) Mitral regurgitation. The three chief points in diagnosis are hypertrophy, a systolic murmur at the apex, and accentuated second pulmonic sound. Death rarely occurs from this disease when uncomplicated, but the accompanying conditions as arteriosclerosis and nephritis, are very important. About 85 per cent. of all heart cases that we meet with in life insurance work will be one of these three forms of disease in the earlier stages mainly.

The danger in these cases is not so much from the obstruction, or the leaking, as from the complication of myocarditis. When the difficulty leads on to great enlargement, it is easy to see that the new tissue cannot be perfect and that there must be many points in the muscle where connective tissue or inflammatory products or scars compress muscle fiber, nerve or blood vessel to the serious interference with function; the heart can neither nourish itself well and preserve its rhythm, nor do the necessary work for the rest of the body.

There are many symptoms common to failing compensation in valvular lesions and myocarditis. In advanced cases there may be general arteriosclerosis, pulsating jugulars, enlarged liver, dropsy; in nearly all cases there is nephritis; in practically every case the blood pressure is high; inability to stop breathing, unconscious rapid breathing, and shortness of breath on exercise are very common symptoms. There may be acidosis, cyanosed lips and nails, heart block, auricular fibrillation, or the alternating pulse. Of course a case with these evidences of advanced disease would scarcely come up as an insurance applicant except in collusion of the agent and examiner for fraud, and even then the inspection report would more than likely protect the company. But very grave heart disease may be deeply hidden and obscure, and might escape us unless we are careful in every examination.

The first thing that usually attracts attention in insurance work is an irregular, intermittent, or rapid pulse.

In blood pressure and exercise we have an unfailing guide to the true condition. Whatever the abnormality the great question is the integrity of the heart muscle, the reserve force of the heart, for upon this chiefly depends the prognosis. The pulse should be counted, the heart examined, and the blood pressure taken, and then with the cuff attached to the arm the applicant should be exercised to the equivalent of climbing two flights of stairs and then re-examined quickly. Exercise when not too severe will regulate the pulse if the condition is simple. If serious disease is present the irregularity will be greatly increased. If the heart muscle is in prime condition the systolic pressure will jump 15 to 40 mm. and, tested every two minutes, will be found to resume its original place in 6 or 8 minutes. If the condition is bad, in a powerful effort of the heart to respond, the rise may be even greater, but the return will be exceedingly slow, sometimes requiring 20 or 30 minutes. If the state of the muscle is extremely bad and the reserve force exhausted, the systolic pressure may fall instead of rising and the diastolic remain stationary, or rise a little, creating a very small pulse pressure. It will be a long time before graphic instrument tracings are required in life insurance, if ever, but we have in exercise and blood pressure a thoroughly reliable test, and it is the duty of the examiner to be safe in his recommendation of every applicant.

Nothing so quickly and certainly reveals weakness or disease of the heart, or that splendid reserve power that means long life, as the blood pressure instrument. There is no question but the polygraph, the electrocardiograph and other such instruments are going to prove of immense value in diagnosis and prognosis, but of course they cannot come into general use in life insurance work so far as the examiner is concerned.

The rarer and minor forms of trouble, and obscure cases will yield the truth to blood pressure and exercise combined, and need not be discussed further.

Second—Cardiorenal group.

This is a large and important class, and it is well to study it separately because it is in large part due to our changed methods of living. Some months ago a letter was addressed to about six hundred health officers, medical directors, and leading medical men in the United States, the Latin American Republics, England, France, Germany, and Japan, inquiring whether there had been an increase in diseases of this class in the last twenty years, and if so, the

*Read before the medical section of the American Life Convention at Dallas, Texas, October 7, 1914.

cause. Nearly five hundred very interesting replies were received. Discussion of this important subject cannot be taken up in the limits of this paper, but one essential fact may be mentioned. It is the consensus of opinion that there has been a great increase and that it is due chiefly to nerve strain. A striking fact is that the two nations showing by far the greatest increase are rice eating Japan and meat eating America, the two nations living under the greatest nerve strain and worry.

It would seem that we have, first, nerve strain or worry, more or less continuous, then impaired digestion and autointoxication in which potassium indoxyl sulphate and its allies play a considerable part, then high blood pressure, a poisoned heart, and overworked kidneys, all leading on ultimately to arteriosclerosis, chronic myocarditis, and nephritis. It is this group chiefly that threatens life insurance companies because there seems to be no promise of relief from the conditions causing it.

Fortunately we have here ample protection in blood pressure and a careful study of the urine. Experience has led me to attach much importance to indican in excess, with numerous cylindroids, scattering hyaline casts, and the least elevation of blood pressure. This is frequently the first indication of serious trouble.

Third—Poisoned Heart.

This is a group where organic disease has not developed, and yet the heart is not up to a good standard. This heart is responsible for many a death that is put down in life insurance mortality records as pneumonia, typhoid fever, and scores of other names. It is a heart that may become organically diseased, and that certainly is not strong and does not stand acute disease well.

There are many causes of this form of trouble: Autointoxication from constipation, dilated stomach, collapsed colon, or other cause; kidney poisons; infection, including tuberculosis, and many other conditions. The pulse is lacking in volume, is too rapid, and responds excessively and too readily to exercise; the heart tires easily, and the blood pressure is low. By the auscultation method the sound is muffled, feeble, and lacking in tone. There is muscular weakness, the functions are poorly performed, and it is highly probable that there is some disturbance of the function of the ductless glands that usually combine to fight poisons of every kind. The low blood pressure is very significant.

Fourth—Organic Lesions, Insurable.

There is a small group of this kind entitled to standard insurance if we can but select them. Mitral regurgitation with limited hypertrophy perfectly compensated and uncomplicated, in suitable occupation; roughened valves following inflammation, where there is a murmur, but no other evidence of disease or other symptoms pointing to trouble that has existed and recovered leaving the tracks behind. Such applicants, however, should be thoroughly tested, for late in life they may show up serious disease with the vascular changes of age.

Fifth—Simpler conditions.

It is a well known fact that there are heart murmurs unaccompanied by organic disease. This must be determined by the exclusion of all disease by the proper tests rigidly applied.

Again there is a harmless arrhythmia, very common in the young, due to disturbed vagus action, and noticeable chiefly on deep breathing. The young applicant is likely to be apprehensive on examination, and the breathing may become a conscious process, not only changing from shallow to deep, but irregular, and the pulse may become correspondingly erratic. These sinus arrhythmias are of no consequence of course and should not be put down against the applicant. It is an easy matter to find whether there is some other cause for the irregularity. A little exercise, or putting his mind at ease, will usually regulate the pulse. Unimportant irregularity may be caused also by excitement, smoking, or trivial disturbance of the stomach.

In this group of insurable applicants belong those who have what is called "extra systoles," or premature contractions. For fifty years these cases have been unfairly treated by insurance companies. Many have been declined in young manhood and made miserable for a long life under the impression that they had some grave form of heart disease, because of intermittence or irregularity. The sino-auricular node located in the auricle near the entrance of the superior vena cava and its transmitting line of muscle cells and nerves communicating with the other parts of the heart, the bundle, is an exceedingly delicate structure, and easily disordered. Again, the heart may become "sensitized" at various points from nutritional cause, especially in the ventricle, and the ventricle not waiting for a "wire" from the pace making node may act independently and prematurely, causing an extra systole with its so-salled "compensatory pause." This may happen two to ten times a minute for hours then disappear for days or months.

Thus a heart may not be well balanced and yet be perfectly sound. This is especially liable to occur on account of the changes incident to age after 40.

It has been clearly proven by Mackenzie and Lewis, by means of cardiograms and polygraph tracings, that extra systoles may exist without important disease. Most of us can't afford the money and time that an electrocardiograph or a polygraph would cost, but in exercise and blood pressure tests we have a means of excluding the organic diseases in which extra systoles may occur.

The thing for us all to do, Medical Examiners and Medical Directors, is to study the important subject of the heart together and thoroughly post ourselves on the recent great advancement in knowledge. Then on examination to strip the applicant to the waist, and by inquiry, inspection, palpation, percussion, exercise, and blood pressure tests to protect the company against hazardous risks, and at the same time be just to the applicant.

When thoroughly and repeatedly tested out many of these "extra systolics" will be found entitled to standard insurance, and others to some form of policy, and it is unfair to the applicant and the company to bar them.

Blood Pressure.—Jackson says that blood pressure examinations before and after exercise, together with observation of the pulse rate and the general signs of respiratory embarrassment and cyanosis, are a valuable means of estimating cardiac efficiency, and applied to those past middle age, or presenting cardiac irregularities or murmurs, or in whom there is any reason for suspecting degenerative processes, they furnish valuable and permanent information as to the condition of the heart muscle.

Society Reports.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Twenty-seventh Annual Meeting, Held at Buffalo, N. Y., September 15, 16 and 17, 1914.

THE PRESIDENT, DR. CHARLES N. SMITH, TOLEDO, OHIO, IN THE CHAIR.

The Necessity of Constantly Looking for Cancer of the Uterus.—Dr. J. HENRY CARSTENS of Detroit drew the following conclusions: 1. Every case in which curetting was done should be examined. If it was done for miscarriage, it should be examined to show the remnants of placental tissue, and also to determine whether there might not be the beginning of decidua malignum. 2. If curetting was done for hemorrhage, one should know if it was due to a condition of the mucous membrane or was constitutional. If it was done for an irritating discharge one should know the pathological changes in the mucous glands. The important thing was that we wanted to know. 3. In every case of curetting the tissue removed must be carefully examined microscopically. In every case of trachelorrhaphy the tissue removed should be examined in the same way for cancer. 4. The age of the patient would cut no figure, old or young. All tissues removed should be subjected to the same careful microscopic examination.

DR. JULIUS H. JACOBSON of Toledo said if we could impress the nurses in the training schools with the importance of the early recognition of cancer, we could do more good in informing women of its early signs than by any other plan we might adopt.

Dr. CHANNING W. BARRETT of Chicago said he would not be inclined from the point of view of the development of carcinoma in the liver, the pylorus, or cervix, to lay as little stress as the essayist did on the point of irritation as an etiological factor. We would probably find out some time that there was another cause, a parasitic cause, yet it could not be doubted that irritation did play an important rôle in the causation of cancer.

Dr. FRANK D. GRAY of Jersey City said according to the essayist, the portions of the body most subject to irritation were the least liable to the development of cancer. He would like to have him explain that point more fully in his closing remarks.

Dr. GORDON K. DICKINSON of Jersey City said Dr. Beaver and he stood alone in exploiting the value of diagnostic hysterotomy. Dr. Carstens spoke of the pathologist finding cancer cells and making a diagnosis. How many times had we trusted our pathologists who sent a report back "No cancer found," and afterwards we discovered carcinoma? We should make a diagnosis early and he did not see any reason why when clinical and pathological proof was wanting, we should not bring the fundus down into the vagina, split it, examine the interior of the uterus, and remove a piece, if necessary, instead of relying on the curettings.

Dr. CHARLES L. BONIFIELD of Cincinnati said that he did not think it was wise to keep on harping to the laity about the early symptoms of cancer, because they could not make the diagnosis, but what was necessary was to teach married women who had had children the necessity of going to a gynecologist occasionally to be examined, just as they went to a dentist to see if their teeth were sound or decayed. If it was worth while to pay money to save the teeth, it was certainly worth while to have some competent man to determine whether or not a woman was suffering from cancer.

Dr. CARSTENS in closing said irritation did not produce cancer. It never had and never would. If by coincidence there was a place that was irritated and cancer developed, there was some other place where cancer developed where irritation did not exist. People who wore glasses irritated the skin of their noses; their noses were pinched, yet he challenged anybody to show him a single case of cancer having started there from such irritation.

Renal Damage from Calculi.—Dr. HENRY D. FURNISS of New York City said, from an experience of about four cases, he had come to the following conclusions: (1) Lithiasis was essentially a chronic disease. Undoubtedly the calculus in each case was present much longer than the symptoms, yet the average duration of symptoms was four years—the minimum being one month and the longest eighteen years. The development was often insidious, and frequently complete destruction of a kidney occurred with very little discomfort or interference with the general health. In only two cases, running a septic temperature, was the general health much impaired. (2) Multiplicity of stones was found in fifteen cases, though in only two were both sides affected. In calculus anuria this bilateral involvement should always be considered. The consensus of opinion was that sympathetic anuria was rare, and that in nearly every case it would be found that the unsuspected kidney had either been congenitally absent or previously destroyed by disease. Reflex pain was another condition that was to be looked upon with suspicion,—a definite cause for pain was generally to be found, and he regarded this so-called reflex pain as very rare. (3) Stones, unless multiple or very large, situated in the calices, in the absence of infection, or the opening of a blood vessel, by attrition, caused little discomfort and little damage. The size and location in these quiescent cases should be determined by frequent radiographs, and when the stone remained favorably situated and did not enlarge, a waiting policy should be the one used. When very large, pressure atrophy of the renal parenchymia occurred. (4) When a stone entered the pelvis of the kidney, then obstruction was likely to occur, and with the consequent retention infection would sooner or later develop. . . . The rougher the stone and the greater the retention, the greater the liability of infection, so the more urgent need of operation. Calculi able to be passed through the ureter, entered it soon after they had dropped into the pelvis from one of the calices. So we seldom saw pelvic stones that were subsequently passed. Stones in the pelvis that obstructed had many features in common with ureteral calculi. (5) Ureteral calculi that were small, smooth, did not completely obstruct, moved downward constantly, and were passed in a relatively short time, did only temporary damage. Those that were fixed, or obstructed seriously the outflow of urine soon led to irreparable damage, especially if infection took place. Stones in the pelvis that ball-valved it, and ureteral calculi, as a rule caused much more suffering and greater renal damage, than stones located in the calices, especially when upon the retention, infection supervened. Ureteral calculi often became embedded in the ureteral wall, and after operation, stricture of the ureter was very apt to occur, and caused further damage to the kidney. (6) The effect of calculi upon the kidney was dependent mostly upon the obstruction that was produced, and was added to by infection, which was present in 68 per cent. of his cases. There were nine cases of pyelitis and pyelonephrosis, five of pyonephrosis, and five of infected hydronephrosis. In seventeen cases the function of the involved kidney as compared with its fellow was determined, and in only two was it normal, in four the loss of function was moderate, in three great, and in eight complete. This analysis showed that in practically 50 per cent. there was damage to the renal function, and that in 35 per cent. it was completely destroyed. Their numbers fell short of showing the real condition, for in fifteen cases, nearly 50 per cent. of the total, no determination of function was made. (7) Of the thirty-two cases, the calculi produced no injury in thirteen, in nine there was pyelitis and pyelonephritis, in five pyonephrosis, and in five infected hydronephritis, and he believed it was fair to assume that some of the nine pyelitis and pyelonephritic cases would have in the course of time advanced to the stage of pyonephrosis and infected hydronephrosis; and that of the thirteen undamaged cases, many would later have become more seriously involved. (8) In the pyonephrosis cases and the infected hydronephrosis with great loss of function, nephrectomy was advisable. (9) In the ureteral cases with great loss of function, it was debatable whether the removal of the stone, or the kidney was advisable. His own opinion was that better results were obtained by removing the kidney than the stone, and that the best results came from removing the kidney and ureter to a point below the stone. As infection was one of the greatest dangers, our examination should be conducted with this in mind. The method upon which he insisted was radiography, first and always. The estimation of the damage done the kidney was best determined by observation, through a cystoscope, of the elimination of indigo-carmine injected intravenously. Occasionally, but not often, it was necessary to insert an *x*-ray catheter to be certain that a given shadow was in the ureter,—or to pass a waxed tip catheter when radiography failed.

Dr. CHARLES L. BONIFIELD of Cincinnati said he remembered distinctly a case he operated on two years ago. The patient went to one of his colleagues two or three years previously, had the kidney explored and needled, but the conclusion was reached that there was no calculus. In the meantime *x*-ray showed a calculus and its position, so that it was easily removed. It was important to *x*-ray all these cases early.

Dr. MILES F. PORTER of Fort Wayne said he would like to ask Dr. Furniss what, if any observations he had made regarding the incidents of cancer in kidney stones?

Dr. FRANCIS REDER of St. Louis said hardly any surgeon to-day would invade the kidney without having a positive *x*-ray picture. In one case he cut down upon a kidney following an *x*-ray picture which located the stone in the lower pole. At the operation it was found that the stone was an inch and one-half in the ureter. In some way the kidney was displaced and the shadow showed through the kidney and gave the impression the stone was located in the lower pole of the kidney.

Dr. LEWIS F. SMEAD of Toledo said he would like to ask Dr. Furniss what experience he had had with calculous anuria where the stone was small enough to pass, and whether he had been forced to operate upon small calculi on account of calculous anuria.

Dr. HUGO O. PANTZER of Indianapolis said he would like to ask what stress we might place upon bladder irritability as a symptom in these cases. Also what objection the doctor had to doing nephrotomy.

Dr. E. GUSTAV ZINKE of Cincinnati said a man, fifty-four years of age, came to him complaining of no symptom in particular except that he did not pass as much urine as usual, and that occasionally he would have a dull pain in his back. Examination of the urine revealed a slight trace of pus. The *x*-ray showed a stone about the size of a rooster's head upon the right side, with a stone about the size of a cherry upon the left side, which gave him very little or no trouble. In operating upon the kidney with a large stone, the kidney was easily found, exposed, and incised its full length to remove the stone. There was apparently no evidence of destruction of the kidney tissue, and as the man had a stone upon the other side he concluded not to remove the kidney. He sewed it up and fixed it in the usual way. The man did well for a week, and then suddenly began to go down. He had no evidence of peritonitis, and died of exhaustion at the end of two weeks.

Dr. BONIFIELD asked whether the kidney was drained or not.

Dr. ZINKE replied that it was.

Dr. JOHN F. ERDMANN of New York City mentioned a case in which a radiograph showed a large stone on the right side and a large shadow on the left side. The patient had a high temperature with all the evidences of sepsis. He operated on the left side and removed a large hypernephroma. He did not operate on the kidney containing the stone. Notwithstanding the man's urine was badly infected he had recovered. The speaker hoped later, if the man turned up, to do a nephrostomy and remove the stone from the right kidney.

Dr. FURNISS, in closing, said he had not had many cases of anuria. Where there was anuria we could not determine the relative function of the kidneys, because neither one was excreting. If we had only one chance to do one operation, it was best to do it on the side where the symptoms were the least because the other kidney might have been destroyed.

Anastomosis of the Gall Bladder to the Stomach: Cholecystogastrostomy.—Dr. JULIUS H. JACOBSON of Toledo drew the following conclusions: (1) The operation of cystogastrostomy had the same indication as that for cholecystenterostomy. (2) The presence of bile in the stomach after cystogastrostomy did not interfere with digestion or cause the patient any inconvenience. (3) The operation was very easy to perform; therefore, it offered a palliation and prolongation of life to a class of patients which, as a rule, were considered inoperable. (4) On account of the small danger of ascending infection it should be the choice of methods when it became necessary to anastomose the gall-bladder to the alimentary tract.

Observations on Torsion of Ovarian Cysts.—Dr. K. I. SANES of Pittsburgh said recognizing the dangers of torsion we should adopt only one line of treatment, and that was ovariotomy. Pregnancy should not be considered a contraindication to the operation. In a case of torsion of ovarian cyst and a case with torsion of the right tube and ovary during the fourth month of pregnancy both went to full term and were delivered of living children about five months after the operation. The operation was simple and safe, and even the finding of peritonitis and ascites did not seem to affect the results. In cases of impaction of a twisted cyst in the pelvis, the vaginal route might be preferable. The good result of the vaginal ovariotomy in one of his cases showed that in favorable instances it could be safely used. There was no death in his ten cases. There were four deaths among the twenty-five cases collected from literature, one from acute nephritis, secondary to toxemia, one from yellow atrophy, secondary to toxemia, one from perforation of the sigmoid, caught in the twist, and one from sepsis.

Dr. CHANNING W. BARRETT of Chicago said the question as to how to deal with an ovarian cyst and yet save the ovary was an important one. In a series of cases collected the frequency of abortion following operation was almost in direct proportion to the trauma done beforehand. The further question that was brought out in this series was what to do with an ovarian cyst that was double, there being a rather common notion that if both ovaries were removed abortion would take place. Abortion did not occur in the series of double removal of the ovaries, but slightly in a single ovary, and that was easily accounted for by the extra manipulation of taking out the two ovarian tumors rather than one.

Dr. ALBERT GOLDSPOHN of Chicago said if we inspected the outer part of the cyst wall near its pedicle frequently we would see macroscopic evidences of Graffian follicles and he had repeatedly dissected out that outer layer, carefully ligated vessels, without compromising the main pedicle, and folded the flap up and stitched it, and menstruation had followed from that.

Dr. HUGO O. PANTZER of Indianapolis said he had had a singular experience, namely, fourteen cases of torsion of ovarian cysts in fourteen consecutive months, and then none in two years plus.

Delayed Union in Noninfected Epigastric Wounds.—Dr. MILES F. PORTER of Fort Wayne said the evidence upon which rests the opinion that delayed union was more likely to occur in wounds in or near the midline above the umbilicus than in similar wounds below the umbilicus was quite strong. Neither the suture material nor the method of suturing could be blamed in all cases. The causes were many. Of special importance was the general condition of the patient. By using non-absorbable suture material, and allowing the sutures to remain *in situ* for two weeks or more, one might avoid serious accidents from delayed union; but one could not in this way always secure prompt union. Incisions through the recti muscle united more promptly than incisions through the white line. The result of delayed or imperfect union were immediate and remote. The immediate result was protrusion or exposure of the viscera, and the remote result was hernia and rarely rupture of the scar. Lack of union was usually symptomless and was usually discovered when the wound was dressed. In some cases the moisture of the dressing led to an example which revealed the conditions. As a rule, the prognosis was good. The proper closure of wounds might not secure prompt union, but would prevent serious accidents from delayed union.

Dr. GEO. VAN ANBER BROWN of Detroit said he had had three cases similar to those described by Dr. Porter. The first occurred about ten years ago in a young woman for whom he had removed a large cystic ovary and did the so-called Gilliam operation. She did nicely and left the hospital in fifteen days. Two or three days after her return home he was called and found the wound had separated down to the peritoneum. There was no suppuration. It was filled with one blood clot. A culture was made and staphylococcus infection was found. She was taken to the hospital and the peritoneum closed with catgut and a layer of gauze placed between the peritoneum and the muscle for drainage, and then the muscle sheath closed with catgut, and she made an uneventful recovery.

Dr. LEWIS F. SMEAD of Toledo reported two cases of delayed union above the umbilicus. The first was a case of pyloric obstruction due to ulcer in which the Finney pyloroplasty was done. It was a right rectal incision. The wound was closed with fine silk in the peritoneum, and muscle and fascia with heavy silk, running silk in the fascia, the through-and-through muscle fascia stitches going back three-quarters of an inch and tied over a running stitch, the skin being

closed by subcutaneous silver wire. At the end of ten days the silver wire was removed and the wound was apparently clean. In the afternoon the wound opened completely from end to end. It was closed immediately, but the woman died on the seventeenth day from peritonitis.

Dr. Asa B. Davis of New York City said he had seen five or six cases of separation of the wound after cesarean section in the Lying-In Hospital. The wound was not infected apparently, but by closing it again with through-and-through silkworm gut sutures there were strong union and no complications. In one or two cases the wound had been infected and opened part of the way down and had been allowed to heal by granulation. In these cases hernia developed, while in the other cases it did not. It was a rare thing to see in connection with cesarean operations. He did not recall one in any of his own cases.

Dr. Albert Goldspohn of Chicago said it must be evident to almost all of us that when we tried to close epigastric incisions the structures seemed to give with much more tension. There seemed to be a greater shortage of material in the epigastrium than in incisions made below the umbilicus. Dr. Goldsphon then related a case in point.

Dr. Hugo O. Pantzer of Indianapolis said he operated on a patient in the relatively well period of pernicious anemia. In that case, within three days after operation there was not found a vestige of any absorbent suture material, and he used chromic gut of the heavy type through the fascia, so that he had to recognize in such cases systemic or blood conditions.

Dr. Frank D. Gray of Jersey City said the only instance of separation of the abdominal wound which he could remember in the course of five years or more was a laparotomy done for resection of the intestine following a bullet wound, making six or seven openings in the intestine, which he resected and united by the modified Maunsell method, and the man made an uninterrupted recovery. For a week there was no evidences of sepsis. At the end of the time he sat up, was put in a roller chair, and on his own responsibility went rolling around the wards. He went back to bed in partial syncope and vomited. The wound separated. It was closed again, and he made an uneventful recovery with perfect union.

Dr. William H. Humiston of Cleveland said he did not see why we should have more difficulty with incisions made in the epigastric region than in those made below the umbilicus. The question arose whether the technique might not be at fault in the majority of cases. It was better to go through the muscle to the right of the median line and be very careful not to strip the fascia from the muscle. If the incision was clean and the muscles were separated carefully, and the posterior fascia was divided carefully, he did not see why there should be separation of the wound. In the majority of cases where separation occurred the muscle sutures were drawn too tight.

Dr. Porter in closing said, he was in exactly the same fix as Dr. Humiston, and did not see why we should have this separation of the wound, but the fact was we did have this trouble, and he wanted to find out why we had it. There was no question but that there was greater danger of lack of union in a given wound above the umbilicus than below it.

Myomectomy with Extensive Resection of the Uterus in Fibroid Tumors.—Dr. X. O. Werder of Pittsburgh said a comparison of the mortality of hysterectomy and myomectomy would seem to be rather in favor of the latter according to the experience of the writer. Since 1898 inclusive, during which time accurate records had been kept, 707 cases of uterine fibroids had been operated upon with a total mortality of 3.25 per cent. This did not include over a hundred cases in which small fibroids were removed coincident with other operations, but only those in which this neoplasm constituted the principal indication for operation. In these 707 cases, hysterectomy was performed 536 times and myomectomy including the 13 cases of extensive resection of the uterus here reported, 171 times. The total mortality in the latter cases was 4 or 2.33 per cent., while hysterectomy was accompanied by a death rate of 3.45 per cent. or more than 1 per cent. in favor of myomectomy. The morbidity of myomectomy also compared even more favorably with that of hysterectomy, as the cases of myomectomy almost uniformly made a smooth, uncomplicated recovery, and almost without exception enjoyed perfect health after the operation; they were, in fact, among the most satisfactory cases in the writer's experience. In conclusion, he felt therefore, justified in making a plea for more conservative treatment of uterine fibroids in younger women than they now received at the hands of most general surgeons and gynecologists. Myomectomy and the more radical resection of the uterus could be profitably performed in many women whose uteri were now ruthlessly sacrificed, resulting in many cases in long years of discomfort, unhappiness, and often invalidism.

Dr. Gordon K. Dickinson of Jersey City said he would like to ask the essayist whether he had had any cases of embolism from myomectomy.

Dr. J. Henry Carstens of Detroit said if he had a young woman who had one or two fibroids, he performed myomectomy. If she had a number of small ones, he was inclined to remove the uterus. In some cases he had taken out one side of the uterus, about one-half, but had not tried systematically to save any uterine tissue by taking away half of it or one-quarter of three-quarters. It seemed to him it was a matter of very little consequence whether we took it all away or half of it. If the ovaries were intact and they were left, it did not make any difference whether we took out the whole uterus, or half of it, and whether these women menstruated afterwards or not was of no great moment, because he did not think menstruation was of benefit to them. The question of ovarian secretion was all important, and if we left the ovaries the woman would go on and never know whether the uterus was out or not, except that she did not menstruate every month.

Dr. Robert T. Morris of New York City said there was one important factor we were apt to forget, and that was the patient herself. We should ask her what she wanted. To a patient who had these small masses, he said, if he did a myomectomy removing a part of the uterus and leaving a part, she would probably have a further development of this neoplastic growth because the original conditions persisted. If she wanted him to leave a part with the possibility of having further neoplastic growth develop, with the idea of having a child, all right. If one woman said yes, he left it for her. If another woman said no, he took it all out for her. He left it to the patient to decide.

Dr. Hugo O. Pantzer of Indianapolis said the importance of Dr. Werder's contribution lay in the fact that he had materially lessened the mortality by not removing the entire uterus. To Dr. Pantzer that was a very strong and sound argument in favor of myomectomy as against a more radical operative procedure.

Dr. Julius H. Jacobson of Toledo said, in reference to the *x*-ray treatment of fibroids, last year, after the meeting at Providence, Dr. McClellan and he went abroad and were much impressed in the clinics they visited with the number of sloughing fibroids in patients operated upon after *x*-ray treatment had been applied. He came to the conclusion that these cases treated with the *x*-ray gave a larger mortality than cases operated upon when the fibroids were smooth, when myomectomy and hysteromyomectomy could be performed.

Dr. A. B. Miller of Syracuse said we saw very few large fibroids at the present time as compared with former years, and if the line of treatment advocated by Dr. Werder was carried out, he was sure the results would be satisfactory. In connection with fibroids in women of advanced age from the fact the menopause did not cease, many women would either not accept operation or, owing to associated conditions of heart disease, general debility, anemia, etc., it was impossible to subject them to operative interference without mortality. He had had six cases of fibroid tumors in women of advanced age that had been treated with *x*-ray with very good results.

Dr. Werder in closing said, in regard to deaths from embolism, he had had a number of embolic deaths, and they were included in the three and one-quarter per cent. mortality, but only one embolic death from myomectomy. Other embolic deaths had been from hysterectomy.

The Kinetic System and the Treatment of Peritonitis.—Dr. Geo. W. Crile of Cleveland said an analysis of the leading phenomena of peritonitis—pain and tenderness, distention, muscular rigidity, vomiting, intestinal paresis, as well as of the general symptoms of infection—accelerated pulse and respiration, raised blood pressure, fever and rapid loss of strength and weight—showed that they were adaptive phenomena evolved by the abdomen for the purpose of overcoming infection. The peritoneum, through natural selection, had acquired the power of overcoming infection by immobilizing the point infected by (a) inhibition of the intestines; (b)

distention of the intestines; (c) rigid persistent contraction of the abdominal muscles; (d) further fixation by the pouring out of a sticky, glue-like fluid. In peritonitis, as in physical exertion of any kind, the transformation of energy utilized for this purpose might be so rapid and extensive that exhaustion—death even—might follow. This exhaustion was further increased by the loss of water due to vomiting and to the diminished intake. As a result of this and of the increased blood supply to the intestines, there was a shrinkage in pulse volume, and the amount of urine was decreased coincidentally with the increased metabolism. Safety, therefore, might lie in the control of the kinetic system by which excessive energy transformation was retarded and the water equilibrium was maintained. Deep morphinization caused inhibition of the intestines, immobilized the body as a whole, prevented both pain and muscular rigidity, held metabolism at a standstill, and thus reduced the drain upon the body's stores of energy. Therefore if energy transformation was minimized by morphine given in large physiological doses and if the water equilibrium was maintained by the installation of water the point of infection was immobilized while the phagocytes overcame the infection, and at the same time the brain, suprarenals, and liver were protected and the energy of the patient was conserved.

End Results after Operation in 109 Cases of Displacement of the Uterus, Bladder, and Rectum.—Dr. H. A. Wade of Brooklyn drew the following conclusions: Morbidity and not mortality should be considered in all operations for the correction of displacement of the pelvic viscera. The morbidity would be less in replacements by the vaginal route than by the abdominal. The relative position of the body of the uterus to its cervix should be considered in the relief of symptoms, and not the position of the uterus in its relation to the other viscera of the pelvis, except in cases of marked procidentia. A movable uterus out of place would give rise to fewer symptoms than a well placed uterus not freely movable, and a movable uterus that had been suspended would give rise to no untoward symptoms during labor. Old tears of the perineum might be repaired three days after labor or after abortion with assurance of success.

Ruptured Gastric and Duodenal Ulcer.—Dr. Edgar A. Vander Veer of Albany said as to treatment, there was but one thing to do, and that was to operate as soon as the diagnosis was made. He preferred a good free incision in the right semilunaris, enabling one to readily inspect the entire right side of the abdomen. Experience had shown that the majority of perforations had occurred at the pyloric end of the stomach or the first portion of the duodenum, and this incision gave us an exposure of the field and plenty of room in which to work. The perforation having been located, it could be closed in one of several ways. A couple of continuous Lembert sutures seemed to be effective and quicker than any other method. If possible the sutures should be inserted parallel to the long axis of the stomach or duodenum so as to interfere as little as possible with the circumference of the gut when the scar contracted. As a rule, the condition of the patient would not permit the performance of a gastroenterostomy, as some advised. If this was necessary it could be done at a second operation, when the patient's physical condition was improved. A rubber or cigarette drain should be placed in the lower angle of the wound, leading down to the point of perforation. A secondary incision should be made in the right iliac fossa and drainage inserted in order to remove the fluid which seemed to collect there. While he did not wish to be considered as criticising the internist too much, still he felt that very frequently cases of chronic and gastric duodenal ulcers were treated by a gastroenterologist and claimed to be cured, whereas they needed the attention of a surgeon. If these cases could be reached by the surgeon sooner, the number of perforations would be far less.

Repair and Reconstruction of the Bile Ducts.—Dr. J. H. Jacobson of Toledo drew the following conclusions: (1) The possibility of accidental injury to the common and hepatic ducts must not be forgotten in every operation for the removal of the gall-bladder. (2) Such accidents arose owing to the atypical junction of the cystic with the hepatic and common ducts. (3) The larger bile ducts could be repaired either by simple suture or by end-to-end anastomosis. The anastomosis should allow for drainage for the hepatic ducts. (4) Portions of omentum, pieces of the gall-bladder and flaps from the stomach had been successfully employed to cover defects in the walls of the ducts. (5) When a sufficient portion of the hepatic duct remained it might be anastomosed into the stomach, duodenum, or small intestine after the method of Witzel. (6) A new common bile duct might be formed by transplanting a piece of small intestine for the purpose, and where possible this should be the method of choice. (7) Owing to the wonderful regenerative power of the bile ducts a complete new duct could be formed by the aid of a rubber tube connecting the remains of the hepatic duct with the stomach, duodenum or jejunum. (8) While the immediate results were good, the ultimate results were not known; therefore, the method should be used only in debilitated patients.

Pyloric Stenosis.—Dr. Charles L. Bonifield of Cincinnati reported a case of pyloric stenosis in an infant, operated on by the method of Dr. John W. Keefe. The simplicity of the operation and the fact that it could be done in a few minutes, and that it was technically much easier than a gastroenterostomy in an infant, and the further fact that it left the organs in normal relation should recommend it to surgeons. The author believed its general adoption would reduce the mortality rate, which was now about 50 per cent., very materially in this condition.

The Treatment of Urinary Calculi as Based on Their Chemical Composition.—Dr. Charles B. Schildecker of Pittsburgh said an attempt had been made in this paper to call attention to the importance of the chemical examination of urinary stones and also the treatment of same as based upon their chemical composition. While our knowledge of all chemical factors that played a part in the formation of urinary calculi was limited, still it was our duty to apply the knowledge we did possess at the present time. He had no doubt that the application of the principle mentioned in his paper would prove of service in the treatment of calculi, both as regards their new formation and also their further increase in size and number.

Report of a Year's Work with the Abderhalden Reactions.—Drs. A. J. Skeel and W. C. Stoner of Cleveland said of eleven cases eight were positive to placental and cancer albumin. Two were negative to both. One was not tested for cancer albumin. Among nine eclamptics and severe pre-eclamptic cases eight gave positive reactions of unusual intensity. One was negative. Syphilitics both before and after salvarsan showed the usual reactions. Of sixteen sexual perverts from the Cleveland State Hospital, all non-pregnant, eight were positive and eight negative. Of the positive non-pregnants, nine were cancer, three fibroids, one pseudocyesis, four inflammatory conditions, eight sexual perverts, two unexplained. Total, twenty-seven. The reaction in our small series of sexual pervert cases suggested further investigation along this line. Might it have to do with tissue system reactions? In future cancer cases they would endeavor to specify the location of the growth and the source of the cancer albumin. Conclusions: (1) The Abderhalden ferment test was delicate and required great care and considerable experience for successful work. (2) Because of the great variety of conditions which might give the reaction positive results it could not be taken as conclusive evidence of pregnancy. (3) The negative reaction if repeated and well controlled was quite reliable as an indication that the patient was not pregnant.

Abdominal Distention Following Operations upon the Pelvic Viscera.—Dr. Francis Reder of St. Louis said in former years he attributed this condition to the improper preoperative care of the patient and to a lack of surgical proficiency. Not only did abdominal distention follow pelvic work, but it might also manifest itself in any and all abdominal operations, even including operations on the kidneys, which were extraabdominal organs. The surprising feature of this abdominal distention was that it might manifest itself with the greatest discomfort in an operation of a lesser magnitude, whereas in an operation of greater magnitude, and where such distress might be expected, the postoperative period might be surprisingly free from this phenomenon. Could an uncomplicated abdominal distention following a laparotomy menace the life of a patient? When the factors at work were fully considered, this question must be answered in the affirmative. The most encouraging measures at our disposal were embodied in the stomach lavage and in the enema. The former should be used every four to six hours while the patient continued to vomit, whereas for the latter it might be said that our greater hopes rested there. In his hands the alum enema of Hardon, slowly introduced into the rectum every two hours, if neces-

sary, had proven so efficacious that he had given it the preference over all enemata. The alum was not irritating to the bowel, so that a large number could be administered provided the nurse exercised gentleness. His experience with pituitrin given in connection with the alum enema had been limited to eight cases. Its administration had favorably influenced the vomiting in five of the eight patients.

Two Cases of Cancer of the Uterus Apparently Cured by Postoperative Infection.—Dr. JOHN W. POUCHER of Poughkeepsie said in both these cases the laboratory reports showed the disease to be adenocarcinoma, and in neither of them could he claim to have removed all the diseased tissues, consequently the cure must be attributed to some other cause, namely, the suppuration and the formation of a toxin that destroyed the cancer cells. There were areas of broken-down tissue filled with masses of dead cancer cells. The operation opened up fresh fields for their absorption. Might we not have here a genuine auto-inoculation of dead or modified cancer germs? In the literature he found several instances of spontaneous cures of cancer and several pathologists with whom he had discussed this subject said they had found post-mortem evidences of such cures.

Operations at the Home; When and Under What Circumstances Are They Justifiable?—Dr. J. E. SADLIER of Poughkeepsie said in order to prove the relative merit of hospital *versus* home operations, one must have recourse to statistics as to mortality, and in this particular subject they were difficult to obtain. One must always consider that cases operated at home represent a severe type of the emergency class, and many of them suffer from sepsis or toxemia. Under such conditions, one could not expect to have as good mortality rate as in hospital cases where elective work and uninfected cases were the rule rather than the exception, and yet in his surgical work in the hospital covering a period of twelve years, in 1902 to 1914, and with an average of 60 per cent. abdominal work, there was a mortality of 3.4 per cent. The average mortality during the past three years was 2 per cent. No attempt was made to exclude any properly operative cases and all patients dying in the hospital regardless of when or what complication were included. After a careful and exhaustive study of his results when operation was done at the home, covering the same period of twelve years, he found that the mortality was 4.3 per cent. When we considered that the home operated cases represented the severest type, and that the performing of elective surgery at the home was discouraged, he thought the above statistics, covering several thousand hospital and home cases, about 20 per cent. being operated at home, spoke for a fair amount of safety for the home operation.

Pregnancy and Incipient and Inactive Tuberculosis.—Dr. WILLIAM GORDON DICE of Toledo said if there were pelvic conditions giving rise to real symptoms, such operation as might be necessary should be done, but the patient should be given to understand that the real cause of most of her ill health was in her chest, and not in the pelvis. Since future pregnancies were advised against, the natural question that arose was, should these patients be sterilized? In progressive tuberculosis, Bacon and Hoehne, as well as others, had advocated operations on the tube; Bumm and Martin had advocated hysterectomy; Bardeleben, excision of the placental site through the vagina and Gauss *x*-ray sterilization; but it must be the rare case of this type of tuberculosis that would submit to any of the more radical of these procedures, for the procedure itself might so lessen the vitality and resistance as to light up the latent process, even if the operative mortality were nil.

Treatment of Puerperal Thromhophlebitis.—Dr. JAMES F. BALDWIN of Columbus referred to the previous papers by Williams of Baltimore, who reported five personal cases with one death, and by Jellett of Dublin, who reported five cases with two deaths. The author reported four cases with one death. The object of the report was to describe the technique, which differed from that employed by previous surgeons, Williams having advised ligation of the arteries only, the veins being left wide open for drainage into gauze fluff which filled the pelvis and was brought out through the vagina, the sigmoid being sutered all around to the pelvis so as to completely isolate the peritoneal cavity. This gave the fullest drainage with the least trauma, and removed the original source of infection.

Ectopic Pregnancy and the General Practitioner.—Dr. BENJAMIN RUSH MCCLELLAN, of Xenia, reported four cases. Cases 1 and 4 were reported as overlooked extrauterine pregnancies which became infected, and thereby not only placed these lives in greater jeopardy, but added greatly to the chance of unnecessary invalidism. Contrary to the accepted rule, the abdomen was opened in each of these infected cases. This was done because of inability to secure satisfactory drainage per vaginam. Case 2 illustrated the importance of prompt intervention where hemorrhage persisted. Case 3 was a typical hematocele due to the pregnant tube rupturing unto the broad ligament, and which, recognized early, was easily removed, and thus stood quite in contrast to cases 1 and 4.

Bacteriological Findings in the Urine in Cases of Kidney Ptoses.—Dr. DAVID HADDEN of Oakland said the amount of trouble from ptosis depended more upon the interference with the flow of urine and the amount of stasis produced than upon the particular location of the organ. The stasis alone might result in symptoms of a uremic character, but from the kind of infection imposed would depend the degree of general pathological disturbance. The sensitiveness of the patient to defective physiology had a great influence upon the degree of stasis and the amount of infection necessary to give rise to symptoms essentially pathological. If the peristaltic action of the kidney pelvis and the ureter was perfect, the ptosis could be accepted as one not requiring correction, but we must realize that in every such individual the foundation for future trouble was present.

Operative Findings in Twelve Cases of Chronic Intestinal Stasis.—Dr. WILLIAM SEAMAN BAINBRIDGE of New York City said in addition to the usual symptoms as observed in a fairly typical case, Lane had called attention to a series of symptoms and diseases which he believed to be the outcome of chronic intestinal stasis, and which had been called the end results. He had enumerated a fairly comprehensive list of diseases which he believed to be traceable to chronic intestinal stasis, or to the lowered resistance which resulted there from, among which might be mentioned rheumatoid arthritis, tuberculosis, goiter, and cancer. It was to the last named disease that he wished to direct especial attention in this connection. He was not prepared to say, at the present time, how far chronic intestinal stasis affected the development of cancer. The whole problem of cancer was so involved that we could merely hypothecate concerning its etiology. The interrelationship of ulcers of the gastrointestinal tract and cancer of this region, of chronic irritation, as shown in one of his cases, and cancer, and of those conditions with chronic intestinal stasis, furnished food for thought. The last three cases of the series seemed to be significant in the light of some of the possible end results of stasis.

Plastic Operation for Correction of Cecocolon Stasis.—Dr. EMERY MARVEL of Atlantic City stated that delayed expulsion of fecal material was detrimental to health, and the retention of such matter became a bacterial and toxic menace. The deformities in and malposition of the intestinal tract predisposed to stasis. The cecocolon sac was the most common part involved. The condition was physical and invited physical correction. The author described a method of correcting the evil. With the method he conserved the structures, maintained function, and thereby occasioned a minimum risk and inconvenience to the afflicted.

Factors Determining Morbidity of Surgical Cases.—Dr. CHARLES W. MOOTS of Toledo said the mortality rate had long received much attention, while the morbidity had been neglected. The surgeon was a factor, together with his personality and general character upon the patient. The patient should be prepared not so much from a technical point of view as from the psychical. There should be the removal of all adverse stimuli. A correct diagnosis was of importance before operating. A long preparatory course of treatment should be abandoned. The author considered local and general anesthesia, position of the patient during operation, suture material, time consumed at the operation, and the method of handling the patient during the postoperative period.

Resection of Ovaries.—Dr. ALBERT GOLDSPOHN of Chicago said this procedure was almost wholly an incidental or auxiliary one, to be done when abdominal section was needed for other reasons, chiefly for displacements of the uterus, freeing of adhesions, and re-

moval of neoplasms from the uterus or its annexæ. The objections to it were theoretically (a) that all the hydropic Graffian follicles and follicle cysts of any size did or might contain ova, and, therefore, being psysiological structures, should be left alone. This claim was soon proven to be unwarranted and untrue by numerous investigators of the histology. (b) That these follicle cysts and cystic corpora lutea caused no symptoms, had been abundantly disproven by clinical experience by unbiased observers. Pain continued from such resected ovaries, too frequently, and secondary operations were too often needed for their removal. This had likewise been demonstrated to be untrue by several operators, aside from his own experience. According to newer studies, these follicle cysts and persistent corpora lutea sometimes gave rise to hemorrhages, even of a fatal nature; likewise, they might furnish an atrium for infection by bacteria or neoplasms. In his paper he pointed out the kinds of ovaries that were best suited for resection and the feasibility of saving ovarian tissue from the wall of larger ovarian cysts. Elevation or suspension of ovaries to relieve venous engorgement was of equal importance and must not be omitted after resection. It was important, Dr. Goldspohn said, to adhere to a strictly aseptic technique and the use of fine and readily absorbable suture material only.

The Use of Scopolamine-Morphine Narcosis in Labor.—Drs. A. J. RONGY and S. S. ARLUCK of New York drew the following conclusions: (1) Standard solutions were absolutely essential for the success of this treatment. (2) No routine method of treatment should be adopted. Each patient should be individualized. (3) Facilities should be such that the patient was not unduly disturbed. (4) A nurse or physician must be in constant attendance. (5) This form of treatment was best carried out in hospitals, although there was no reason why it could not be accomplished in well regulated private houses. (6) It did not affect the first stage of labor, but the second stage was somewhat prolonged. (7) Pain was markedly diminished in all cases, while amnesia was present in the greatest number of patients. (8) This treatment did not in any way interfere with any other therapeutic measures which might be deemed necessary for the termination of labor. (9) Fetal heart sounds must be carefully watched. Sudden slowing called for immediate delivery when possible or the discontinuance of the treatment. (10) Oligopnea was present in 15.2 per cent. of cases. However, normal respiration was very soon established and no ill effects were observed. (11) No change in the course of the puerperium was observed and convalescence progressed very smoothly in the entire series.

Scopolamine-Morphine Seminarcosis in Labor.—Drs. JAMES A. HARRAR and ROSS MCPHERSON of New York City contributed a joint paper on this subject in which they said that in the use of this method the profession had a valuable means of abolishing the woman's recollection of the ordeal of labor, in from 60 to 70 per cent. of cases, and they believed that in conscientious and painstaking hands, by a strict adherence to the proper technique, the possible dangers might be foreseen and avoided.

The following papers were also read: "Abdominal Drainage," by Dr. John W. Keefe, Providence, Rhode Island; "Some Thoughts and Views on the More Common Gynecologic Conditions Necessitating Operation," by William H. Humiston, Cleveland, Ohio; "Some Observations on the Technique of Intestinal Anastomosis, With Special Reference to a Modification of Maunsell's Method," by Dr. Frank D. Gray, Jersey City, New Jersey; "Mineral Springs of Saratoga," by Dr. Douglas C. Moriarta, Saratoga Springs, New York; "Biliary Surgery," by Dr. John F. Erdmann, New York; "Transverse Involution of the Colon; A Technical Step in the Short Circuiting Operation," by Dr. Robert T. Morris, New York; "The Statistics of Labor in Elderly Primiparæ," by Dr. James Roy Freeland, Pittsburgh; "The Treatment of Abortion Upon the Basis of Its Pathology," by Dr. Channing W. Barrett, Chicago.

Officers.—The following officers were elected for the ensuing year: *President*, Dr. Charles L. Bonifield, Cincinnati, Ohio; *First Vice-President*, Dr. Asa B. Davis, New York City; *Second Vice-President*, Dr. K. I. Sanes, Pittsburgh; *Secretary*, Dr. E. Gustav Zinke, Cincinnati, Ohio, reelected; *Treasurer*, Dr. Herman E. Hayd, Buffalo, N. Y., reelected.

Pittsburgh was selected as the next place of meeting in September, 1915.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

ILLINOIS STATE BOARD OF HEALTH.

(*Continued from page* 614.)

January, 1914.

NEUROLOGY.

1. Define and give etiology of acute ascending paralysis.
2. By which nerves is the heart controlled?
3. Where are the speech areas situated?

PHYSICAL DIAGNOSIS

1. Describe herpes zoster.
2. Give differential diagnosis between acute bronchitis and lobar pneumonia.
3. How would you determine high blood-pressure? What is its significance?
4. Give physical signs of aortic regurgitation.
5. Give distinctions between organic and functional heart murmurs.

OPHTHALMOLOGY AND OTOLOGY.

1. Differentiate between trachoma and conjunctivitis.
2. Describe, in detail, how you would treat a chemical burn of the eyeball.
3. Give symptoms, etiology, and probable serious results of mastoiditis.

PEDIATRICS.

1. Give differential diagnosis between measles and scarlet fever.
2. Give cause and treatment of "summer diarrhea."

PRACTICE.

1. Give the diagnosis and treatment of lobar pneumonia.
2. Outline the modern treatment of syphilis in the acute stage.
3. Give the differential diagnosis of cirrhosis of the liver.
4. Give the treatment of la grippe and its complications.
5. Give the treatment of tapeworm.
6. Give the treatment of the conditions in which headache is a prominent symptom.
7. Give the treatment of constipation.
8. Give the diagnosis, cause and treatment and prognosis in locomotor ataxia.
9. Differentiate endocarditis from pericarditis and give the cause and treatment of the former.
10. Give the cause and treatment of chronic rheumatism.

SURGERY.

1. Outline briefly the surgical diseases of the third nerve.
2. Outline the technique of tendon transplantation.
3. Name the structure in which rodent ulcers most commonly develop, and give surgical treatment.
4. Give etiology of delayed fracture union.
5. Outline the best method for male sterilization.
6. Describe the bloodless operation for amputation at the hip.
7. Give etiology and treatment of tenosynovitis.
8. Name five forms of talipes and give attitude of foot in each.
9. Name the principal blood-vessels and nerves, severed in wrist amputation.
10. Under what conditions may a wound be closed without drainage?

ANSWERS.

NEUROLOGY.

1. *Acute ascending paralysis* is an ascending paralysis beginning in the legs, rapidly involving the trunk, diaphragm, arms, and the muscles innervated by the bulb (particularly the muscles of respiration), and so causes death. Its etiology is not settled; it is probably an acute infection of the spinal cord (sometimes including peripheral nerves and the bulb).

2. The *heart is controlled* by: Sympathetic nerves, which accelerate it; by the pneumogastrics, which have an inhibitory influence; probably by a depressor nerve; also by certain intrinsic cardiac ganglia.

3. "The speech areas, four in number and in kind, are in the left hemisphere in righthanded persons and in the right in lefthanded persons. * * * * The motor speech center lies in the posterior part of the third frontal convolution (Broca's convolution), just in front of the center of the muscles of speech (hypoglossal and facial nerve centers). * * * * The power of writing is usually lost with motor speech. The probable location of its cortical center is in the posterior two-thirds of the first, and perhaps in the second, temporal convolution. * * * * The visual speech center lies in the posterior part of the angular gyrus in the outskirts of the higher visual or the visuopsychic field."—(From Woolsey's *Applied Surgical Anatomy.*)

PHYSICAL DIAGNOSIS.

1. *Herpes zoster* is "an acute inflammatory disease, characterized by the development of groups of firm and distended vesicles situated upon inflamed bases corresponding to a definite cutaneous nerve, and accompanied by more or less severe neuralgic pains. The affection begins with neuralgic pains, either of a burning or lightning-like character, with slight febrile phenomena, followed by the appearance of papulovesicles along the tract of pain; these soon become vesicles situated on bright red, highly inflamed bases. The vesicles are about the size of pin-heads, or, perhaps, a little larger; usually discrete, although they frequently coalesce, forming irregular patches, appearing in groups until the third to the fifth or even tenth day, when they gradually desiccate, and at the end of the second week nothing remains except occasionally a slight scar, which may disappear or become permanent. When the eruption is at its height it is perfect in its anatomic formation, each vesicle being well shaped and seated on a bright red, inflamed patch of skin, and distended with a translucent, yellowish fluid. The vesicles show no tendency to rupture spontaneously. In rare instances they may become purulent, hemorrhagic, or gangrenous. The eruption is almost invariably confined to one side of the body, although in rare instances it is seen upon both sides. It is usually found upon well-known nerve-tracts. Recurrence is rare."—(Hughes' *Practice of Medicine.*)

2. *Acute bronchitis* begins with coryza; soreness and tenderness may be behind the sternum; pain may be caused by coughing; expectoration is abundant; dyspnea is in proportion to the extent of the disease; the pulse-respiration ratio is not altered; fever is slight or absent; various rales may be present; the condition is generally bilateral; ends by lysis.

Lobar pneumonia begins with rigors, sometimes also with vomiting; pain on affected side; expectoration is rusty and tenacious; breathing is very rapid; the pulse-respiration ratio is much disturbed; there is considerable fever; crepitant râles are heard in first stage, also in third stage (râle redux); usually only one side is affected; ends by crisis.

3. *High blood pressure* can be determined by the use of a sphygmomanometer; it is found in: Arteriosclerosis, chronic interstitial nephritis, cerebral hemorrhage, uremia, gout, aortic regurgitation, angina pectoris, puerperal eclampsia.

4. *Physical signs of aortic regurgitation:* "*Inspection* shows that the cardiac impulse is forcible and displaced downward and to the left. The pulsation is visible far beyond the normal apex. *Palpation* confirms inspection. It may at times serve to detect a diastolic thrill over the base of the heart and the adjacent large vessels. The Corrigan pulse and the capillary pulse are recognized by palpation. *Percussion* serves to demonstrate an increase in the area of cardiac dullness downward and to the left. Occasionally it is increased upward and to the left of the sternum as the result of hypertrophy of the left auricle. *Auscultation* reveals characteristic alterations in the heart sounds. The first sound is forcible; the second sound is replaced or associated with a churning, rushing, or blowing murmur of low pitch, well heard at the second right costal cartilage (aortic area), but most distinct at the junction of the sternum and the fourth left costal cartilage. It is diastolic in time, and is transmitted downward and toward the apex. A presystolic rumbling murmur (Flint murmur) may occasionally be heard over a limited area at the apex."—Hughes' *Practice of Medicine.*)

5. *Organic murmurs* are due to stenosis or incompetency of one or more of the valves of the heart.

Functional murmurs are not due to valvular disease.

Organic murmurs may be systolic or diastolic; may be accompanied by marked dilatation or hypertrophy, and there will probably be a history of rheumatism or of some other disease capable of producing endocarditis. Whereas a murmur, usually systolic, soft, and blowing, heard best over the pulmonic area, associated with evidences of chlorosis or anemia, and affected by the position of the patient, is a *hemic* or *functional* murmur, and denotes as a rule an impoverished condition of the blood.

OPHTHALMOLOGY AND OTOLOGY.

1. *Trachoma* is an inflammatory condition of the conjunctiva, accompanied by hypertrophy, granule formation, and subsequent cicatricial changes.

In *conjunctivitis* there are no granules with subsequent cicatricial changes.

2. *For chemical burns of the eyeball:* The treatment consists in the complete removal of the caustic substance as soon as possible. Solid particles are removed with cotton or forceps. Then the conjunctival sac is washed out with solutions which tend to neutralize the corrosive substance or render it insoluble. In the case of lime, mortar, or caustic alkalies, we flush out with a solution of boric acid; or we may wash out the eye with oil. If the corrosive agent consisted of an acid, the eye is irrigated with a weak solution of sodium bicarbonate. Subsequently we use cold compresses, atropine, and sometimes a bandage. After the loosening of the eschars, we must separate the adhesions frequently. Symblepharon often occurs notwithstanding the greatest care.—(May's *Diseases of the Eye.*)

3. MASTOIDITIS. "Inflammation of the mastoid cells may be produced by the extension of the disease from the tympanum. Rarely it is due to extension of external inflammation. The symptoms are deep-seated pain (increasing on deep pressure), swelling and tenderness over the mastoid process, accompanied by more or less fever and rapid pulse, coated tongue, anorexia, and malaise. When the periosteum is affected the tissues behind the ear are swollen and the auricle stands out from the head, the canal is smaller and the posterior superior, inner bony wall of the canal droops. If pus has formed, fluctuation may be detected."—(*Cyclopedia of Medicine and Surgery.*) Other causes are: Long exposure to wet or cold, and some of the acute exanthematous diseases. *Possible serious results* are: Thrombus formation in the sigmoid or other sinus, abscess formation in the brain, meningitis, septicemia, pyemia.

PEDIATRICS.

1. *Scarlet fever.* Period of incubation, from a few hours to seven days. Stage of invasion, twenty-four hours. Character of eruption, a scarlet punctate rash, beginning on neck and chest, then covering face and body; desquamation is scaly or in flakes. The eruption is brighter, is on a red background, punctiform, and is more uniform; the temperature is higher, the pulse quicker; the tongue is of the "strawberry" type, the lymphatics in the neck may be swollen, and there is sore throat; Koplik's spots are absent.

Measles. Period of incubation, ten to twelve days. Stage of invasion, four days. Character of eruption, small dark red papules with crescentic borders, beginning on face and rapidly spreading over entire body; desquamation is branny. The eruption is darker, less uniform, more shotty; the temperature is lower, pulse slower, the tongue is not of the "strawberry" type; coryza, coughing, and sneezing may be present; Koplik's spots are present.

2. *Summer diarrhea*, or cholera infantum, is due to the toxins produced by bacteria in milk. Treatment: Ordinary diarrhea should be prevented from terminating in cholera infantum. The stomach and colon should be irrigated. From 3ij-4 of water at 100° F. should be allowed to flow into the stomach through a soft-rubber catheter and be siphoned out. This should be done only once. For the colon, sodium bicarbonate, 3i, should be added to the pint, and the irrigation performed twice daily. If the rectal temperature is very high ice-cold water should be used; otherwise warm water. When symptoms of collapse appear hot pack is used. Ice-water quenches the thirst, even if it is vomited. Champagne and drop-doses of brandy may be given if the stomach is tolerant. Strychnine, gr. 1/100 hypodermically, to a child one year old, is a valuable stimulant. Morphine, gr. 1/100, and atropine, gr. 1/800, may be given in the same way and repeated every hour until the child is quieted—(*Pocket Cyclopedia.*)

PRACTICE.

1. LOBAR PNEUMONIA. *Diagnosis:* (1) From *acute phthisis:* The symptoms and physical signs of *lobar pneumonia* and *acute pneumonic phthisis* may be the same for the first eight or ten days; at this period the fever in *pneumonia* drops by crisis; whereas in *phthisis* the fever continues for some time longer and the patient gets worse; the sputum contains tubercle bacilli and elastic fibers, and instead of retaining the rusty color it becomes purulent and greenish.

In *pneumonia*, the breathing is very rapid, the pulse-respiration rate is disturbed, the fever is usually high, and runs a regular course, crepitant râles are heard at first, then signs of consolidation follow, and crepitant râles again succeed.

In *phthisis*, the breathing is hurried and there is dyspnea, the fever is often high, but does not run a regular course, at first the signs are those of bronchitis, followed by consolidation, a softening, or excavation in different parts of the lungs; sometimes there is nothing to be heard but scattered râles.

(2) From *bronchopneumonia:*

LOBAR PNEUMONIA	BRONCHOPNEUMONIA
Generally a primary disease.	Generally secondary (to bronchitis or an infectious disease).
Age has little influence.	Generally found in very young or very old.
Sudden onset.	Gradual onset.
Fever is high and regular.	Fever is not so high, and is irregular.
Ends by crisis between sixth and tenth day.	Ends by lysis, at no particular date.
Generally only one lung affected.	Generally both lungs affected.
The physical signs are distinct, and there is a large area of consolidation.	Physical signs indistinct, and the evidences of consolidation are indefinite.
Sputum is rusty.	Sputum is rather streaked with blood.

(3) From *acute bronchitis*, see PHYSICAL DIAGNOSIS, question 2.

Treatment: "Consists in rest in bed, milk diet, and the administration of fractional doses of calomel followed by a saline in the early stage. The nervous symptoms and temperature may be controlled by applying ice-bags or compresses wrung out of cold water (60°-70° F.) to the chest or by the use of the warm or cold wet-pack. The heart and pulse should be sustained by the administration of alcohol, strychnine (gr. 1 60-1/20), atropine, caffeine, strophanthus, and nitroglycerin. Digitalis may also be employed. Inhalations of oxygen afford temporary relief when the dyspnea and cyanosis are extreme. In young, vigorous, and plethoric adults, with hyperpyrexia and a high-tension pulse, bleeding may be beneficial in the first 48 hours. Convalescence should be guarded, and tonics, stimulants, etc., will be found very useful in this period of the disease."—(*Pocket Cyclopedia.*)

2. The *chancre* requires local cleanliness. Some preparation of mercury must be given for a long period of time, either by mouth, by inunction, or by hypodermic injection. Salvarsan given either subcutaneously, intravenously, or intramuscularly is the most modern form of treatment.

HYPERTROPHIC CIRRHOSIS.	ATROPHIC CIRRHOSIS.
Jaundice. Early and marked, bile often absent from feces.	Late and slight, bile usually present.
Ascites. Late and unimportant.	May be early; often enormous.
Spleen. Enlarged early and markedly.	Late and less.
Alimentary hemorrhage, piles. Not common.	Common.
Liver. Large, smooth, mottled, green.	Small, rough, pale or yellow.
New fibrous tissue. In fine lines and strands between acini and cells, involving all parts equally.	In broad bands, making prominent islands in which the single acinus may appear nearly normal; distributed irregularly.

3. DIAGNOSIS OF CIRRHOSIS OF THE LIVER. "The characteristics of hepatic cirrhosis are the history, area of liver dullness, symptoms of portal obstruction, jaundice, and the course and termination. The distinction between the two varieties is well given by Thayer in the preceding table:

Atrophy of the liver, or the nutmeg liver, is almost always confounded with cirrhosis; the former occurs most commonly with obstructive diseases of the heart and lungs, and the surface of the organ is not nodulated, nor is there a history of alcoholism.

Cancer and tubercle of the peritoneum have many symptoms akin to cirrhosis. The points of differentiation are great tenderness over abdomen, rapidly-developed ascites, rapid decline in strength and flesh, absence of jaundice, absence of long-continued dyspepsia, absence of hepatic changes on percussion, and the presence of tubercle or cancer deposits in other organs."—(Hughes' *Practice of Medicine.*)

4. *Treatment of la grippe:* "Absolute rest in bed and liquid diet should be prescribed. The administration of fractional doses of calomel (gr. 1/6 every hour for 6 doses) should begin the treatment. Phenacetin, gr. 5 every 3 or 4 hours, may be given for the fever and the pains. Quinine (gr. 4), sodium salicylate (gr. 7), or whiskey (54) may be administered every 3 or 4 hours. The local application of menthol (gr. 1½) in liquid vaselin (℥1) to the nasal mucous membrane is beneficial. Sulphonal (gr. 10) or trional (gr. 15) will relieve insomnia. Iron, quinine, and strychnine are indicated in the convalescence."—(*Pocket Cyclopedia.*)

5. *Treatment of tapeworm:* The patient should be limited to a liquid diet for two days; salines should then be administered; then the oleoresin of aspidium in a dose of one to two drams, followed in a few hours by another saline. The treatment can only be considered successful when the head of the worm is found in the dejecta.

6. Headache "may be due to organic cerebral disease, congestion and anemia of the brain, functional nervous disorders, toxemic conditions, derangements of the stomach and liver, and reflex causes, such as eye-strain, nasal disease, etc. The *treatment* should be directed to the cause. Eye-strain should be sought for and corrected, as well as any existing nasal disease. Toxemic states should be remedied by dietary and medicinal prescriptions. Anemia calls for preparations of iron. Uterine disease should be corrected. Cerebral syphilis demands mercurials and iodides. Preparations containing citrated caffeine, monobromated camphor, acetanilid, phenacetin, etc., may be given during the attack. For nervous headaches, a pill containing zinc phosphide (gr. 1/10) and extract of nux vomica (gr. 1/3) may be administered. Palliative treatment consists in local applications of cold, evaporating lotions, menthol, thymol. Various pungent and aromatic spirits are useful for inhalation."—(*Pocket Cyclopedia.*)

7. *Treatment of constipation:* The cultivation of a regular habit is essential; fruit, vegetables, and substances which leave a residue should form part of the diet; castor oil, or cascara, or calomel or a saline or an injection of water or oil may be tried, but drugs should be dispensed with as long as possible; exercise or massage may be beneficial; fats or olive oil may be taken; the pill of aloin, belladonna and strychnine may be tried.

8. LOCOMOTOR ATAXIA. *Etiology:* It is a disease of adult life; is more common in men than in women; is more common in cities than in the country; syphilis is believed to be the most frequent direct cause; alcoholism, injury, exposure to cold and wet, have all been urged as causes, but they are not now assigned so important a place as etiological factors as was formerly the case.

Symptom: Loss of coordination; characteristic and unsteady gait; tendency to stagger when standing up with feet together and eyes closed; sharp and paroxysmal pain, called *crises;* girdle sensation; loss of knee-jerk and other reflexes; Argyll-Robertson pupil.

Prognosis is unfavorable; the disease is chronic, but may remit for a period; death by some intercurrent affection may occur.

Treatment consists of rest in bed for long periods, absence of excitement, nutritious food, cod liver oil, tonics, silver nitrate, massage, systematic exercises, counterirritation, and analgesics.

9. In *endocarditis:* The murmur is soft, not harsh; it is systolic or diastolic; it may be transmitted; it is heard loudest at definite points; it is not followed by signs of effusion; the apex beat may be strong.

In *pericarditis:* The murmur is harsh; is not in connection with the heart sounds; is heard loudest at the base of the heart and over the precordium; is followed by (or accompanied with) signs of effusion; the apex beat is generally feeble.

Some of the causes of endocarditis are: Acute articular rheumatism, chorea, tonsillitis, scarlet fever, pneumonia, cancer, gout, diabetes mellitus, Bright's disease, septicemia, gonorrhea.

Treatment of endocarditis: "All forms of endocarditis require absolute rest, which should be prolonged for weeks or even months. The primary disease should be treated. Overstimulation of the heart must be avoided, and it is in acute endocarditis that most harm is likely to be done by the indiscriminate use of digitalis, though it may be called for if the heart is failing. Rest, light diet, milk while fever is present, attention to the bowels and to sleep, form the best treatment of simple endocarditis. The malignant form should be treated like septicemia. If the organism can be isolated from the blood, antistreptococcic serum or a vaccine may be tried, but under any treatment most cases have a fatal ending."—(Wheeler and Jack's *Handbook of Medicine.*)

10. CHRONIC RHEUMATISM. *Cause:* "The disease is most common among the middle-aged poor, particularly those who are exposed to cold and wet. Very rarely it follows acute rheumatism." *Treatment.*—"Internal medication is unsatisfactory. Guaiacum, iodide of potassium, and arsenic are recommended, but the salicylates are ineffectual. Local measures, such as counterirritation, massage, passive movement, and hydrotherapy are much more useful. Obstinately painful nodules may be excised. A course of baths, and a warm winter climate may be of great service in cases where such measures are possible."—(Wheeler and Jack's *Handbook of Medicine.*)

SURGERY.

1. *Surgical diseases of the third nerve:* "One or more of the branches of this nerve may be compressed by extravasated blood, or be contused and lacerated in fractures implicating the region of the sphenoidal fissure. Tumors and aneurysms growing in this region also may press upon the nerve. Sometimes both nerves are involved; for example, in fractures involving both sides of the anterior fossa, and in tumors, particularly gummata, growing in the region of the floor of the third ventricle. In lesions of the cerebral hemispheres the third nerve is very frequently paralyzed. Its cortical center lies in close proximity to the center for the face. The most prominent symptoms of complete paralysis are ptosis or drooping of the upper eyelid, external strabismus, and slight downward rotation of the eye. There is also dilatation of the pupil from paralysis of the circular fibers of the iris, and loss of accommodation from paralysis of the ciliary muscle. Paralysis of the muscles supplied by the third nerve is frequently associated with paralysis of other ocular muscles. When all the muscles of the eye are paralyzed, the condition is known as "ophthalmoplegia externa"; it is usually due to syphilitic disease in the floor of the third ventricle."—(Thomson and Miles' *Manual of Surgery.*)

2. *Tendon transplantation:* "This operation consists in altering the attachments of the tendons of healthy muscles so as to have them fulfil the functions of those which are paralyzed. Four methods of transplantation are practised: first, the tendon of the healthy muscle may be completely divided and the upper end sutured to the paralyzed tendon; second, the tendon of the paralyzed muscle may be divided and the lower end sutured to the healthy one; third, the tendon of the sound muscle may be split, one end remaining attached to its normal insertion, and the other sutured to the paralyzed tendon; fourth, a portion or the whole of the healthy tendon may be implanted subperiosteally at the desired point, instead of stitching it to the paralyzed tendon."—(Wharton's *Minor Surgery.*)

3. The structure in which *rodent ulcer* most commonly develops is the sebaceous glands of the skin. Surgical treatment consists of free removal with a good margin all around the ulcer; if this is not practicable the Roentgen rays may be tried.

4. *Delayed union in fracture is caused by:* Ill health, want of approximation of the end of the bone, want of blood supply in the bone, defective innervation of the bone, disease of the bone, lack of rest, and immobility.

5. To accomplish *male sterilization* a partial vasectomy may be performed. The skin and fascia are incised, the spermatic cord is exposed just below the external abdominal ring, the vas is separated, and two ligatures are placed around it about ¾ inch apart; half an inch of this part is excised, and the wound is closed with ligatures.

6. *Bloodless operation for amputation at the hip:* "The most satisfactory method in the great majority of cases is Wyeth's, in which a constrictor is held in place by the preliminary passage of two steel pins. The outer pin is inserted an inch and a half below and a little internal to the anterior superior spine of the ilium, and is brought out just back of the great trochanter. The inner pin is entered one inch below the level of the crotch and internal to the saphenous opening, and it emerges an inch and a half in front of the tuberosity of the ischium. A sterile cork is pushed on the end of each pin, to save the surgeon from wounding himself from the sharp points. After the limb has been emptied of blood by holding it in a vertical position for five minutes and stroking it from the periphery toward the body, the constricting band is fastened about the limb above the pins. After the passage of the pins and the application of the band of the Esmarch apparatus, the amputation is proceeded with. The hip is brought well over the edge of the table, a circular incision is made down to the deep fascia, six inches below the constricting band, and is joined by a longitudinal skin-cut reaching from the band to the level of the circular incision, and the cuff is reflected to the level of the lesser trochanter. The muscles are cut by a circular sweep at the level of the retracted cuff, the capsule of the hip-joint is opened freely, the cotyloid ligament is cut posteriorly, the thigh is bent upward, forward, and inward to dislocate the head of the bone, and, using the thigh as a handle, the round ligament is incised and the limb removed. After ligating the vessels and introducing drainage tubes the flaps are sewn together vertically."—(Da Costa's *Modern Surgery.*)

7. TENOSYNOVITIS. *Etiology:* Strain, sprain, overuse, wounds, infection, tuberculosis, inflammation. *Treatment:* Rest, hot fomentations, massage, counterirritation, rupture by pressure, incision, excision.

8. (1) *Talipes varus*, in which the inner edge of the foot is drawn up, the anterior two-thirds is twisted inward, and the outer edge rests on the ground.

(2) *Talipes valgus*, in which the outer edge of the foot is drawn upward, and the inner side of the foot and ankle rest on the ground. This condition is the reverse of *talipes varus.*

(3) *Talipes equinus*, in which the heel is raised and cannot be brought to the ground, and the patient walks on the toes and on the distal ends of the metatarsal bones.

(4) *Talipes calcaneus*, in which the toes are raised and the heel depressed, so that the patient walks on the latter. This condition is the reverse of *talipes equinus.*

(5) *Talipes equinovarus*, in which the heel cannot be brought to the ground, and the patient walks on the outer margin of the sole.

9. In *wrist-amputation* the following *blood vessels and nerves are severed:* Radial, ulnar, superficial volar, dorsalis indicis, and radialis indicis arteries; and median, radial, and ulnar nerves.

10. A *wound may be closed* when there is no severe hemorrhage, no foreign bodies present, and when the wound is not infected.

BULLETIN OF APPROACHING EXAMINATIONS

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION †	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan. 12
Arizona*	J. W. Thomas, Phoenix	Phoenix	
Arkansas	W. S. Stewart, Pine Bluff	Little Rock	Nov. 10
California	C. B. Pinkham, Sacramento	Los Angeles	Dec. 8
Colorado	David A. Strickler, Empire Building, Denver	Denver	
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov. 10
Delaware	J. H. Wilson, Dover	Dover	Dec. 15
Dist. of Col'bia	Geo. C. Ober, Washington	Washington	Jan. 12
Florida*	E. W. Warren, Palatka	Palatka	Dec. 2
Georgia	C. T. Nolan, Marietta	Atlanta	
Idaho*	J. F. Schmershall, Jerome	Wallace	
Illinois	C. S. Drake, Springfield	Chicago	Jan.
Indiana	W. T. Gott, Crawfordsville	Indianapolis	Jan. 12
Iowa	G. H. Sumner, Des Moines	Des Moines	
Kansas	H. A. Dykes, Lebanon	Topeka	Feb. 9
Kentucky	J. N. McCormack, Bowling Green	Louisville	Dec.
Louisiana	E. L. Leckert, New Orleans	New Orleans	Oct. 29
Maine	F. W. Searle, Portland	Portland	Nov. 10
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec.

Massachusetts*.	W. P. Bowers, State House, Boston	Boston	Nov. 10
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor	June 8
Minnesota	T. McDavitt, St. Paul	Minneapolis	7
Mississippi	S. H. McLean, Jackson	Jackson	May 11
Missouri	J. A. B. Adcock, Jefferson City	St. Louis	Dec. 14
Montana*	Wm. C. Riddell, Helena	Helena	
Nebraska	H. B. Cummins, Seward	Lincoln	
Nevada	S. L. Lee, Carson City	Carson City	Nov. 2
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	Dec. 29
New Jersey	H. G. Norton, Trenton	Trenton	Oct. 20
New Mexico	W. E. Kaser, East Las Vegas	Santa Fe	Oct. 12
New York	H. H. Horner, Univ. of State of New York, Albany	New York, Albany, Syracuse, Buffalo	Jan. 2 5
N. Carolina	B. K. Hays, Oxford	Raleigh	
N. Dakota	G. M. Williamson, Grand Forks	Grand Forks	Jan. 5
Ohio	Geo. H. Matson, Columbus	Columbus	Dec. 8
Oklahoma	J. W. Duke, Guthrie	Muskogee	Oct. 6
Oregon	B. E. Miller, Portland	Portland	Jan. 5
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia	Dec. 1
Rhode Island	G. T. Swarts, Providence	Providence	Jan. 5
S. Carolina	H. E. Boozer, Columbia	Columbia	June 8
S. Dakota	P. B. Jenkins, Waubay	Pierre	Jan. 12
Tennessee	A. B. DeLoach, Memphis	Memphis, Nashville, Knoxville	May
Texas	W. L. Crosthwaite, Waco	Waco	Nov. 10
Utah	R. W. Fisher, Salt Lake City	Salt Lake City	
Vermont	W. Scott Nay, Underhill	Montpelier	Jan. 12
Virginia	J. N. Barney, Fredericksburg	Richmond	Dec. 15
Washington*	C. N. Suttner, Walla Walla	Walla Walla	Jan. 5
W. Virginia	S. L. Jepson, Wheeling	Clarksburg	Oct. 13
Wisconsin	J. M. Beffel, Milwaukee	Madison	Jan. 12
Wyoming	H. E. McCollum, Laramie		

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for all the details regarding the examination in any particular State.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

THE CLINICS OF JOHN B. MURPHY, M.D. Paper; illustrated; 869 pages; price $8.00 per year. Published by W. B. Saunders Co.

SOUTHERN SURGICAL AND GYNECOLOGICAL TRANSACTIONS. Cloth; illustrated; 530 pages. Published by S. & G. Association.

PRACTICAL THERAPEUTICS. By H. A. HARE, M.D. Cloth; illustrated; fifteenth edition; 998 pages. Published by Lea & Febiger.

TEXTBOOK OF PATHOLOGY. By Drs. ADAMI and MACRAE. Cloth; illustrated; second edition; 878 pages. Published by Lea & Febiger.

REPORT OF THE BUREAU OF HEALTH FOR THE PHILIPPINE ISLANDS. By V. G. HEISER, M.D. Paper; 351 pages. Published by the Manila Bureau of Printing.

THE CASE OF BELGIUM IN THE PRESENT WAR. Paper; 120 pages. Published by the Macmillan Company.

GENERAL MEDICINE. By FRANK BILLINGS, M.D. Cloth; illustrated; Vol. VI; 358 pages; price $1.50. Published by the Year Book Publishers.

PEDIATRICS. By Dr. ISAAC A. ABT, M.D. Cloth; Vol. V; 228 pages; price $1.35. Published by the Year Book Publishers.

GYNECOLOGY. By EMILIUS C. DUDLEY, A.M., M.D. Cloth; Vol. IV; 232 pages; price $1.35. Published by the Year Book Publishers.

STUDIES FROM THE ROCKEFELLER INSTITUTE. Paper; Vol. XIX; 595 pages. Published by the Rockefeller Institute for Medical Research.

DISEASES OF THE STOMACH. By Dr. CHAS. G. STOCKTON. Cloth; illustrated; 774 pages. Published by D. Appleton & Co.

BALNEO-GYMNASTIC TREATMENT OF CHRONIC DISEASES OF THE HEART. Cloth; illustrated; 191 pages; price $2.50 net. Published by P. Blakiston's Son & Co.

REPORT FROM THE PATHOLOGICAL DEPARTMENT OF THE CENTRAL INDIANA HOSPITAL. Cloth; illustrated Vol. V; 380 pages. Published by Wm. B. Burford.

REFERENCE HAND BOOK OF MEDICAL SCIENCES. Vol. IV; half-morocco; illustrated; 919 pages; price $9.00 net. Published by William Wood & Company.

LOCAL ANESTHESIA. By Drs. BRAUN and SHIELDS. Cloth; illustrated; third edition; 399 pages. Published by Lea & Febiger.

PRACTICAL HYGIENE. By Drs. HARRINGTON and RICHARDSON. Cloth; illustrated; fifth edition; 933 pages. Published by Lea & Febiger.

Miscellany.

Front Wheel Brakes.—H. Massac Buist states that front wheel brakes prove a saving of tires in relation to the actual amount of braking work done. At the recent Grand Prix race on the Lyons circuit it was noted that the cars that had front wheel brakes would rush up to the corners with the accelerator pedal full down for anything from fifty to seventy yards after those with brakes working on the back wheels only had applied them to those wheels. Therefore the total amount of braking effort on the cars with four wheel brakes was, of course, vastly in excess of those with two, because the machines were slowed in about half the distance. The demonstration of the use of front wheel brakes was remarkable. It should be appreciated that the moment braking is applied to the front wheels the result is to throw weight forward on to these wheels, thereby increasing their power of adhesion to the road surface, and accordingly preventing the wheels locking and skidding. It is skidding that destroys tires and reduces braking effort to its least possible value. A natural physical law assists those who desire to employ the principle of brakes on all four wheels. One result of the race will be to give a big impetus to the employment of front wheel brakes for touring cars. But the medical man must be warned that it is one thing to want to have brakes on the front wheels and quite another so to scheme them that they shall prove a blessing instead of a bane.—*British Medical Journal.*

The Value of Avocations.—A. Stuart M. Chisholm notes that specialization, while impoverishing the individual, has enriched the profession. There are many diversions which enable men who are engrossed in their professional work to counteract its narrowing influences and at the same time to provide a needed relaxation. Collateral and subordinate pursuits provide an enlarged scope, open up whole spheres of personal culture, and widen the horizon of life. The specialist may, without prejudice to his art, emulate the example of Prospero in laying down at times his conjurer's wand and taking off his magician's mantle, while he devotes a period of his time to his greater personal needs and looks abroad over the world with opened eyes.—"Recreations of a Physician."

Tobacco and War.—The *Lancet* entertains the hope that England's fighting men will be generously supplied with the weed that brings solace and joy when the nervous system is in a ceaseless state of tension from dangers and excitement. Tobacco fills an important place in the psychophysiological affairs of the race, and the habit of smoking, if over-indulgence be avoided, does something to temper the intensity of the struggle.

Ambidexterity.—H. MacNaughton-Jones states that in 1868 when he was engaged in operative surgery on the eye he realized the great disadvantage of not being able to use his left hand equally with his right. He overcame this difficulty, but found that when tired from overwork he could not trust his left hand. In obstetric practice he learned the truth of the aphoristic teaching of the late Dr. Robert Barnes "that every obstetrician should learn to shave himself with his left hand." As a boy at college, MacNaughton-Jones owed his superiority as a handball player to his ambidexterity and this capacity made him an expert in the use of the gloves.—"Ambidexterity and Mental Culture."

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Original Articles.

THE RELATION OF DIET TO CANCER.*

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THAT deaths from cancer are certainly on the steady increase in this and other countries has been abundantly shown by statistics, which need not be quoted here. That the evident increase of cancer is not wholly or even largely due to more accurate diagnosis and public attention to the disease is admitted by all who have given due consideration to the subject; that thus far practically nothing has been accomplished in the way of checking the extension of cancer is also a matter of general knowledge; and all this in spite of the earnest and faithful work of innumerable research workers, and the expenditure of vast sums of money.

It is proposed here to make a brief review of the present position of the question involved, to examine some of the facts concerning malignant disease, and to inquire if sufficient attention has been paid to a certain element which so largely concerns the health and well-being of the individual, and the structure and growth of normal and abnormal tissues, namely, diet.

There must, of course, be some reason for the increase of cancer, and earnest work should still be given to searching most diligently for the cause of the disease, in the laboratory as well as in practice, even though as yet there have been relatively little result.

Parasitism has been excluded, for while in some animals inoculation experiments have resulted in the transmission of certain tumors, little has been determined except that the tumor cell when transplanted can induce the neighboring tissue cells to take on a similar aberrant action, which may result in the formation of a malignant tumor. The same occurs in metastasis in cancer patients. But this does not at all explain the true nature of cancer, nor its development in those who have had no connection with other patients so afflicted. On the other hand, the instances of suggested or supposed human transmission of cancer from one person to another are so remarkably few, and often so exceedingly doubtful, that the question of its contagiousness has also been excluded, certainly in the sense in which this term is applied to other affections. It has been found impossible to inoculate human cancer into rats, mice, and apes, or to inoculate animal tumors into animals of different species.

Heredity has been advanced as a cause, but statistics fail to verify this in any degree whatever. In former years malaria was believed to have an influence, and one investigator thought to trace the prevalence of cancer to telluric influence, showing a preponderance of cases along certain water courses; syphilis, in its latent effects, has also been claimed as an element in the causation of cancer; but all these and many other etiological propositions are no longer considered to be tenable, and the very multiplicity of suggested causes shows that we are yet far from the true etiology of cancer.

More recent scientific study has attempted to show that cancer originates from what is called "embryonic rests," or prenatal, wrongly placed tissue elements, which at some time or other take on morbid action and develop into what we know as the various forms of cancer. But here again it is necessary to determine what causes them at certain times and in certain places thus to proliferate and form new tissue, which then becomes malignant and may proceed to destroy all contiguous tissues, and even to cause death. It has been claimed by many that local injury is the cause which determines the activity of the misplaced cells, and starts them on their disastrous or rampant course. While this appears to be the case in certain instances, it is far from proven to be always so, nor does it in any way explain the persistency with which malignant disease, when once started, pursues its destructive and even fatal career, with a great tendency to recurrence, either in the former site or at some distant focus, through the agency of the lymphatic or vascular system.

On the basis of the embryonic theory surgeons have of late most earnestly advocated the very early and complete removal of malignant lesions, including those of suspected malignancy, and even many innocent lesions which are observed occasionally to lead to cancerous formation; and with our present knowledge this cannot be urged too strongly. But while this has improved operative statistics it has not contributed much to our real knowledge of the basic cause of cancer, nor has it taught us why these lesions, or "embryonic rests," will remain quiescent or prove harmless in some individuals, while in others they are most formidable agents of destruction. For it is now recognized that these are most common anatomical or histological accidents, indeed it is claimed that they occur in every individual.

The same is true of the many and various forms of treatment other than surgical excision, such as deep acting caustics, and even the *x*-ray and radium, which, like surgery, only remove the *products of disease* and the focus of possible systemic infection, and do not affect the basic cause of the complaint; this latter recent scientific investigation and observation are showing more and more to be associated with metabolic or chemico-physiological changes in the system. All this leads thoughtful persons to inquire if there is not some deeper, fundamental cause lying back of the trouble, which

*Read before the Section on Pathology and Physiology, American Medical Association, June 25, 1914.

should be reached and rectified by medical skill and acumen.

It is recognized by all that the tissues develop and are maintained by nutrition derived from the food and drink taken, and tumors all certainly grow by the same means. For years it has been claimed by one person after another that diet has more or less influence in the production of cancer, and even over one hundred years ago Howard, Lambe, and others adduced strong proof to show the effect of diet in curing certain cases of undoubted cancer of the breast and uterus, the diagnosis of which was confirmed by prominent surgeons of the day.

It has been pretty clearly demonstrated that cancer is a disease of civilization, increasing among those peoples who had previously been free from it, in proportion as they become associated with those who are more highly civilized, and as they have adopted their customs, and manner of life, and diet; this has been shown in regard to negroes before and after the Civil War, and also as to primitive people in India, Australia, Africa, Mexico, Brazil, etc.

With advancing civilization the diet has become more and more complicated, and luxury and over eating have increased: this is especially true of meat eating, and alcohol and coffee drinking. The increase in the consumption of meat has been startling in many localities, and in England it has reached a yearly total of 130 pounds per capita for men, women, and children, in addition to large quantities of fish, game, poultry, rabbits, eggs, cheese, etc. Among the well-to-do the meat consumption has been estimated at between 180 and 330 pounds per year: all this is much more than double the amount consumed fifty years ago, and in the same time the deaths from cancer have increased over *fourfold*.

The same figures apply roughly to the United States, where the per capita meat consumption is said to be considerably in excess of the European average, and all statistics show that cancer is rapidly increasing in this country. In a recent Bulletin of the Board of Health of New York City the following statements are made in regard to the mortality from cancer in 1913: "The statistics of our seven largest cities recently tabulated, show that in that year the cancer death rate was the highest on record. For New York City the rate was 82 per 100,000 of the population, against an average of 79 for the last five years; for Boston 118, against an average of 110; for Pittsburgh 79, against an average of 70; for Baltimore 105, against an average of 94; for Chicago 86, against an average of 81; for Philadelphia 95, against an average of 88; for St. Louis 95, against an average of 85." This average increase of over 8 per cent. of deaths from cancer in the combined population of these seven cities during the last five years is certainly an alarming fact, and cannot be explained on the ground of greater accuracy of diagnosis; for it is not to be presumed that there has been such great improvement along these lines during the single year 1913. It has been shown that with the same rate of increase of deaths from cancer, unless there be found some way to check its production, the death rate at the end of the century will be appalling.

In striking contrast to the enormous extent and increase of cancer in meat-eating communities may be mentioned the relative rarity or almost absence of the disease in regions where the diet is largely confined to the products of the ground. Williams[1] has collected from all sources the greatest amount of evidence that cancer is relatively rare, and often really unknown, as reported by competent observers, among various aborigines in the interior of many countries, who live on the products of the vegetable kingdom, with little if any meat secured in hunting.

Is it not possible and even probable that the relatively less increase in cancer in New York City during the last five years is in part due to dietary causes? Thus in 1913 the death rate was 82 per 100,000, against 79 for the average of the preceding five years, while the highest increase was in Baltimore, 105 against 94, or 11 per 100,000 to 3 in New York City. It is known that we here, in New York City, have vast hordes of foreigners, many newly landed, who still live as at home, and are too poor to buy much meat. The Italians still live on macaroni, and cereals form a large part of the diet of those from southern Europe, etc. etc. During a rather extensive trip through the Far East I was unable to see or even hear of any cancer, although I met a large number of medical men and made inquiry regarding the same, and visited hospitals with a total of many thousands of patients; in Japan, Korea, China, the Philippines, India, Siam, and Egypt I met the same response, that cancer was rarely seen among those vegetarian peoples.

Cancer has repeatedly been observed to disappear spontaneously, and many such cases are on record by careful and competent medical men: in certain of these instances it has occurred in connection with a radical change in the mode of life and diet, but in the majority of instances there is no record of the special cause of its disappearance. But the lesson to be learned from this is that there are conditions of the system which are antagonistic to the abnormal proliferation of cell tissue, even when it has begun to take place, as we must believe that there are conditions of the system which favor such diseased action of aberrant cells. An interesting confirmation of this is attributed to Ehrlich, but I cannot find the original reference. He "has shown that mice living upon a rice diet cannot be inoculated with cancer, while mice living on a meat diet can be readily inoculated, cancerous tumors developing quickly and continuing to grow until the animal dies. Ehrlich also found that when mice with cancerous tumors, the result of inoculation, were placed upon a rice diet, the tumors ceased to grow and in many cases degenerated and disappeared." Interesting confirmation of this has been given by Sweet, Corson, White, and Saxon.[2] They found that 75 per cent. of 75 mice developed experimentally inoculated tumors when under normal diet, while only 19 per cent. of 75 other mice developed such tumors when under a diet of glutenin and gliadin, that is vegetable proteins; also that the tumors in the latter were in thirty days hardly larger than in the former in ten days.

Psoriasis furnishes an illustration which may be of service in understanding the relation of diet to cancer; for psoriasis is characterized by a disordered epithelial growth, which both shows on the surface and manifests itself by epithelial prolongations into the corium, which are quite comparable to the ingrowing cellular masses of early cancer; moreover it is not so very rare to have epithelioma develop from lesions of psoriasis.

The real cause of psoriasis has not as yet been

established, but there is abundant testimony to show that the eruption is intimately connected with faulty nitrogenous metabolism, or rather with the presence of an excess of nitrogenous matter in the system. For many years the present writer has adduced proof of this relationship, and has reported a number of cases, confirmed by other practitioners, where the lesions of psoriasis have entirely disappeared, simply under an absolutely strict vegetarian diet, excluding also coffee and alcohol, without the use of any medical treatment whatever, internal or external; he has also many patients in private practice who remain free from eruption while strictly faithful to the same diet, and many others who relapse again and again when the diet is relaxed, and again lose the eruption under rigid vegetarian diet. All this has been confirmed by other observers, and very strikingly so by Dr. Schamberg,[3] who made some very careful laboratory observations in connection with the Philadelphia Polyclinic, on nine psoriasic patients. From his studies he concluded that these patients possess a strong tendency to store nitrogen, and that on a high protein diet tremendous quantities of nitrogen may be retained in the system; he also confirmed the injurious effects of a strong nitrogenous diet, and the disappearance of the eruption under vegetarian diet. We are as yet quite in the dark as to why various disturbances in regard to nitrogenous and other metabolism take place in the body of these patients, as we are of the reasons of gouty and diabetic disorders, but clinical facts often lead the way to pathological discoveries, and those in regard to psoriasis are instructive and suggestive in our present study; and such researches are much needed in regard to the metabolism of cancer patients before the development of the disease, or in its early stages, although considerable work has already been done in connection with the chemico-pathology of advanced cancer.

There is an analogy to be found between what has been previously mentioned in connection with the natural history of cancer, as to its increase in connection with the greater consumption of meat, and what has just been detailed in regard to psoriasis. While to a superficial observer there may not seem to be any very great connection between the two diseases, there is in reality a lesson to be learned from the one to the other. In both we have perverted and active proliferation of epithelial cells, and inasmuch as cell growth depends upon protein, we have with an excessive nitrogenous intake, or a retention of nitrogenous elements, an augmentation of the eruption of psoriasis, even as we have seen cancer increase with the increased consumption of meat. And, just as psoriasis has been observed by many to disappear when the nitrogenous supply was cut off, so numerous observers, and the present writer among them, have seen unquestioned cancer steadily retrogress and even disappear, and remain absent, under a strictly non-nitrogenous diet.

For very many years I have held the view that meat eating was productive of cancer and have treated very many cases, of both recurrent and primary cancer, with an absolutely vegetarian diet, with results in some cases which were remarkable and most gratifying. But I have hesitated writing strongly on the subject before lest I should be misunderstood or misjudged, as in such cases reliance has to be placed on a clinical diagnosis (always verified by others), while results claimed are always open to question by some. I have also feared lest I might really do harm by advocating a medical consideration and treatment of cancer, since thereby some might be led to neglect operative measures in proper cases, at the proper time; and so in certain instances great injury and injustice might be done to the patient, and the time pass in which a surgical operation might possibly be of service.

I wish, therefore, to repeat what I said before, that with our present knowledge competent surgical interference cannot be urged too early or too strongly in suitable cases; but I wish also to enter my strong protest against the course which is usually followed in regard to cancer, both before and after operation. With a rather extended experience, during the last forty years I have almost yet to find a case which has received adequate and continuous medical care before operation, with a view of discovering and rectifying the cause of the morbid growth. Too often when a cancer is suspected or discovered it is taken as a foregone conclusion that the malady is hopeless, except as the *results of the disease*, that is the new growth, may be removed by the knife, *x*-ray, radium, caustics, etc. And after a surgical operation, as far as my observation goes, the patients are invariably left entirely to their own resources, with the hope that the tumor will not regrow, but with no attempt so to guide the life that there shall not be the tendency to a recurrent malignant new formation.

The limits of the present paper will not admit of a full discussion of the problems of metabolism and chemico-pathology which may and often have to do with this tendency to misgrowth of tissue, concerning which there have been some interesting and valuable researches which are of practical importance in regard to the prevention of cancer, but brief mention may be made of a few points.

Ross[4] has satisfied himself that there is a failure in the potash element in patients who are subject to cancer, and for many years he has administered one of the salts of this mineral in large quantities, both to those threatened with the disease and even in advanced cases, with most satisfactory results. This I can verify fully, and for very many years I have given the acetate of potassium to a large number of patients thus afflicted, and am confident that it has had a large share in producing the benefit that has been observed. Ross calls attention to the errors which exist in regard to the cooking of vegetables, whereby the natural salts are extracted in the water in which they are cooked, which is then thrown away; among the aboriginal natives who are vegetarians, who escape the disease, it is stated that they consume also the water in which vegetable substances are cooked. This waste of the natural salts is especially seen in connection with the cooking of potatoes. These are commonly peeled before being boiled, and by this means the inner skin, rich in salts, is necessarily removed, and the exposed starchy matter is then further devitalized by the water in which they are boiled; they should be boiled in their skins, and it is even better to eat the skins as well, although their outer coating may then be easily stripped off, leaving the inner skin, containing abundance of potash and other salts. Ross adduces much proof in regard to the error in equilibrium in regard to potash salts in those tending to cancer, which cannot be detailed here, but is worthy of serious consideration.

Time fails even to allude to the various studies which have been made in regard to the many alterations in metabolism which have been observed

in cancer patients, all however showing that there is a basic cause for the remarkable and virulent action which certain cells of the body may take on and continue, exciting the same diseased condition in contiguous cells, because they also are bathed in the same deranged blood stream.

Why in some individuals a disturbed nitrogenous equilibrium resulting in cancer occurs, while so many escape, remains still an unanswered question, like so many problems in medicine. Chemico-physiology and pathology are yet in their infancy, and the mysteries of anabolism and catabolism are great, but that they and the action of all the cells composing the organism are under the influence of diet is beyond question. It is also certain that various other causes, such as mental and physical overstrain, etc., can produce such a derangement of the vital organs of the body that disturbed metabolism follows, and that a diet which at one time or in one individual is well borne, at another time or in another individual produces disease. Accumulated evidence, dating back many, many years, points to excessive nitrogenous intake, together with faulty cooking, incident to a more refined civilization, so-called, as a prolific cause for the development of cancer, while an absolutely vegetarian diet, with the exclusion of coffee and alcohol, in conjunction with proper medicinal measures, has repeatedly resulted in the disappearance of cancer. The length of this paper prevents the presentation of illustrative cases which have occurred in my practice during the last forty years, some of the subjects remaining entirely well for ten or more years thereafter.

The medical treatment of these cases along lines of eliminative and constructive therapy, undoubtedly contributed toward the favorable results, but unaided by dietary measures these would certainly have been entirely ineffective.

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AMPUTATIONS.

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The surgical attitude towards the removal of limbs has undergone a great change in the recent past, and within a decade experience has so completely reversed the teachings in regard to certain hitherto accepted procedures that amputations can no longer be considered a beginner's task but has reached the proportion of an art. As Professor Oskar Witzel of Dusseldorf says, "in emergency cases every physician must be able to perform this operation at once, if necessary to save life, but otherwise it demands the highest surgical skill, both in determining the indication and in the proper execution."

In preantiseptic times, and during the time when aseptic surgery was being developed, an injured member usually received short shift at the hands of the surgeon, for the reason that the means of combatting and handling the dreaded infection had not been perfected to the extent they have to-day and the surgeon was thus forced to adopt measures which, in the light of our present knowledge, seem altogether too harsh and heroic. Amputation has become much more rare in the surgery of peace, and its use has been restricted considerably in war, by the recognition of tried and proven methods to conserve to the utmost every portion of an injured member until forced to remove a part in order to save life. The present day surgery makes it possible to wait longer in treating lesions in order to determine what is destroyed beyond repair and what may possibly recover. What appeared formerly to be beyond hope of redemption can now be preserved, and it is no longer a menace to life to adopt an ultra conservative attitude in regard to the time and extent of removal.

The indications for amputation in modern practice have been very much restricted by reviving Lister's "let alone" method in the treatment of wounds, and by the recent advances in bloodvessel surgery, suture, anastomosis and transplantation, through the efforts of such workers as Carrel and Guthrie. When the vitality of a part is threatened and the blood supply depleted, whether from trauma or the gradual occlusion of vessels resulting in gangrene, the anastomosis of large arteries and veins or the transplantation of a segment of vein to complete the continuity of an injured artery will often reestablish normal vitality and enable the parts to live till restoration occurs. It is true that blood vessel work is only successful in skillful and practised hands, but the time may not be far distant when it may come to be more easily practicable and hence should be borne in mind as a factor not to be neglected when possible to apply.

When acute and chronic inflammation has to be dealt with Bier has given us an invaluable remedy, in his hyperemic treatment, to combat this fearsome complication which enables us to bring Nature's valuable forces to the rescue and thus very often save a useful member. Certain deformities, whether congenital or acquired, such as ankylosed joints, flail joints from bony non-union, great destruction of bone from disease or injury, are now successfully treated by either the formation of a new joint through fascia transplantation after the method of Murphy, or the transplantation of large or small pieces of bone to fill up the gap in the bony continuity of a part and fixed in position by means of wiring, plating, nailing, and splinting. Our ideas in regard to tumor growth as an indication for amputation are now undergoing a revision, especially with reference to benign tumors, where resections are now indicated; while even in myelogenous sarcoma plastic operations and transplantations can be made to take the place of removed parts. Roentgenotherapy is also a powerful assistant in regard to limiting mutilation with reference to tumors which heretofore have been regarded as an indication for immediate amputation, and especially has this held good for periosteal sarcoma of the extremities. Having met the modern demands with reference to the changes in the indications for amputation we now pass on to discuss the modern technique and its recent changes.

When once the indication for amputation has been established every effort should be made to increase the patient's general resistance against the depressing effect of the operation. In case of emergency work the means of strengthening the resistance would be limited to an energetic treatment of shock, so that when the patient is placed on the

operation table there should never be a doubt as to his being able to recover from the effects of the operation. Here the indications are such stimulants as brandy, ether, atropin, morphin, infusion of salt solution or transfusion of blood, depending on the condition of shock and its usual attendant loss of blood. Where the operation can be postponed the preparation may take days or even weeks to increase the resisting powers of the patient up to the point where the operation per se will not jeopardize life. Certain it is, as Witzel remarks, "that the mortality caused from the amputation itself must be absolutely excluded and where the case is known to be a hopeless one the operation should never be attempted." The examination of the patient prior to operation should be as careful as is consistent with the demands of the case; the condition of the blood, kidneys, and other vital organs should never be overlooked and, both before and during the operation, the application of Crile's anoci-association principle should always be resorted to.

Of almost equal importance to the saving of life is the modern treatment with reference to the stump. The technique should be such as to always insure a painless, mobile, and useful stump, as there is no more permanent or distressing monument to surgical error than for a patient to be condemned to suffer continuous neuralgias, or to be the possessor of an immobile or nonsupporting, useless stump. The operation should be so planned and executed as to accomplish not only perfect freedom from stump pain, but the later use of an artificial member should receive the surgeon's technical attention at the time of operation and thus guarantee to the patient a strong, supporting, useful stump.

The first step in any amputation is to provide for the arrest of hemorrhage and, this accomplished, the planning of the flaps to conserve the length and strength and supporting character of the member is next to be considered.

The methods for securing bloodless amputations are fully and accurately described in modern text-books and include the use of the time honored Esmarch principle of broad rubber bandage and tourniquet; Wyeth's pins, used in conjunction with a constrictor, in shoulder and hip-joint amputations; the ligating of the principal arteries beforehand; the Lynn-Thomas compressing forceps; the Senn, Larry, Dupuytren, and Kocher methods of controlling hemorrhage in special situations; all of which can be easily worked out on the cadaver.

The question of flap formation is to be considered from several points of view. The formation of the classical flaps as indicated in text-books, while most convenient to illustrate basic principles, can rarely be used without modification to suit individual cases and should be considered only in the nature of types to be followed in principle along general lines. The circular, modified circular, lateral, and anteroposterior flaps are fully described in text-books and should be thoroughly mastered as a guide for general application. The character of the injury, resulting in the destruction of tissue, will largely determine the nature of the flaps to be used. Where age is a determining factor it is to be noted that young tissues are capable of much more plasticity than old tissues which demand simple junction for good union. The question of blood supply, both in quantity and quality, is highly important. The latter is to be considered when such diseases as diabetes or arteriosclerosis are present, and the former is to be considered with reference to the anatomical position of the blood vessels supplying the part. Witzel aptly remarks that "the chief condition for complicated operations is to have the entire region in an aseptic condition. An infection that could not be removed beforehand demands simple procedures."

It is essential that the operation should be so planned that the resultant scar from flap union should never be subject to pressure. The flaps should always be of sufficient length to allow for subsequent muscular contraction, with resultant tension on the sutures, and the separation of the soft parts must be done smoothly with a sharp knife, avoiding handling or contusing of the tissues as much as possible. The so-called "dead spaces" are to be obliterated by the use of buried sutures in coapting the deeper tissues. Where we can be sure of our asepsis the suture and ligature material can be either of the absorbable or non-absorbable variety, but when future infection of the wound has to be considered the more absorbable material is far better in that it does not remain long as a foreign body to cause irritation and a prolongation of the infective process. Careful attention should be paid to the complete arrest of hemorrhage, by ligation of the larger and smaller vessels, torsion of the smaller branches, with manual compression and the application of hot salt solution compresses to control oozing.

Primary union is probably more important in an amputation wound than elsewhere on account of the future function of the stump. In this connection drainage is to be provided to carry off the subsequent extravasation of blood and lymph in order to leave no culture media in the wound for infective organisms. The drainage should be removed at the earliest possible moment, usually the second day, to accelerate primary union in the openings left by the removal of the drainage tubes. The part should be splinted to secure complete rest and the dressings disturbed as little as possible. Nothing, except infection, so interferes with primary union as interrupting the rest of the part involved in the healing process.

We have now to consider the very important feature of producing stumps of the highest usefulness, which takes into consideration painful or tender stumps, mobile stumps, and weight-bearing stumps, all of which means that the surgeon's work is but poorly accomplished if he has neglected to consider these highly important factors in securing a thoroughly useful stump.

A good many text-books still speak of a painful stump as being due to the formation of the so-called "amputation neuromas." It has been repeatedly shown that the amputation neuromas, which are the small terminal knobs of the bisected nerves, are but the result of an abortive effort on the part of nature to regenerate the lost part of the nerve towards the periphery. This attempt at regeneration happens frequently and, as Witzel remarks, if these knobs or terminl neuromas are always to be regarded as the cause of amputation neuralgia, or stump pain, then we ought to cease operating. The cause, however, of this distressing symptom is not the amputation neuroma, as formerly taught, but *is due to the fixation of the nerve to the scar formed in the soft parts and of the latter scar to the bone.* It can thus be readily understood that the stump gradually becomes the seat of tenderness and pain through irritation of the nerve trunks, which are incorporated in the scar, by reason of muscular

flexion and extension. The pain is increased by pressure on the nerve ends imprisoned in the scar tissue, thus making it impossible to produce a weight-bearing stump.

How are we to avoid this most undesirable complication? The answer to this is to recognize the physiological necessity that all nerves should be perfectly mobile in their sheaths, a fact which does not obtain when nerve trunks are fixed in a scar and the resultant ascending perineuritis prevents the nerve from making sufficient excursion in its sheath. The cuneiform or wedge-shaped excision of the bisected nerve end, with subsequent very fine suture of the perineurium, may prevent the formation of knobs at the cut ends of the nerves, but will have no influence on the actual cause of amputation neuralgia, which latter is due to the fixation of the nerve trunk in the scar. *This latter can be avoided, and amputation neuralgia prevented, by seeking out the bisected nerve trunks at the time of operation and pulling them strongly out for a distance of three or four inches and cutting them off smoothly with a sharp knife.* The end of the nerve now slips far back into the layer of connective tissue, out of the way of subsequent scar formation and later glides to and fro in its sheath when the stump is moved by muscular contractions. There is also no pain when the soft parts are shifted or pulled at or pressed against the end of the bone.

There are several other points in connection with sensitive stumps which recent investigation has proven of considerable importance. The question of limiting the osseous scar formation at the end of the stump has been investigated by Bunge, who has shown that if the terminal bone marrow is removed with a spoon in diaphyseal amputation, and at the same time if a periosteal cuff at the end of the bone is removed, the mushroom-like osseous outgrowth at the end of the bone is prevented and, in consequence, there is no vascular swelling of terminal bone marrow to cause pressure or growth from within, nor is there the likelihood of small neighboring nerve fibers being caught and held in the rough osseous proliferation which occurs when there is a periosteal covering for the end of the bone. Thus the painlessness of the stump after exarticulation, and after amputation through the epiphysis is explained as there is, in these situations, no swelling of the bone marrow nor does terminal osseous proliferation occur. The older surgeons, Pirogoff and Gritti, obtained excellent painless weight-bearing stumps by their well-known methods of utilizing a distal piece of bone attached to the covering flap and secured to the end of the bone in the stump, the former surgeon's method applicable to the ankle and the latter's to the knee amputation. As an application of this principle Sjabanejeff's idea of uniting the anterior surface of the head of the tibia with the lower end of the femur is an excellent one. Later on Bier amplified the same idea with reference to amputation through the diaphysis or shaft. His technique consists in securing an osteoplastic bone-covering flap, utilizing a part of the bone which is to be amputated though left attached to the covering flap. These various methods are excellent but their universal application is questioned by many surgeons who have in mind the character of the injury sustained and who hold that the simpler procedures are the best. Certain it is that in battle surgery or in case of a traumatic epidemic, such as railroad accidents, time will not admit of elaborate operations and we have recourse to the less pretentious methods of removing the injured part. In diaphyseal amputations these consist in mapping out ample flap covering, sawing off the bone cleanly with the removal of sharp edges or points, scooping out the terminal bone marrow, removing a small cuff of periosteum from the end of the bone, obliterating "dead spaces" and allowing for drainage. In epiphyseal amputations, or in exarticulations, there is no necessity for periosteum removal, or scooping out the marrow or any special covering.

Disturbances with the function of the stump, or its complete mobility as a perfect lever, are twofold. First of all the joint on which the stump hinges may become wholly or partially ankylosed if attention is not directed at an early stage towards manipulation of the lever. As soon as primary union has occurred the splint should be removed and the joint freely exercised passively so that adhesions will not occur to restrict the complete mobility of the joint. Secondly, disturbances with the lever action of the stump may be brought about by irregularity of muscular movement in the stump itself as the result of individual muscles, or groups of muscles, contracting irregularly and producing a distortion of movement. To overcome this condition the modern practice is *not* to pull the tendons out and cut them off as short as possible, as until recently was the custom, but to leave the tendons long and either to anchor them to the periosteal fascia or to unite the tendons of opposing muscles over the end of the bone, thus having flexors acting against extensors and preventing irregular contractures. This is especially applicable to amputations in the fingers, hand, and wrist where effort must be made to obtain good lever action in the stump. The same principle applies to groups of opposing muscles in stumps of the arm, forearm, leg, and thigh, either uniting antagonistic muscles or anchoring them close to the bone and in such a way that any future contractions of the muscles will not exert their action upon the covering of the end of the stump. Uniting opposing tendons or muscles over the end of the bone is the preferable procedure, as the anchoring of the muscle in close proximity to the skin flap has sometimes resulted in dangerous stretching of the skin covering the stump.

As already indicated, healing by first intention in amputations is of the greatest importance. This is not only on account of the infection being a highly undesirable and dangerous complication, although in many instances recovered from, but the resultant scar is broad and adherent, and is not only sensitive but liable to break down under the slightest pressure. In such circumstances the use of an artificial limb is practically out of the question unless excision of the scar, or reamputation, is resorted to. Even in primary union there may be a slightly adherent sinuous scar, the latter being due to irregular contraction of the skin, and it is now considered good practice to begin massaging and kneading the stump early, after primary union has occurred, shifting the parts against each other to insure complete mobility of the tissues and, in the lower extremity, a weight-bearing stump. As Binnie puts it, it is well to subject the end of the stump to a certain amount of therapeutic abuse, after primary union, with the idea of bringing about a quicker response in the tissues to the weight-bearing feature of the stump.

It remains to discuss certain special considera-

tions, in regard to amputations of the leg and forearm, which have in view enhancing the utility of the stump. In amputation of the leg the so-called "seat of election" for sawing the bones is one handbreadth below the top of the tibia or about one inch below the tubercle of the tibia. At this level the flaps are not only well nourished but the stump of the leg is long enough to support the weight of the patient on the bent knee without the end of the stump projecting too far behind. Not only is this a favorable site for the application of an artificial limb but the older surgeons recommended the "seat of election" for the reason that even a wooden peg with a padded shelf at the upper end, on which the patient kneels with his stump, makes a very useful and inexpensive artificial limb. However, this particular level for amputation is no longer regarded as essential in view of the modern methods of operating, and the improvement in artificial limbs, to secure weight-bearing, painless stumps.

Binnie, analyzing the statistics of Estes, thinks that as far as the mortality of amputations of the leg is to be considered there is practically no difference at which level the amputation is performed. The same author says that the makers of artificial limbs state that the lowest favorable site for section of the leg bones is eight inches above the ground and that the highest favorable point is four inches below the lower edge of the patella.

In deciding upon the level at which an amputation is to be performed Binnie brings out several important factors to be considered. In the first place, where the bones of the foot are affected by a malignant disease it is proper to amputate, by the best possible method, at any convenient part of the leg, while for the same disease of the tibia or fibula no amputation below the knee can be considered. With reference to gangrene, the level of amputation will largely depend on the extent of vascular disturbance and there are two methods given for determining the site of operation. Moscowicz's method is to elevate the limb for two or three minutes, apply an elastic constrictor to the thigh as if for amputation, and then lower the limb to a dependent position. After five minutes remove the constrictor rapidly. In health the arterial circulation is reestablished at once and a hyperemic flush passes down the limb to the toes in about two seconds. If gangrene is present the flush rapidly passes down the limb to a certain distance, then pauses so that there is a clear line of demarcation between the hyperemic skin above and the ischemic skin below, then the flush slowly passes downward, taking minutes instead of seconds to reach the toes. The line where the descending flush pauses corresponds to the site of arterial obliteration and the limit to which the gangrenous process may be expected to reach. Sandrock's method is much simpler and consists in scrubbing the leg vigorously as in preparing for operation. Note the reaction of the skin to the scrubbing. The well nourished skin becomes diffusely red and this flush stops more or less abruptly at the poorly nourished level. The amputation must be performed well above the Moscowicz-Sandrock line, and in elderly people with atheromatous vessels the amputation must be performed in the middle or lower third of the thigh in order to get proper flap nourishment. When the change is less abrupt, the transition zone shows either spotted or streaky redness. It is advisable to repeat the experiment on the healthy limb as a control. DaCosta lays down the following rules as regards amputation for gangrene: In dry gangrene due to obstruction of a nondiseased artery, wait for a line of demarcation. In senile gangrene, if it affects only one or two toes, let the dead parts be cast off spontaneously. If a greater area is involved, or the process spreads, amputate above the knee without waiting for the line. In ordinary moist gangrene, if there are not severe symptoms of sepsis, and if the gangrene is not rapidly progressive, wait for a line of demarcation, otherwise amputate high up. In traumatic spreading gangrene, and in many cases of diabetic gangrene, amputate high up. In ergot, carbolic acid, post-febrile, Reynaud's, and frost gangrene, wait for the line of demarcation.

When amputating for trauma the site of section depends on the site of injury and the amount of tissue which is left and which is suitable for forming the stump. The use which is to be made of the stump is a factor of prime importance in the choice of the site of amputation. If the financial condition of the patient is such that he cannot afford an expensive artificial limb it is of paramount importance to save as much of the limb as possible and provide him with a useful, painless stump which will bear the weight of the body, both continuously and intermittently, without harm resulting. Such an operation would be a Pirogoff or Syme at the ankle, a Gritti or Sjabanejeff or any of the many variants at the knee, and a Bier's osteoplastic anywhere between the two. In the case of amputations of the Pirogoff or Gritti variety, while they may not be approved of from the artificial limb maker's point of view who may want to sell an elaborate expensive limb, nevertheless they can be fitted with a strong, useful and not unsightly prothesis. In the same class of patients when the opportunity to carry out complicated procedures is lacking, the so-called "seat of election" is indicated for the reasons already given. If we can consistently secure an efficient weight-bearing stump at any level then it follows that for one who cannot afford an expensive artificial limb it is important to have no shortening of the leg; whereas in one whose social and financial condition is such as to warrant allowing the artificial limb makers to exercise their art, both as regards usefulness and cosmetic effect, then it would be better to follow their recommendations and section the bones eight inches above the ground or four inches below the lower edge of the patella when it is practical to do so. If disease and circumstance demand that amputation be performed at a level higher than the "seat of election" then it is advisable to disarticulate at the knee for the reason that the portion of the leg below the knee is not long enough to operate an artificial limb in such a manner as to preserve a normal or useful knee motion.

Binnie states that from his own experience it is not necessary to carry out Bier's elaborate osteoplastic amputation in regard to having a periosteal hinge for the bone flap, but that the same result can be obtained by a free transplant of bone for covering the cut end of the tibia, or long enough to also include the fibula. His modified technique is as follows: By any of the customary methods reflect the soft parts and expose the tibia, covered by its periosteum, for a few inches below the proposed line of bone section. Transversely divide the periosteum of the tibia along two lines, separated from each other by a space about one inch greater than the diameter of the bone. From the upper incision separate the periosteum downward for about two-fourths of an inch. From the lower incision

separate the periosteum upward for about two-fourths of an inch. Cut through the cortical bone of the tibia transversely at the base of the periosteal flap. With an osteotome or Gigli saw cut free the plate of bone between the transverse incisions. This plate of bone is covered by periosteum which hangs from its upper and lower edges like a table cloth. Preserve this in warm salt solution. Complete the amputation by sawing through the bones after forming a periosteal cuff on the tibia. Place the plate of bone over the cut surface of the tibia and fibula and fix there by periosteal sutures. As Binnie states, such an operation as the above is entirely out of place unless asepsis can be assured and the resisting power of the patient is satisfactory. In any amputation divide the soft parts by first cutting through the skin and fat down to the deep fascia, let the skin retract and then, cutting through the deep fascia, reflect it along with the skin. The muscles are now cut through obliquely upward and toward the bone, so as to make muscular flaps which will cover the bone evenly and themselves be smoothly covered by the fascia and the skin.

In amputations through the wrist joint, or through the lower third of the forearm, Vanghetti, after primary union, advocates a plastic operation on some of the tendons of both the flexor and extensor group of muscles. His idea is to form loops of tendons, covered by skin, one on the front and one on the back of the wrist. The artificial hand is so constructed that leather thongs secured to these loops of skin-covered tendons will enable the fingers of the hand to be closed when the muscles are made to contract. He claims to have gotten twelve pounds and more pull from these tendon loops. It seems to be well worthy of trial in selective cases and bids fair to improve the usefulness of the stump.

NEUROLOGICAL AND PSYCHIATRIC ASPECTS OF RAILWAY ACCIDENT CASES. CONSIDERATION OF SOME MEDICOLEGAL PROBLEMS.*

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The problem of railway accidents in its relation to nervous and mental disturbances has a considerable social importance. Among all the accidents those caused by railroads or trolleys give the largest contingent of victims.

The nervous system among other organs may suffer from the shock of the accident in two ways; there may be either a functional disorder or a genuine organic lesion. A neurosis, a psychoneurosis, or a veritable psychosis may develop subsequently to an accident.

The subject, as you see, is very great and too vast to allow of satisfactory discussion in the short time that you can spare. We will, therefore, consider briefly the organic disturbances caused by traumatism and then take up the functional disorders, called traumatic neuroses and psychoses, which are by far more frequent than the former.

A traumatism of the cranium may result either in a fracture of its individual bones especially at the base, in a concussion of the brain, or in a very brief and transient psychic symptom-group which rapidly disappears.

Fractures of the skull are frequently accompanied by a lesion of the membranes, brain tissue, and cranial nerves at the base. The blood-vessels, the sinuses, may also be torn, hence extra or intradural hematomata. If the arachnoid membrane is involved, the cerebrospinal fluid finds its way through the opening of the skull or through the nasal fossæ or through the external auditory meatus. Among all varieties of fractures of the skull the most frequent is the radiating one. The radiation toward the base is done by the shortest route. An injury to the frontal, occipital, or temporal regions of the skull will reach the anterior, posterior, and middle portions of the base respectively. In the latter form the ear and Fallopian canal are not infrequently involved. In fractures at the base the cranial nerves are invariably affected. The so-called fracture "par contrecoup" should always be borne in mind in considering injuries of the skull. There the lesion lies in another portion of the skull than in the one that was injured. In the cranial injuries with fractures there is usually no difficulty in recognizing the situation, as the symptoms are too conspicuous to be overlooked. The classical bleeding from the nose, mouth, or ears points to a fracture at the base of the skull. We usually find here palsies of various portions of the body and disturbances of sensations. The cerebral manifestations will depend upon the area of the brain involved. Disturbances of speech, epileptiform convulsions, and hemiplegia or monoplegia may all be present. It stands to reason that in all such cases the prognosis is of a serious nature on account not only of immediate but also of remote consequences.

Concussion of the brain is another important condition which may follow a cranial traumatism with or without fracture of the skull. The common belief that only in injuries accompanied by loss of consciousness there is concussion of the brain is erroneous. Records of authoritative cases show that even without loss of consciousness symptoms of grave nature may develop immediately or in a few hours or days after the accident.

In the majority of cases without gross injury of the brain, especially when there is no history of syphilis or alcoholism or fracture of the skull and when the treatment is instituted at the earliest possible moment, recovery is complete.

The usual manifestations of concussion are: pain in the head, dizziness, insomnia, mental hebetude, asthenic condition; later change of disposition, irritability. When recovery does not follow, grave mental phenomena may develop, such as impairment of memory, difficulty of retaining impressions, delirium associated with profound mental alterations, hallucinosis, Korsakoff's psychosis; finally dementia. In children arrest of mental development may ocur. Anatomopathological investigations show that in those severe cases in which various mental phenomena persist or become aggravated, actual material lesions exist. Sperling and Kronthal *(Neurolog. Centralblatt,* 1888, Nos. 11 and 12) found sclerosis, hyaline and fatty degeneration of the arterial system in the brain and cord. Dinkler *(Archiv f. Psych.,* Bd. 39, 1905) found the nervous tissue rarified, medullated fibers disappeared, gliomatous tissue proliferated, and blood vessels changed. Similar alterations were observed by Fürstner *(Zeitschr. f. Psych.* B. 38).

The subject of organic lesions of the nervous sys-

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tem caused by traumata will not be complete if mention is not made of the spinal cord. An injury of the cord may follow a trauma of the spinal column, such as fracture, dislocation, a blow, or a fall on the feet or on the buttocks. Under these circumstances there may be a concussion, a contusion, a sudden compression, laceration, or complete severance of the cord. In all these conditions there are usually present morbid symptoms of motor and sensory apparatuses, also disturbances of the sphincters. In concussion these symptoms may disappear completely, in the other conditions they usually become permanent. In all these cases a carefully conducted examination as to the state of the power of the limbs, sensations, reflexes, and sphincters will reveal the true nature of the condition.

Peripheral nerves may also become involved through a traumatism. An inflammatory state (neuritis) may follow a direct contusion or pressure of a nerve trunk. Hemorrhages may take place in a nerve and set up an inflammation. Motor, sensory, and trophic disturbances in the parts supplied by the inflamed nerve will be the consequence.

Let us consider now in detail the neuroses and psychoses which are of the most frequent occurrence and their immediate or remote relation to traumata.

The functional nervous diseases most frequently produced or brought out by railway accidents are hysteria and neurasthenia, or a combination of both. Chorea and paralysis agitans may also follow traumatism. A review of their clinical picture is necessary.

Hysteria.—This affection comprises two series of phenomena; one consists of *paroxysmal* manifestations which are not constant, and the other of *constant*, fixed, and permanent signs called hysterical stigmata of which the patient is not conscious and which can be elicited by a careful examination. The latter are the most signifiacnt. They are found in the motor, sensory, and mental spheres of the individual.

The *sensory* disturbances are the most important and the most striking. The most frequent form is *hemianesthesia.* It may vary in its intensity; at times it is increased, at others decreased. Sometimes it affects only one form of sensibility, viz., touch, pain, or temperature, sometimes two or all three forms. The loss of sensation may be present not only in the skin, but also in the underlying tissues, the bone included. The loss of sensation may be present only in the distant segments of the limbs (glove-like and stocking-like anesthesia). Hysterical patients present frequently hyperesthetic zones. They are along the spine, the mammary or ovarian regions.

Among the *motor* manifestations may be mentioned particularly palsies and contractures of segments of limbs. The well known astasia-abasia consists of an inability to stand or walk, but as soon as the patient is in bed he has full control of his limbs. The absence of abnormal reflexes, such as the toe phenomenon and ankle clonus, will aid to distinguish hysterical palsies from organic palsies. A very valuable diagnostic sign consists in the feeling by the observer of a resistance when he attempts to produce passive movements in the limbs affected with hysterical contractures. This tendency to resist on the part of the patient will not be present in organic paralysis or contractures.

The function of the viscera may also be disturbed in hysteria. Aphonia, mutism, anuria, polyuria, retention of urine, are all well-known phenomena.

The mental sphere of hysterical individuals presents special features. Temporary amnesia, capriciousness, inconsistencies, dissociation of personality may all occur. But the most characteristic feature is a high degree of *suggestibility.* Hysterical individuals are easily influenced to change their thoughts, to do certain acts, to acquire certain sensations, to execute or to adopt certain motor phenomena. For this reason the greatest care must be taken during the examination to avoid by word, look, or act, to remind the patient of what one expects to find in him. The proper and the only correct way of examining for sensations or other symptoms is to have his eyes closed during the entire procedure. According to the expression of his face during each touch or pin prick one can tell whether the sensation was perceived by him or not. In the section on medicolegal aspect of the subject mention will be made of simulation of hysterical manifestation. To sum up, hysterical stigmata are fixed phenomena which usually appear suddenly or rapidly under the influence of an emotion and may disappear quite rapidly, but never have any untoward effect on the general health. The effects of suggestion or autosuggestion on the appearance or disappearance of the stigmata will be discussed later.

Neurasthenia.—Its main features are physical and mental exhaustion upon the least effort and undue irritability. Backache, headache, insomnia, are frequently present. The symptoms are chiefly subjective. Among the objective manifestations may be mentioned emotionality, general hypotonia, increased tendon reflex, clammy skin, and the facies exhibiting anxiety.

Mental Phenomena Following Traumatism.—Among the latter *amnesia* deserves special mention. Loss of memory may be functional and organic. The characteristic feature of organic amnesia is its permanency and progressive course. In cases of traumata followed by organic lesions of the cerebral tissue the damage to the mnemonic faculty is dependent upon the brain lesion, and like the latter may remain permanent. When the trauma is not followed by a material intracranial lesion and is only functional in nature the loss of memory is due to the profound emotional shock caused by the trauma. The sudden commotion of the nervous system disturbs the mechanism of association of ideas with regard to time and place. Functional amnesia may concern only a certain group of ideas; it may be general, in which all past events are lost; it may be partial; it may be localized, concerning only a certain fact of life. We speak of retrograde amnesia when a certain period of time immediately preceding the trauma is forgotten. In anterograde amnesia the events immediately following the trauma are forgotten. These two forms may be combined.

Amnesia following an accident is, like the latter, sudden. In cases of loss of consciousness one observes that when the latter is regained the patient has no recollection of the accident. In the majority of cases traumatic amnesia is of short duration, especially if it is only of the retrograde or only of the anterograde type. The duration is more prolonged and persistent if the amnesia is simultaneously antero- and retrograde. The prognosis of traumatic amnesia is as a rule favorable. Exceptionally, permanent amnesia has been observed.

Korsakoff's Psychosis.—Sometimes subsequently

to cranial traumatism the following mental phenomena may be observed: As soon as the patient commences to speak he shows evidences of impaired memory and a tendency to fabrication with reference both to the accident itself and to recent events. Gradually these symptoms become accentuated. In the state of full development the following are the chief characteristics: Fabulation, false reminiscences, antero-retrograde amnesia, illusions of identity. The injured individual creates the most fantastic account of his accident and other events. He mistakes his surroundings, relatives, and friends, but he is able to recognize those with whom he always lived, such as wife and children. However, his judgment, reasoning, and emotivity are intact. Very occasionally hallucinations are met with. Ordinarily recovery is complete, but it is slow; the disease lasts several weeks or months. Exceptionally the affection becomes protracted, especially when an asthenic state is present, and it may remain permanent when enfeeblement of the mental faculties develops.

Confusion.—A state of mental confusion may follow immediately, a few days later, or a considerably longer time after a trauma. In the first case as soon as the victim of the accident regains consciousness and sometimes without loss of consciousness he finds himself disoriented like individuals recovering from the effect of an anesthetic. The most frequent occurrence is when a confusional state develops a few days after the trauma, such as we observe in postpuerperal or postoperative cases. In still another group of cases the confusion occurs several weeks or months later. Here it is probably due to nutritional disturbances, to prolonged confinement to bed, etc. The characteristic features of the disorder are mental obtusion, amnesia, disturbed perception, non-recognition of surroundings, illusions of identity, impaired emotivity, incoherence, and disorientation; hallucinations and delirium may supervene. The outlook is usually favorable, except in cases of visceral complications and in delayed cases. The rapidity of recovery varies with the intensity of the disorder and with the date of its appearance, viz., the earlier it is the more favorable is it.

Dementia.—In the chapter on concussion mention was made of the fact that in cases which do not recover anatomical lesions are present in the central nervous system. While these lesions may be exceedingly slight and may heal, nevertheless sometimes they are the point of departure of new and extensive degenerations producing eventually profound intellectual deterioration, viz., dementia. Thus under the term *traumatic dementia* should be understood a chronic and progressive enfeeblement of mental faculties which is associated with circumscribed or multiple lesions of the cerebrum following a cranial traumatism. The terminal deterioration of mental faculties usually follows a course of various psychic disturbances. Immediately after the trauma there may be a period of a confusional or delirious state or amnesia. On the other hand, these symptoms may be absent and the evolution toward dementia may be very slow. In such cases the following symptoms are manifest: Headache, which is usually constant, vertigo, somnolence, asthenia, changes of disposition and of character, great impressionability, emotivity. Gradually diminution of mental power becomes noticeable. Amnesia is the first to become conspicuous. Power of attention suffers subsequently. Inability to continue the usual occupation becomes evident. Judgment commences to fail. The patient becomes apathetic, depressed, indolent; his mental faculties undergo more and more profound alterations.

A distinction should be made between post-traumatic dementia and *paretic dementia.* The relation of paresis to trauma is a question of great importance. For a long time a few alienists of note believed that an injury is apt to develop paresis. In the light of our present knowledge, concerning especially the complement fixation test, it may be safely said that paresis is not and cannot be caused by an accident. We are now in possession of biochemical means to determine the nature of paresis. The positive Wassermann reaction of blood-serum and cerebrospinal fluid, increase of albumin in the latter, lymphocytosis are all pathognomonic of paresis. Besides, spirochetes have been found in paretic brains. There is only one cause of paresis, viz., syphilis. If the symptoms of paresis become sometimes conspicuous after a trauma it is because the disease existed before the accident and the latter served only as an exciting cause for its more rapid development.

Paresis will be differentiated from post-traumatic dementia also by means of a number of physical signs which are so characteristic in well-developed cases that an error is difficult. They are: irregular and unequal pupils, fine tremor of hands, tongue, and lips, typical speech.

Epilepsy in Relation to Trauma.—In a fracture of the skull a fragment may press directly on the cortical layer of the motor area and produce convulsions. In other cases there may be some cicatricial tissue with thickening of the meninges, producing an irritation of the motor area and therefore convulsions. In all such cases the trauma is the original cause of epilepsy. But there are cases in which no appreciable lesion of the motor cortex had been found and still epilepsy developed after a trauma. In every case of this nature one must bear in mind the possibility of pre-existing epilepsy or of a special predisposition to it through alcoholism or syphilis. Here the trauma plays the rôle of a contributory factor. With our present methods of investigation this question can be easily settled. The Wassermann test, the Noguchi test, and their modifications will enable us to determine whether a given individual is syphilitic or not. In all such cases a careful search should be made into the personal and family antecedents before the relation between the trauma and epilepsy is reasonably established.

Medicolegal Considerations.—When an expert is called upon to express an opinion regarding disturbances of a nervous or psychic order following a trauma he is confronted with the following problems: (1) What exactly is the disorder produced? (2) Is the disorder genuine or simulated? (3) Should the symptoms observed be attributed to the traumatism? (4) If the latter is correct, what is the degree of incapacity for work: complete, incomplete, temporary, or permanent? (5) What are the prognosis, duration, and termination of the malady?

1. As to the first question, the description given in the foregoing pages of various nervous and psychic disorders must always be borne in mind.

2. The determination of simulation is, as a rule, not difficult. Nevertheless, in some cases great embarrassment may be experienced. When the symp-

toms are objective, they will be easily recognized. It is absolutely impossible for anyone to simulate an anesthetic pharynx, an anesthetic conjunctiva, a contraction of the visual fields, a genuine hemianesthesia, a genuine plus reflex. These symptoms which are characteristic of hysteria, cannot be confounded with any other nervous affection. It is true that an hysterical paroxysm with its screaming, laughing, and various motor and psychic phenomena can be to a certain extent simulated, but an experienced physician familiar with the disease will have no difficulty in recognizing it. The psychic symptoms of hysteria are not ordinary symptoms; they present a special physiognomy, the main points of which can never be guessed by the simulator. It is the entire picture of the attack that should be taken into consideration, not individual elements.

Special attention is called here to the most important feature of hysteria, which if overlooked will lead to errors of diagnosis and consequently to unfairness in the expert opinion; justice may, therefore, suffer. In the section on "Hysteria" mention was made of the element of suggestibility in hysterical patients. Anesthesia of segments of limbs or of whole limbs, contractures, palsies may all be suggested by friends or the examining physician. The examination, therefore, must be conducted with extreme care. It should be the rule to conduct the examination with the patient blindfolded. No question should be asked of him while the test for sensations, for example, is being made with a pin over various areas of the skin. There is no doubt that he will make some defense movement if the prick causes pain. Or else the patient may be asked to say "yes" the moment he feels pain or the touch of an object. No mention should be made to the patient of possibilities of loss of power in one or more limbs or segment of a limb, of loss of memory, of a grave outlook, etc. Various disturbances of function in the motor, sensory, vasomotor, vegetative, and psychic spheres may be suggested to an hysterical patient with great facility. It is a common experience that not infrequently the victim of an accident immediately after the latter occurred and before he actually recovered from the traumatic shock, is surrounded by a multitude of persons, professional men as well as men otherwise interested. From that time on the individual never ceases to be reminded of his alleged injuries, whether they are genuine or not, until the time of the trial in court has arrived. Should this individual be somewhat neurotic, he at once commences to believe, honestly enough, in the existence of a real diseased condition. Suggestion and autosuggestion do the work. Hysterical stigmata may thus be induced and the man becomes then a victim of an induced or cultivated functional nervous affection which may follow him through his entire life. The guilty party is then not the railway employees but the professional men whose professional attainments were wrongly used. The involuntary negligence of the railroad in such cases is considerably less harmful to the victims of the accident than the voluntary and conscious misuse of the mental power of some interested or friendly persons foreign to the railroad.

Hysterical individuals possess a special mentality, viz., that of dependence and of servility. By virtue of these faculties they succeed in adapting themselves to any given circumstances through all sorts of means—ruse, fraud, simulation. They are capable of lying, of crying when necessary, of complaining of all kinds of suffering. They are capable of concealing their real feelings, of shamming those which they do not possess but which may be advantageous, of using subterfuges with the object to arouse sympathy and interest. Eventually they acquire a certain skill in these performances which they accomplish without any effort. They commence then to experience pleasure in such exercises and by virtue of repetition they become totally identified with them. Thus simulation, suggestibility, and autosuggestion are the chief characteristic features of hysteria.

In spite of the frequency of suggested hysterical manifestations, brought on unconsciously or consciously in railway traumata, there are, nevertheless, genuine occurrences in which hysteria could be considered as the direct result of the trauma. We must admit that the emotional element created by the shock of the trauma is capable of producing functional nervous disorders. There are unquestionably genuine cases with genuine unsimulated morbid manifestations which every fair-minded neurologist must admit. The plea is merely made here for a fair discrimination between what belongs to the emotion caused exclusively by trauma and the facility with which a functional nervous disorder may be induced by extraneous elements.

If simulation and suggestibility play an important rôle in the diagnosis of hysteria, inasmuch as the true situation before a court of justice seems at times most obscure, in the other functional nervous disorder, *neurasthenia*, the medicolegal problem is almost invariably surrounded with difficulties. In hysteria, as we have seen, the symptoms are chiefly objective; they are evident and demonstrable. In neurasthenia they are largely subjective, and therein lies the legal difficulty. When a victim of an accident complains of backache, fatigue, insomnia, and irritability there are no means of vertifying the presence or absence of each of these symptoms. Particularly when the latter are mild the difficulty is great. In such cases simulation has a fertile soil and the patient's exaggeration of his aches and pains has extensive possibilities. When the disease is pronounced, the general aspect of the individual will aid in forming an opinion as to the veracity of his complaints. There is usually loss in strength, pallor of the face, depression, cold, and clammy skin, tremor. In all cases, however, the expert in forming his opinion should not lose sight of the fact that the patient may be a sufferer after all and a judicious consideration should be given to his complaints. In justice to both parties he is duly bound to weigh carefully all the facts of a given case irrespective of the side he represents. Experience, judicious mind, sense of fairness are his guides.

The other functional nervous disease occurring after a trauma are chorea and paralysis agitans. Here simulation is impossible; but whether these maladies are in direct relation to trauma is to be determined after a most searching scrutiny. Care should be taken to ascertain whether the victim of the accident did not present prior to the accident some of the movements or some of the tremor of chorea or paralysis agitans respectively. In the majority of cases this will be found to be correct. It is rare that a trauma is the direct cause of these affections, although it is not impossible. In the latter case there will be found a susceptibility and a special predisposition in the individual's make-up to disorders of the nervous system.

Medicolegal Aspect of Amnesia.—Here great difficulties may be encountered. Simulation is relatively easy. Prejudicial judgment is a common occurrence. In cases both of transitory and of prolonged traumatic amnesia, extraordinary care, skill, and tact must be displayed in interrogating the victim of the accident; all circumstances surrounding him at the time of the accident must be taken into consideration before a final unbiased opinion is expressed. It is well to bear in mind that in the majority of cases the prognosis is favorable.

In Korsakoff's syndrome following a trauma reservation should be made in cases accompanied by asthenia and in cases with distinct enfeeblement of mental faculties. Ordinarily recovery is complete. The medicolegal opinion should be based therefore on the above considerations.

Confusional insanity bears usually a favorable prognosis and recovery in ordinary cases is prompt. From a medicolegal standpoint a final opinion should be reserved and the victim be kept under prolonged observation, as complications alter the outlook, although the complications as a rule are not dependent upon the confusional state itself.

In traumatic dementia trauma plays a conspicuous rôle from a medicolegal standpoint. Here the dementia is identical with the enfeeblement of intellect observed in cases with cerebral lesions of other origin, such as vascular, syphilitic, alcoholic, saturnine, or arteriosclerotic. Traumatic dementia is an organic dementia and consequently chronic, progressive, and incurable. It should also be borne in mind that remissions, *i.e.* periods of mental improvement, are possible and they may last a more or less prolonged period of time. The medicolegal aspect is here evident. The relation of the trauma to the mental condition is direct and the victim is entitled to damages. But if trauma occurs in an aged, arteriosclerotic, or alcoholic individual, the rôle of trauma is considerably diminished. It is no more a determining, but an exciting or accessory cause. Finally should dementia develop several years after the trauma without intermediary morbid phenomena the above mentioned causative relation of the trauma cannot be taken into consideration from a medicolegal standpoint.

The question of *paresis* can be dismissed in a few words. In the light of our present knowledge there can be but one cause of paresis, viz., syphilis. As to the medicolegal rôle of trauma, the following considerations, I believe, are sufficient to establish its relationship to paresis: (1) Traumatism is not a direct cause of paresis. (2) If symptoms of paresis appear immediately after a trauma, the latter is only an accessory or aggravating cause of the disease which had already existed before the accident. (3) When paretic symptoms appear a long time, say years, after the accident, there is no relationship between the two. Freedom from symptoms referable to the old accident should be considered as a recovery.

The medicolegal relation of *epilepsy* to trauma can be considered only when the convulsions which never existed before the accident, make their appearance immediately after the latter. Late epilepsy may be considered as being the result of an old trauma only when during the intermediate period various symptoms, such as vertigo and headache, persist with great obstinacy.

The next problem which we outlined in the beginning of this chapter is the determination of the degree of *incapacity* caused by the accident, the consequences, duration, and termination of the latter. Hysteria and neurasthenia are not synonymous of simple nervousness. Properly understood they are well-defined diseases of the nervous system. They do incapacitate for mental or physical work, but only to a certain extent. The anesthesias, hyperesthesias, contraction of visual fields are well borne by hysterical individuals, but the psychic phenomena of hysteria, such as great emotionality, irritability, restlessness, crying spells, paroxysmal attacks, are all apt to produce disability, mental as well as physical. The mentality of hysterical individuals is peculiar. Lack of concentration and application, incomplete association of ideas because of instability, want of deep mental processes; great impressionability and unusual responsiveness—are all manifestations which render an hysterical individual unfit for mental or physical work. It stands to reason that hysterical contractures or palsies are also elements unfavorable for resumption of the individual's former or any other occupation.

In neurathenia the physical and mental fatigue upon the least exertion, the backache and headache, etc., are all phenomena which incapacitate the victim of an accident for work.

In determining the degree of incapacity in these two affections the ever present possibility of simulation and the powerful influence of suggestion should never be forgotten. It is, therefore, evident that a very careful inquiry into the victim's entire social and medical histories must be undertaken. His complaints must be thoroughly scrutinized. The opinion on partial and total disability will depend upon such an investigation as well as upon the intensity of each individual symptom.

When amnesia occurs, a disability will ensue if it is of a generalized character. If it concerns only a certain past period of life (retrograde or anterograde form) there is no disability whatever. The individual is perfectly able to earn a living, as the memory is good for all events except that one.

The question of incapacity in psychoses can be settled in the affirmative by virtue of the mental disorder. The duration of the former depends upon the duration of the latter (see the respective sections).

Traumatic epilepsy does not remove entirely the capacity for work but frequently it becomes complicated by nervous and psychic disturbances. In the latter case it may lead to dementia. The outlook is naturally uncertain. The sudden and unexpected manner with which an epileptic seizure makes its appearance is a sufficiently strong argument in favor of incapacity for physical work. As epilepsy is of uncertain duration, the claim for compensation should be considered accordingly.

The previous study of trauma in relation to nervous and mental disorders leads to the following conclusion: In cases of railway or other injuries caused by neglect of those who have in charge the management of transportation, it is no more than just that the injured person should be compensated for disability. On the other hand, simulation or exaggeration of incapacity should be condemned. The physician is indispensable to the law. In the name of justice he must be invariably reserved in his statements. His opinion must be formed after a thorough study of each individual case. The degree of the disability and the prognosis of the affection vary in each individual case. The scientific recognition of the affection, the recognition of the influence of the accident upon its mani-

festations, finally the discrimination of a genuine malady from a simulated one—all these elements can be acquired only when the physician is properly prepared.

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THE MODERN TREATMENT OF SYPHILIS.

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The question of syphilis and its treatment has always been a very important one in the practice of almost every physician. Apart from its sociological aspects, however, it is one that has been largely banned in scientific medical assemblies. This has been on account of the actual very vague knowledge concerning its cause, its accurate diagnosis, and its proper treatment.

During the past few years, however, the exciting cause has been discovered, an accurate method of diagnosis has been worked out, and a very efficient therapy has been introduced. The result is that patients suffering from the disease are now admitted into practically all of our general hospitals and there efficiently treated. In other words, the disease has been elevated from its lowly station where mercury and the iodides were prescribed in a hit or miss manner to a higher plane where its progress can be accurately watched by exact laboratory methods and the efficiency or further need of various forms of treatment can be definitely determined. In short, syphilis can now take its proper place in scientific medicine.

The present is not the place to take up the topic of the discovery of the *Treponema pallidum* by Schaudinn. Neither can prolonged attention be given to the important phenomenon best worked out by Wassermann and named after him the Wassermann reaction. Before going further, however, a pause must be made to state that it is incomprehensible how a physician can properly treat a case of syphilis at the present day without repeated blood and in many instances spinal fluid examinations. Without such, many cases, apparently cured, will recur, and in other instances the correct diagnosis will be entirely overlooked.

The Wassermann reaction must rank as of primary importance in the treatment of the disease, but it has its limitations. It must be borne in mind that it is not an absolutely specific complement fixation test as is that used in gonococcus infection. It must be also remembered that it is not present in the early primary stage, and not always in the tertiary or quiescent ones.

When properly performed and interpreted it will prove to be an invaluable guide and one that cannot safely be dispensed with. It should always go hand in hand with treatment. With this preliminary, the main topic of this paper may be introduced, viz., the treatment of syphilis. As has already been stated, until very recently there were two remedial agents, mercury and potassium iodide. A patient received sometimes one, sometimes the other, sometimes mercury by mouth, sometimes by inunction, or again by subcutaneous, intramuscular, or intravenous injection. If he showed signs of improvement well and good. If not, there was practically nothing further to try, and only too often he fell into the hands of charlatans. Thanks to Ehrlich, a remedy is now available that will compare in efficiency with quinine in malaria.

Time and your patience forbid description of the various steps in the study of the spirillicidal forms of arsenic from the simple drug through the more complex forms such as atoxyl to salvarsan and its younger cousin neosalvarsan. It must be sufficient to state that in these new drugs there was supposed to have been discovered that ideal of the bacterial therapeutist, substances sufficiently potent to kill the specific parasites without injuriously affecting the host. When first brought forward it was supposed that one treatment of salvarsan would efficiently rid the host of all its treponema parasites. And indeed, in some instances, the clinical improvement was so startling after one such treatment as almost to justify that belief. It was very soon found to be fallacious, however. Again in the early administrations, various severe forms of reactions were sometimes noted. Accordingly further research was instituted, with the result that shortly a new product, neosalvarsan, appeared. This was supposed to be more potent and to give rise to less reaction. Whether this is true is still somewhat debatable.

Perhaps the most logical manner to take up the further presentation of this subject is to give in some detail the routine followed in treating various stages of the disease, the prognosis, and precautions involved. It may be well to state that these opinions are based practically exclusively upon personal experience after administering the treatment a large number of times and always controlled by careful Wassermann tests.

Primary Syphilis.—Search for *Treponema pallidum* in chancre. Take blood for Wassermann reaction. Remember that this reaction, like the Widal reaction in typhoid, may not appear for days or even two or three weeks after the onset of the disease. A negative reaction thus early will not accordingly exclude the possibility of syphilis. Repeat in a few days. When satisfied concerning the diagnosis, the earlier the treatment is begun the better the hope of recovery. Instruct patient to empty bowels by cathartic and to eat nothing for several hours prior to treatment in order to have empty stomach. Introduce into median cephalic or basilic vein (or some other) 0.4 gram salvarsan while patient is lying down. Preferable time, late afternoon. Least reaction comes when patient remains quiet in bed till morning, although often it is comparatively safe to allow one to go home and then to bed. Eat nothing for several hours after, and no solid food till next day. Water as desired. Then live as usual after twelve hours.

Possible reactions: nausea, vomiting, headache, chills, diarrhea, fever, occurring within twelve hours. Varying reactions in possibly 10-20 per cent. of cases, less when salvarsan is diluted with 50 per cent. saline freshly made from freshly distilled water. Never allow mixture to stand more than fifteen to thirty minutes, and never mix up enough for two patients at same time. Repeat above process in seven and again in fourteen days, increasing the dose to 0.5 gram and 0.6 gram respectively. During this time administer mercury protiodide, at first 2x homeopathic trituration and later 1x to limit of toleration (indicated by cramps in abdomen, diarrhea, salivation, sore mouth, etc.). Follow by salicylate of mercury in sterile olive oil (50 grains mercury to 1 ounce olive oil, warmed and mixed before use) intramuscular (buttocks), once a week in doses of ¼ to 1 grain. Continue for three months. Discontinue all medication for three weeks and then do a Wassermann. If this

is negative, or feebly positive (+) continue mercury for three months more. If positive, repeat the salvarsan treatments, and the following mercurialization. Each case should be watched for at least one year, and preferably two, even if the Wassermann becomes negative early, as it sometimes changes back to positive. The first salvarsan treatment will probably strongly affect the chancre, causing it to dry up rapidly and subside. Local treatment is seldom necessary. The enlarged lymphnodes may be more obstinate. All clinical symptoms will usually clear up promptly, and the patient will feel perfectly well. From the standpoint of prognosis, the person can be told that the symptoms are almost certain to subside promptly, and that there is a fair chance of complete recovery as indicated by repeated and continued negative Wassermanns. Remember that mercury recently taken in quantity, also alcohol, may make an otherwise positive reaction negative. Strongly conclusive evidence that it is possible definitely to cure a syphilitic patient has been brought forward in a number of instances where a person has for the second time had a typical chancre following a second exposure with all symptoms of a fresh attack, a phenomenon impossible were any of the old infection left in the body. This is something practically unknown in the presalvarsan period.

Secondary Syphilis.—In this stage the Wassermann reaction is practically always present. It is here of the greatest definite value as a negative reaction, especially if repeated, on a suspicious dermatitis, pharyngitis, etc., is strong presumptive evidence against the existence of the disease. Here search can be made for the specific organisms in the lymph from the various local lesions. The course of treatment to be followed is identical with that already outlined. By it one may confidently expect to eradicate promptly the local and general manifestations of infection and to give soon to the individual a goodly share of health and wellbeing. Careful observation for one or two years is essential to the proper disposition of the case, if for no other reason than as a means of insurance against future outcropping of some of the late protean manifestations.

Under conditions as above detailed there is reason to be quite hopeful for a complete and permanent cure. It may entail many salvarsan treatments, much prolonged mercurialization, and repeated blood examination. Even if it proves impossible to obtain a permanently negative Wassermann reaction, further trouble can be quite definitely prevented.

Tertiary Syphilis.—This stage of the disease can take almost any form, and is manifold in its manifestations. The Wassermann reaction is here more variable than in the two preceding stages, it being absent in from 15 to 30 per cent. of all cases, particularly those of the latent or dormant type. A positive test is always significant. A negative one is much less so. In the presence of suggestive history or symptoms it should always be repeated several times, and if it is in any way associated with the central nervous system, lumbar puncture should be performed and examination made of the cerebrospinal fluid. Frequently cerebrospinal syphilis will not manifest itself at all in the blood, while doing so very clearly in the spinal fluid. In these or other forms of the disease with negative Wassermanns one or more so-called "provocative" salvarsan treatments will clear up the case readily. The luetin skin test, as introduced by Noguchi, is also often of value in elucidating otherwise obscure cases. With the diagnosis definitely settled the particular type of treatment should be considered. In all cases not connected with the central nervous system the course of treatment already outlined should be carefully followed and continuous observation is essential, either indefinitely or until such a time as there shall have been Wassermann negative blood tests over a period of months. As in the primary and secondary stages, so here, the various clinical manifestations will clear up with readiness and a feeling of general wellbeing will replace the less agreeable ones. The hope of obtaining entirely negative serological tests is less than in the earlier stages. That the patient can be greatly improved and the majority of the symptoms entirely eradicated may be strongly anticipated, however. Such cases require prolonged and often indefinite observation in order to guard against return of the symptoms or appearance of new and more serious ones.

Syphilitic Nervous Diseases.—When the disease has become located in the central nervous system, and the treponemata have become lodged in tissue poorly supplied with circulating blood, it is very difficult to attack them successfully by the usual intravenous administration of salvarsan. It has been definitely proven that very little salvarsan thus administered ever reaches the nerve tissue involved, and accordingly the therapeutic results are discouraging. In order to obviate this difficulty Swift, working in the Rockefeller Institute, has advised the introduction directly into the spinal canal of fresh but inactivated blood serum obtained from the patient one hour after a salvarsan treatment. This serum contains the drug in a form innocuous to the nerve tissues, but still distinctly lethal to the treponema with which it can by this means be brought into direct contact. The method is a complicated one, and practicable only in an institution accessible to a properly equipped laboratory. The method of choice to follow in syphilitic nervous disease should be in most cases the preliminary intravenous administration of salvarsan, repeated two or three times and controlled by serological study of the blood and the cerebrospinal fluid. If the results are not sufficiently evident, then the intraspinous injection of salvarsanized serum should be employed.

In tabes and general paresis experience has shown the vastly greater improvement following the latter treatment than that from the intravenous method. In these diseases, accordingly, it is inadvisable to waste time in preliminary experimentation when it is known how much more definite results can be obtained from the intraspinous treatment. It insures all the beneficial results of the intravenous plus those of the intraspinous as well. Where facilities for the latter are lacking, the former should of course be employed.

Did time permit cases might be cited where the girdle pains of tabes, and many other symptoms but little if at all ameliorated by intravenous treatment, disappeared most promptly after the intraspinous with corresponding general improvement.

In tabes and in paresis it is necessary to continue the treatment much longer than in the less severe forms of the disease. Intraspinous treatment is advised at intervals of about two weeks, and is repeated six, ten, twelve, or more times. In tabes with positive Wassermann in blood, or spinal fluid, or both, the outlook for benefit is good if the treat-

ment is persistently carried out. Time has not yet sufficiently elapsed to justify definite statements concerning the possibility of absolute cure. In paresis there is divergence of opinion on the part of various workers. In the cases upon which this paper is based, sufficiently encouraging results have been obtained to justify a continuation of the treatment and particularly persistence in its application. Certain conclusions have been reached as a result of the personal study here involved.

1. Salvarsan is preferable to neosalvarsan from both the clinical and the serological standpoint. When properly prepared, the reactions are not materially more numerous or more severe.

2. Salvarsan alone is less efficient than when accompanied and followed by mercury, preferably in the form of the salicylate intramuscularly.

3. Treatment should always be controlled by repeated blood examinations. It is accordingly best administered by one in close touch with a well-equipped laboratory.

4. In view of our present knowledge, treatment of any form of this disease has been inadequate when salvarsan has not been employed.

5. In tabes, and possibly in paresis, a practically hopeless disease has been transformed into one where much benefit can be confidently anticipated. Here the intraspinous route is the one of choice; this treatment should be administered only by one specially trained in laboratory technique.

6. Syphilis has been transformed into a disease capable of being accurately watched and efficiently treated.

ACUTE LEUCEMIA.

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It is well known that the blood pictures of acute lymphatic leucemia in the majority of cases are leucemic from the beginning throughout the course; but occasionally they may be subleucemic or aleucemic and even leucopenic for a part or all of the time, as clinical observations in connection with post-mortem findings prove. (Cases of Jeanselme, of Weil with 4,000 white cells, and of Benjamin-Sluka with 2,500 per cubic millimeters.) The cases of Hand, Potpeschnig, Churchill, Dosmarus, Naegeli (quoted from Benjamin), and a number of other cases presented more or less normal numbers of leucocytes; partly due to the effect of *x*-rays or infections, but partly these cases had throughout their course aleucemic or subleucemic blood pictures.

The degree of leucocytosis in the beginning of the disease may be insignificant or absent; even leucopenic pictures are to be observed, as, for instance, in the sixth case of Betz with 1,900-2,500, and later with 101,100 white cells. As a rule a rapid increase in the number of the leucocytes takes place; occasionally up to several hundreds of thousands of white corpuscles per cubic millimeter, though generally only moderate figures are met with in the acute form of leucemia. The quantitative changes of the blood pictures may be strikingly rapid; sometimes not until the agonal stage do the leucemic blood changes make their appearance, as for instance in the observation of Naegeli, where 7,500 leucocytes with 30 per cent. lymphocytes were counted the day before death, and 50,000 post-mortem.

Secondary infections as pneumonia, otitis media suppurativa, erysipelas, and especially septic complications may cause not only a subsidence of the clinical symptoms as far as the size of the lymph glands, spleen, and liver is concerned, but also a decrease of the leucocytosis to even subnormal figures, without of course improving the unfavorable prognosis. Should the lymphatic blood pictures not be well marked and at the same time the neutrophile polymorphonuclear cells be numerically increased, a diagnosis of acute leucemia may at this time be impossible. It is evident that such cases running temporarily or permanently aleucemic courses in the presence of more swollen lymph glands may be taken for "pseudoleucemia" in the wider sense, on which point I shall dwell later.

On the other hand acute lymphomatoses are observed that corresponding histologically with leucemia have clinically neither swellings of spleen nor lymph glands, and run their course under the picture of hemorrhagic diathesis or severe anemia. For the recognition of such cases and of the acute lymphemias with only a slight increase of the total count of the white corpuscles the qualitative blood findings may exceptionally fail. In the majority of cases there is fortunately a numerical prevalence of the lymphocytes, especially of the large forms, so that with a subnormal or normal total count of the white cells the percentage of the lymphocytes may reach 90 or more. However, in the last years cases, as mentioned, have been repeatedly observed (Hirschfeld) where even the relative increase of the lymphocytes was absent, although pseudoleucemia (Cohnheim's) was revealed by post-mortem. Subleucemic conditions may cause further difficulties in the diagnosis, because high absolute lymphocytoses occur also in typhoid fever, a relative lymphocytosis is to be found normally in infants and also in congenital lues and in pernicious anemia; also wound sepsis, widespread streptococcic adenitis of tonsillary origin may be accompanied by a lymphocytosis so pronounced as to suggest leucemia. No cause is known for this substitution of lymphocytosis for the usual polymorphonuclear leucocytosis of infections. The recognition of an infectious origin for the adenitis, perhaps a lesser degree of lymphocytosis in the infectious type and the course of the disease would determine the differential diagnosis. Here also may be mentioned such cases as observed by Türk (staphylococcus sepsis, with the picture of angina lacunaris and the blood finding of acute subhymphemic lymphomatosis) or Benjamin (two children with exudative diathesis showing for months 80 to 85 per cent. lymphocytes without true leucemia) and Ewald (leucemia without leucemic blood).

Atypical conditions of the blood pictures in leucemia must be considered as the expression of functional and biological differences in the leucocytopoesis and as related to one another; this relationship seems also to exist between the microlymphatic and macrolymphatic forms, inasmuch as these two forms may replace one another during the course of the disease, especially the latter the former; or both cells are present in the same case in a greater number but in various proportions. As a rule the prevalence of the larger "lymphocytes" and Rieger-forms indicate a more malignant and rather acute course of the disease.

According to our present views there exist no essential differences between leucemia and aleucemia (aleucemic lymphomatosis) or pseudoleucemia in the stricter sense (Cohnheim's). Several authors would abolish entirely the term "pseudoleucemia" since it comprises various pathological entities. As

"white-bloodedness" (Weissblütigkeit) can no more be considered as the essential factor in the leucemic processes the proposal of Ellermann and Bang to replace the term leucemia by "leucose" deserves consideration.

Türk introduced the term lymphomatosis for all diseases characterized by a pathological proliferation of the lymphoid tissues; he distinguishes alymphemic, sublymphemic, and lymphemic lymphomatoses according to the blood findings. In Orth's book on special pathological anatomy the term "pseudoleucemia" is altogether omitted. Identical anatomical changes are present in both diseases; though it is unknown, why in the one case the blood is overloaded with leucocytes, in the other not. The idea of the essential identity of the nature of leucemia and aleucemia is supported by the observation that during the course of typical leucemia periods of pronouncedly leucemic and aleucemic blood pictures may follow one the other and that an aleucemic or sublymphemic lymphomatosis may turn into a genuine lymphadenoid leucemia. Also the results of experiments by Ellermann and Bang on animals confirmed by Hirschfeld and Jakobi speak in favor of an etiological identity or similarity of the processes. The first mentioned two authors inoculated chickens with an emulsion of the organs from a leucemic chicken and produced in some of the animals leucemia; in a number of those animals, where the blood pictures failed to become leucemic, the hematopoetic organs, however, presented leucemic changes; chickens infected with aleucemic material presented severe leucemic blood pictures. In addition to that only recently Ellermann and Bang using one and the same leucemic material succeeded again in producing in chickens experimentally both the lymphatic as well as the myeloid forms of leucemia with corresponding anatomical histological lesions, similar to those in lymphatic and myeloid leucemia in man. In one of the chickens there developed "pseudoleucemia." Some animals inoculated with material filtered through porcelain filters showed pictures of leucemia, others of "pseudoleucemia." One chicken presented the picture of leucanemia.

These experiments tend to demonstrate the etiological identity or relationship of myeloid and lymphatic leucemia and aleucemia, and prove that the virus of chicken leucemia, which latter anatomically and hematologically corresponds with human leucemia, is filterable. Though these observations deal only with chicken leucemia, they are at least very suggestive as to the possibility that also the human leucemia is identical with aleucemia (pseudoleucemia in the stricter sense). Von Wiczkowsky succeeded in transmitting leucemia from man upon chicken.

The majority of authorities have long been inclined to refer the cause of acute leucemia to infection; some consider the disease as an infection with staphylococci or streptococci accompanied by a peculiar, abnormal reaction of the bone marrow, due to a constitutional inferiority; among the new authors (Paltauf, Neusser, Herz) the possible connection with status thymicolymphaticus has been repeatedly pointed out. Proescher on the other hand found spirochete in the fluid obtained from the lymph nodes.

The following case is interesting on account of the gradual decrease of the number of the leucocytes to a marked leucopenia.

Miss Mary G., of South Haven, Mich., was sent to Chicago by her physicians with the diagnosis of acute leucemia. Admitted to the Presbyterian Hospital on September 27, 1913. She had as child, measles, chickenpox and mumps, but was otherwise always healthy; in June she felt well and was able to walk several miles daily to and from school. The present illness began about four to five weeks ago, when she began to be easily tired on exertion, and suffered from severe diarrhea with 5 to 7 liquid stools a day, accompanied by abdominal pain, and lasting for about a week. At this time she was pale. About three weeks ago patient began to be short of breath on climbing stairs and to require more sleep than before. Often vertigo and nausea. The last menstruation anteponed by about one week with the usual loss of blood. Patient became gradually weaker and is, since a week, bedfast on account of weakness and fever up to 102. She felt sleepy, but slept well. No pain. Occasionally there was nose bleeding during the last weeks. Appetite was good. The well water of the family had during the summer a peculiar bad taste and odor, so that it was necessary to discontinue its use.

Status præsens; September 27, 1913: young lady, 18 years old, body weight (in light summer clothes), 114 pounds. Moderately nourished, very pale with a yellowish tint, no icterus. About the right corner of the mouth a few yellowish crusts from herpes, covering an exulceration. Mucous membranes of the mouth very pale. Right tonsil swollen, its lower pole with a cone-shaped yellowish projecting lobe (leucemic infiltration), left tonsil hypertrophied. No palpable lymph glands on neck, in axilla, or in inguine. No heart murmur. Liver: dullness of percussion sound in the mamillary line from the upper border of fifth rib down to the height of the umbilicus. The consistency of the liver somewhat increased, the border distinctly palpable. Spleen: The upper border by percussion in the anterior axillary line at the lower border of the seventh rib. Lower pole of spleen palpable in the mamillary line down to the horizontal umbilical line. Temperature 99° to 100.6°; blood, 2,620,000 erythrocytes; 38 per cent. hemoglobin; 76 per cent. color index; 15,150 white cells; 9 per cent. small mononuclear cells; 82 per cent. large; 7 per cent. polymorphonuclear; 1 per cent. eosinophiles; 1 per cent. transitional cells. Benzol-therapy. September 28: White cells, 12,800. Maximum temperature 105.4°. Benzol. September 29: Eyelids edematous, a few small petechial spots on left foot. Nose bleeding, temperature, 100.8°-102.4°. Benzol discontinued. White cells, 6,000. September 30: Temperature 98°-100.8°-101°; slight nose bleeding, blood very pale, watery. The whitish projection of the lower pole of right tonsil had gradually disappeared. Skin very pale, alabasterlike. White cells: 3,100; 4 per cent. small mononuclear cells; 89 per cent. large; 5 per cent. polymorphonuclear; 1 per cent. transitional cells; one myelocyte in several slides. October 1: Temperature 101.6°-99.6°-101.8°. White cells, 2,800; blood culture negative both aerobical and anaerobical (Dr. Rosenow). October 2: Body weight (unclothed), 106.75 pounds, pulse 128, temperature 100.4°-103.4°. Spleen and liver somewhat smaller. Appetite good, sleep good. Subjective feeling comfortable. October 3: Red cells, 1,920,000; hemoglobin, 30 per cent.; white cells, 2,200; 4 per cent. small mononuclear cells; 91 per cent. large; 5 per cent. polymorphonuclear; 1 per cent. transitional cells; temperature 101.4°-105 2°. Started daily hypodermic injections of electrargol and inunctions of Credé's ointment. October 4: Liver smaller, markedly soft and difficult to palpate. Temperature 100.4°-103°. October 5: Liver and spleen smaller. White cells, 2,700. October 6: White cells, 2,800; 7 per cent. small mononuclear; 88 per cent. large; 4 per cent. polymorphonuclear cells; temperature 100 8°-103.6°. October 8: Red cells, 1,840,000; hemoglobin, 22 per cent.; white cells, 1,600. Patient had a peculiar sensation, in which she could not talk or move her right arm for a short time; recovered fully from the attack. Serum albumin in urine positive. Temperature 101°-102.6°; pulse 120-128; respiration 28. October 9: Spleen much smaller; lower pole hard, reaching to the arch of the ribs. Patient very drowsy. Liver smaller, very soft and difficult to palpate. October 10: Temperature 100°. October 11: No fever, pulse very small and frequent, patient very somnolent; vomiting. October 12: Liver invalpable, spleen underneath the arch of the ribs. Soft murmur at the basis of the heart. Temperature 100°. Extreme pallor. October 13: Pronounced asthenia, collapse, vomiting; a few very pale punctiform hemorrhagic spots on body. Coma. Exitus at midnight.

Clinically there was no tumefaction of the lymph glands during the time of my observation. The swellings of the lymph nodes as known do not reach in acute leucemia such marked degrees as seen in the chronic forms and they may be even absent, as post-mortem findings have revealed. (Cases of Pappenheim, Walz, Reed, Kelly, and others.)

In the presence of leucemic blood pictures the condition represents—so to speak—the inversion of the symptom complex of lymphatic "pseudoleucemia." Pappenheim considers such cases of leucemic blood conditions with absence of tumefaction of the lymph glands as due to a primary affection of the bone marrow, causing through proliferation of its lymphoid cells the increase of the lymphocytes in the circulating blood, contrary to Ehrlich, who refers lymphemia to a primary affection of the lymph glands and only myelemia to an affection of the bone marrow. However, also in normal-sized or slightly enlarged lymph nodes severe pathological changes have been occasionally found.

The drop of the leucocyte number in our case to a subnormal, markedly leucopenic level can of course not be ascribed to the use of benzol (that was administered for only two days and interrupted when a decrease was observed), but must be considered as spontaneous, as often observed in this disease. The energetic, elective effect of benzol upon the hematopoetic system, especially upon the leucocytopoesis, as studied particularly in chronic leucemia shows itself at the beginning as stimulating and only later and in larger doses—mostly after the end of the second week—paralyzing and inhibiting the leucopoetic function, causing finally a decrease of the leucocyte number. There was also no cogent reason nor clinical indication for the presumption of a secondary septic infection as complication. A culture taken from the blood was negative. No post-mortem was permitted to determine the pathological and anatomical conditions of the hematopoetic organs; and no blood count was possible during the last days of life. No definite answer can be given to the question, whether a profound anatomical or a functional exhaustion of the organs took place due to the primary (leucemic) infection, revealing itself in spontaneous marked oligocytemia, and going hand in hand with a general collapse.

Ewald observed in a case of generalized aleucemic hyperplasia a leucemic figure as low as 800 leucocytes; Betz in a fatal case of pneumonia with pneumococcus sepsis, 800 white corpuscles with prevalence of the ungranulated elements of bone marrow in the blood picture.

Luigi d'Amato saw in splenomegaly after malaria 2,000 and Sluka in acute lymphatic leucemia 2,000 leucocytes. Leucopenias of such low degrees are, it seems, rare. Several mechanisms come into consideration in the causation of this interesting condition, among them lessened activity of the hematopoetic organs, lessened cytogenesis by funcional insufficiency as, for instance, resulting from the effect of the toxins of typhoid and in anemia, pernicious anemia, agonal stage of peritonitis, starvation, etc., possibly also in the minor degrees of *x*-ray and radium effect, where a decreased cell production in indicated by a decrease of purin substances. In other cases the function is lessened on account of anatomical destruction of greater parts of the hematopoetic tissues; or an increased leucocytolysis may take place. The generally increased excretion of uric acid in the urine in aute leucemia is referable to an increased destruction of nuclein and is from histological and experimental observations to be regarded as partly the result of the increased breaking up of white blood corpuscles. The severe initial intestinal disturbances observed in our case represent, it seems, merely a part of the symptom complex of acute leucemia, having been preceded by pallor of the skin; and are most probably in no causal relationship to the use of the well water, as none else of the family showed any intestinal disorder at the time. Dyspeptic manifestations and loss of appetite are repeatedly recorded as initial symptoms of acute leucemia. They were present in the case published by me last year and in a 14 months' old baby seen by me a few weeks before the above described case.

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UMBILICAL INFECTIONS.

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AN important chapter in the treatises on Pediatrics, that has been somewhat neglected or not fully considered, is that of Umbilical Infections.

Charles Gilmore Kerley of New York says in regard to this subject: "The frequent appearance in private practice and in out-patient clinics of infants with umbilical polypi, granulomata, suppurating umbilical stump, or an eczema involving a considerable area about a moist, actively secreting umbilicus, etc.," is another proof of the contention that the comparatively common source of infantile infections has been, to a certain extent, neglected.

Although modern and up-to-date practitioners and specialists avail themselves to the fullest extent of all applied rules of asepsis and antisepsis, nevertheless this subject is of importance, for there is still much superficial or inconsiderate treatment of infantile infections, traced mainly to those of the umbilical cord and wound, which are oftentimes diagnosed too late, or treated symptomatically, without the necessary routine of a thorough diagnosis.

In dealing with the subject of umbilical infections, I eliminate umbilical hemorrhages as a whole, and the hernias, making mention only of these conditions for the sake of completeness.

Umbilical infections occur in the new-born, in two ways: (1) through the umbilical wound, after the falling of the cord, and before the complete cicatrization of the wound, and (2) through the umbilical cord.

Generally speaking, umbilical infections may be due to neglect in the proper treatment of the cord, such as handling of it with unclean hands, the use of non-aseptic dressings, severing of the cord with not strictly aseptic instruments, the use of an unclean ligature for the cord, the imperfect cleansing of the wound of septic material, infection with lochial discharge after delivery, through the bathing of the newborn, etc.

Infections of the umbilical cord are apt to occur previous to the drying or mummification (Filatow-Hassin) of the cord and wound, although cases are recorded in which instead of drying of the cord, putrefaction ensues, followed by gangrene and sloughing. This last occurs usually in premature and debilitated infants, and instead of the wound becoming cicatrized, it remains open and humid, thus establishing a cycle of infection and reinfection. Runge reports the frequent coincidence of umbilical disease and ophthalmia, the pus from the conjunctiva being carried to the cord—another etiological factor in the infections of the umbilicus.

In a general way infections of the cord or wound, are due to saprophytic bacteria and the condition may remain a local one, leaving a wound with exuberant granulation which is the means of the production of the so-called "umbilical fungus." Cicatrization takes place in all cases, sooner or later, but where infections occur, we must attribute them to lack of resistance of the new-born, or the presence of pathogenic microorganisms.

In dealing with the etiology we must consider also infections carried to the new-born by a diseased mother, often the cause of a severe umbilical infection. In these cases we must isolate the child, the treatment of the cord and wound being carried out by a person who does not come in contact with the convalescent mother.

Among the bacteria most frequently causing umbilical infections, I mention the streptococcus, the *Bacillus coli communis*, and the *Bacillus pyocyaneus*.

Infections of the cord and umbilicus may be superficial or deep, and the different changes occurring at the umbilicus we may classify according to their aspects and parts involved. I must mention in this connection: the umbilical fungus, in which the umbilical wound stands out prominently; the umbilical ulcer, in which there is an ulceration of the tissues surrounding the umbilicus proper; umbilical pyorrhea, in which the umbilical wound is filled by a septic secretion; omphalitis or acute umbilical cellulitis, and periomphalitis in which there is an edema of the parts surrounding the umbilical wound, which may lead in grave cases to phlebitis, erysipelas, umbilical arteritis, abscess of the liver, or suppurative peritonitis. General septicemia follows usually in cases where the umbilical arteries become inflamed.

I may mention further diverticulum tumor and mucous polypus, which are really one and the same condition, and which, according to Holt are associated with an umbilical fistula, formed by a prolapse at the navel, of the mucous membrane of Meckel's diverticulum or the remains of the omphalo-mesenteric duct. In cases of arteritis or phlebitis, the vessels undergo definite pathological changes, such as induration, thrombosis, etc. Degenerative processes following a general septicemia have been demonstrated at autopsies, where all organs of the body were found to have been involved, as for instance: lung infarcts, congested areas in the lungs, hypertrophied spleen; large, thick, and white kidneys; a pale, pink, marble-like liver; multiple abscesses of the liver, lungs, and spleen; seropurulent exudates of the peritoneum and pleuræ, etc.

The diagnosis of the condition can be established by the local visible changes, occurring at the umbilicus, the microscopical examination of the umbilicus and umbilical wound discharges, the presence of icterus, especially immediately after birth, loss in weight, and the general bad condition of the infant.

Umbilical hemorrhages, that are constant and severe, after eliminating the case of a badly ligated cord, or after its dropping, are generally attributed to hereditary syphilis, and should be investigated carefully and tactfully. The treatment is that of syphilis elsewhere.

Other diseases of the umbilicus are the hernias. The majority of them are congenital, and are considered by Kerley to be due to failure in the closure of the ventral laminæ, or to a defective development of the parts at the umbilical opening, which give way under pressure, as in colic, strain in whooping-cough, etc. The treatment of these conditions is mechanical, and can be summed up in the injunction: reduce and prevent recurrence.

In case of putrefactive changes in the cord, when it becomes soft and greenish, it is advisable to use antiseptic powders such as boracic acid, tannic acid, quinine, bismuth, either one alone or combined, covering with plain aseptic gauze and the abdominal binder. I have used in two cases, previously handled by midwives, thymol iodide powder, and it proved excellent, more so in one of the cases in which there was a slight hemorrhage.

In cases of a profuse fetid discharge, it is recommended first to wash the parts with a solution of potassium permanganate 1-1000, dry well with absorbent cotton or plain gauze tampons, and powder with zinc oxide.

In cases of omphalitis and periomphalitis, it is sufficient to use warm boracic acid dressings, to be changed every 2 to 4 hours, according to the severity of the case, and never to use phenol or its preparations; I do not use corrosive sublimate either, as it is irritating to the delicate skin of the infant.

Pfaundler of Munich, and Schlossman of Dusseldorf, recommend for this last condition: moist compresses of liquor alumni acetatis (P.G.) diluted about eight times, or aq. plumbi (P.G.), diluted twice, together with the opening along a grooved director of any abscesses that may be present. Others advise a wet dressing of 1-5000 bichloride of mercury, changed every two hours. The potassium permanganate treatment can be continued for a few days, and the results are satisfactory.

In cases of lymphangitis or phlegmons, the same treatment is to be followed, with one exception and that is: where there are circumscribed abscesses around the umbilicus, they should be incised as soon as mature and then the wet dressings applied.

For the treatment of umbilical pyorrhea, simple and not complicated, a boracic-acid wash, drying, and dusting with an antiseptic powder will suffice.

In cases of ulceration, besides washing with boracic acid or hydrogen peroxide solutions, it is

found necessary to touch the wound and especially its margins,with tincture of iodine or with liq. iodi compositus or Lugol's solution.

For the fungous variety of umbilical pyorrhea, besides the initial wash, it is necessary to touch the fungosities with silver nitrate solution (2 per cent.), or the silver stick, about twice a day. W. L. Carr of New York, after cleansing with normal salt solution, ligates the mass if large, and if small, he destroys it by one or two applications of the actual cautery. From the standpoint of practicability and that of the general practitioner, the treatment above outlined seems more readily feasible.

The umbilical gangrene which follows putrefactive changes in the cord, may heal under the same treatment as outlined above, and leave a cicatrix; however, when the process is not limited and the gangrene appears after the falling of the cord and extends rapidly, presenting a bright, red tumor, with crepitation underneath, due to the evolving of gas from anaërobic microorganisms, no treatment is available; lavage, incision, and even the actual cautery are valueless; peritonitis is the usual sequence and the termination is fatal.

Cases have been recorded in which, besides the involvement of the peritoneum, the sphacelus or the putrid liquefaction of the tissues of the abdominal parietes, has reached a loop of intestines and induced a more rapidly fatal issue. Notwithstanding these facts, the condition should receive careful attention, and be treated as indicated, no matter what the prognosis may be, for wonders happen quite often.

Septicemia may occur as a sequel to a local infection or without any apparent local cause. Nervous symptoms associated with collapse, yellowish-white skin, irregular temperature, now high, now subnormal, with great variations in short intervals of time, chills, subcutaneous petechiæ (usually over the abdomen), sometimes ecchymosis and rarely serous or subcutaneous abscesses, are the evidences of our inability to meet the condition with any distinct or efficient treatment, as the condition is generally fatal, the case terminating by death in a few days from the onset.

Infantile erysipelas, is in many ways different from that of the adult, for in the newborn the spreading of the streptococcus infection is not limited to the superficial layers of the derma and the papillary layer, but it infiltrates and diffuses, invading the subcutaneous fatty tissues, lymphatic vessels, and especially the perivascular lymphatic sheaths, which are greatly developed in the newborn, as has been demonstrated by histologists. Erysipelas is more complicated and extensive in the newborn than in the adult, and phagocytosis is practically absent in the infant, in contrast to its marked development in the adult.

Before describing the treatment of this condition, I may make a digression and give a brief description of the development of this condition. The onset of the umbilical variety of erysipelas in the newborn is sudden, and occurs usually about the first or second week after birth; it is ushered in by a marked rise in temperature and the appearance of a red patch, which is not around the umbilicus but in the pubic triangle or sometimes in the hypogastric region; the child nurses well, and there seems to be nothing wrong with it. The temperature however rises, going up to 105° and 106° F., and is fluctuating. The patch extends rapidly to the penis and scrotum in boys, and labia majora in girls; the patch looks red, indurated, and shining; the abdominal patch extends, the skin becomes red, and the entire abdomen becomes involved and of a tumefied appearance. The eruption spreads and it is interesting to know that it does not follow a line of contiguity, but appears in patches here and there, uniting at last. There is no regularity or uniformity as to the parts that become involved first. Following the eruption, it is to be noticed that the redness fades and the spotted skin begins to desquamate. The temperature at this stage varies between 96.5° and 103° F., with marked fluctuations and great irregularity and with disproportionate pulse beat and rate. The infant becomes now torpid and quiet; its weakness increases hourly, it can no longer nurse; the temperature of the body becomes subnormal, falling lower and lower and the infant succumbs 6 or 7 days from the onset of the disease. In rare cases the eruption is not so virulent and in some recovery takes place. Of good prognostic significance is the presence of subcutaneous abscesses, an indication of the localization of the process; the abscesses being incised and the pus evacuated recovery often results..

As to the treatment: first, we must consider the antistreptococcus serum, which should be used in all cases of erysipelas, malignant or benign, with the understanding that it is to a certain extent harmless, that negative results are preponderating, while positive results can not be wholly attributed to its action. The antistreptococcus serum we must presume less efficacious in infants than in adults, for there appears to be a natural antagonism in the infant body, to the formation of antibodies, the phagocytic power being almost nil. The treatment with erysipelas phylacogen, has been reported to have been more efficacious; but notwithstanding the reports as to its success we must be reserved in approval of a preparation that is in the experimental period as yet. It should, in my opinion, be given repeated trials, and in justice to our patients cases of actual benefiting by it should be carefully recorded and fully reported.

Local applications of warm boracic acid compresses, changed every hour or two, using in addition, antiseptic dusting powders in cases of maceration of the skin. Ichthyol, having petrolatum as a base, is frequently used as a dressing, changing it every three to four hours. The strength of the ointment varies from 20 to 40 per cent.

The treatment of bronzed hematuria, a condition which is said to have its origin in an infected umbilicus, is symptomatic. The disease is characterized by an old copper-yellor coloring of the skin, shading to olive-green, and it is classed among the fatal diseases.

Another important condition resulting from an infection of the umbilicus and amenable to treatment is tetanus of the newborn, a disease due to the bacillus of Nicolaier. Tetanus of the newborn develops usually about 6 to 10 days after birth; the umbilical wound is of a grayish, dull, and moist appearance. The treatment of this condition consists in the immediate use of the antitetanic serum, which is very efficacious, not to say curative. Interesting to know is the fact that in the Isle of Madagascar, the disease was formerly as prevalent as scarlet fever in this country, and yet, with a preventive treatment of all the newborn with the antitetanic serum (500 units), the disease has been entirely eradicated there. It is advisable that the

serum should be injected before the contractions have set in. The doses of the serum must be large and the injections should be repeated every 24 to 36 hours. The initial dose should be the largest, that is of possibly 1500 units, the others, in proportion to the severity and duration of the disease. The injections in the newborn may be made intracerebrally, that is to say the needle is introduced through the lateral angle of the big fontanel and a small quantity of the serum slowly injected into each cerebral hemisphere. To the serum treatment we must add antispasmodic and hypnotic remedies, such as potassium or sodium bromide, in doses of 1 gram (16 grains) a day, per month, or a combination of bromide and chloral, aa 0.5 gram (8 grains), twice a day per rectum in decinormal salt solution; or in severe cases of contracture, chloroform inhalations, by the drop method, bearing in mind the important fact that complete narcosis should never be attained, as our innocent patient may never awake from it.

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OCCLUSION OF THE INFERIOR MESENTERIC ARTERY.

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Embolism and thrombosis of the superior mesenteric artery are fairly common occurrences, and references to this subject in the literature are quite numerous. Similar processes, however, in the inferior mesenteric have been observed but rarely. I have found but one reference to the subject in our own literature—that of J. W. Elliott. Merkel collected six cases (including that of Elliott) up to 1911. To these he added his own case and those of Jürgens and Schnitzler. So that all told, the reported cases are few indeed. Partly because of the rarity of the condition, and partly because, as I believe, the diagnosis was correctly made *intra vitam*, I shall report the following two cases, which, curiously enough, occurred in two members of the same family.

Case I.—Adolph J., 44 years old, grocer, married. His wife had had no abortions. There were three healthy children. His father died at 78; the mother is alive at 75; one brother died at 49. His history will follow: One brother has attacks of intermittent limp. One sister has gone through four pregnancies, and had to be treated for toxemia of pregnancy every time. These facts show the predisposition of the family to vascular affections. Habits: Has always worked hard, smoked moderately, took alcohol moderately; venereal disease denied. Previous history: Had measles in childhood, smallpox at 16; otherwise negative up to eight years ago. Since then he is complaining of headache, vertigo, vomiting, and disturbances of vision. He was told that he had kidney disease. These symptoms recurred at irregular intervals. April 30, 1913: Sustained an injury to the left side of the skull; became unconscious one hour later, vomited, and had convulsions, Jacksonian first, later generalized. He was operated on, and a depressed fracture and extradural hemorrhage were found. He made a good recovery. He passed bloody urine one year ago, and again four weeks ago. (Renal infarction? Essential hematuria?) He now complains of pain in the legs. There is no history of intermittent claudication. He gets up at night to urinate. His appetite is fair, his bowels regular, and he has no cough. March 3, 1914: Physical examination—Patient poorly nourished and pale, his face showing pock-marks. The pupils, equal and round, react to light and accommodation. The beard growth is scant. The axillary hair is scanty, and the pubic hair is female in type. His throat shows pale mucous membrane; tonsils not enlarged. There are a few glands in the posterior cervical region; epitrochlears palpable. Neck: Heaving carotids. Lungs: A few fine râles at both bases. Heart: Apex beat 4 space, heaving in character. Aortic second, sound accentuated. Peripheral arteries, sclerotic. Blood pressure: 250 systolic, 170 diastolic. Abdomen, negative. Dorsalis pedis, thickened. Extremities, no edema. Knee-jerks, normal. No Babinski, Oppenheim, Mendel-Bechterew, or Rossolino. Urine: 1500 c.c.; albumin, trace. Sugar, negative; specific gravity, 1016. Microscopical, hyaline casts. Fundus: No signs of albuminuric retinitis. A blood smear showed a moderate chloranemia. March 8: The patient complained of a sharp pain in the abdomen, colicky in character, chiefly over the left side. There were no typical radiation, no vomiting, and no increased frequency of urination. The bowels had not moved on this day. Physical examination showed no rigidity. Pulse 84, temperature 99. There was some tenderness over the descending colon. A digital examination of the rectum revealed nothing abnormal. Stool ordered saved. Gave patient morphine and atropine. March 9: Pain less marked. The patient passed what was practically a blood cast of the large bowel. He complained of tenesmus. There were no shreds of mucous membrane in the evacuations, no feces, just clotted blood. Proctoscopic examination showed enormously congested mucosa with hemorrhages. No ulceration was seen. The patient had a number of bloody evacuations after that. Gave him 20 c.c. of normal horse serum; ice bag to abdomen. March 10: Less blood passed by patient to-day; status remains unchanged. He feels weak. March 14: The stools became lighter in color, and the patient gradually improved. After several days there was no more blood, macroscopically, although the aloin test was persistently positive. Pain, gone. There were at no time symptoms of intestinal obstruction or peritonitis. There now followed over a month of apparent comfort. The patient said he felt well. The Wassermann test gave a negative result. April 22: The patient developed severe precordial pain and dyspnea, and died from a rapidly fatal pulmonary edema (coronary thrombosis?)

Case II.—Samuel M. J., 46, marker, married; wife had one early abortion; had seven children, four now alive and well, the others having died in infancy. A married daughter suffered from toxemia during her first pregnancy. Habits: Patient for a long time smoked 15 to 20 cigarettes daily; took liquors in moderation; worked hard all his life. He was very irascible; venereal disease denied. The patient complained of headache, pain in the back and visual disturbances; had to get up at night to urinate; passed bloody urine a number of times. Physical examination: Patient was poorly nourished and pale; showed signs of status lymphaticus. The pupils react to light and accommodation. The throat shows enlarged tonsils; the neck a few enlarged glands. There were marked pulsations in the carotids. Lungs, negative. Heart, heaving apex, beat in the fifth space, with a systolic murmur at the aortic area and a loud aortic second. The blood pressure was 230 systolic and 140 diastolic. Abdomen, negative. Urine, limpid; specific gravity 1010. There was a faint trace of albumen; no sugar; a few hyaline casts. The knee-jerks were normal; dorsalis pedis, feeble. Fundus; hemorrhages in left eye, above and to left of papilla. December 21, 1911: The patient complained of "cramps" in the abdomen, especially around the navel. There was no radiation and no vomiting, but a pain in the back, especially on the left side. Physical examination showed tenderness over the descending colon. December 22, 1911: The pain was still present, but not so marked. The temperature was 98.6, the pulse 72. There was some tenderness in the left epigastrium; no melena. A proctoscopic examination showed very much engorged mucosa; no hemorrhages or ulceration. There were no hemorrhoids. December 23, 1911: The patient had a sinking spell last night, and passed a bloody stool. Temperature 98; pulse 84. The pain had gone, but there was still tenderness over the descending colon. December 24, 1911: No stool to-day; the patient vomited a dark brown fluid. The aloin test of the vomited material was positive. December 26, 1911: The abdomen was distended. There was no stool for 72 hours (paresis of the bowel?). Low enema brought bloody stool. December 28, 1911: The feces returned after enema, were lighter in color; the aloin test still positive. January 1, 1912: Temperature 98.6; pulse 72. Feces light in color (patient on milk

diet); aloin test negative, and improvement was steady. January 28, 1912: General condition of the patient good. September 16, 1912: Patient developed right hemiplegia with motor aphasia. There was neither unconsciousness nor vomiting, but some vertigo. (Cerebral thrombosis.) The Wassermann test proved negative. The patient gradually recovered power, and the motor aphasia partly improved. January 9, 1913: Patient had fulminating apoplexy; fatal in six hours.

The great similarity in the history of these brothers is striking indeed. In both there was the premature atherosclerosis, probably on the basis of congenitally poor tubing (Osler); and in both, the syndrome of inferior mesenteric thrombosis. The colicky pain, the tenderness over the descending colon, the rectoscopic picture, the bloody evacuations, the tenesmus, the absence of symptoms of ileus or peritonitis, appear to me to justify the diagnosis, even in the absence of co mplete post-mortem records. The hematemesis in case II need not disturb us, for Gerhardt's case too had gastric hemorrhage, and at the post-mortem examination the inferior mesenteric alone was found occluded (retrograde peristalsis).

While occlusion of the superior mesenteric usually leads to signs and symptoms of peritonitis or ileus, associated with bloody stools, closure of the inferior mesenteric is of less serious moment. It causes a transitory disturbance in the circulation of the lower bowel, with symptoms referable to the colon, diarrhea, bloody stools and tenesmus. Some cases may show no symptoms. The latter is more apt to be the case in slow occlusion, with the possibility for the establishment of a free collateral circulation. So long as the heart and blood vessels are sound, the anastomosis is of value. When, however, the vessels are atherosclerotic or the heart decompensated, the symptoms are fairly definite. The anatomic changes vary. There may be mere hyperemia of mucous membrane. There may be necrosis of superficial tissues, leading to embolic ulceration which then heals and leaves a stenosis in its wake. Finally the process may involve the entire wall of the gut, leading to perforation and peritonitis. Gerhardt[1] reports a case of interior mesenteric occlusion in the course of decompensated valvular lesion. There was no pain, just gastric and intestinal bleeding. Hegar's[2] case followed myomectomy. Patient showed colic, vomiting and diarrhea; later there were foul bloody stools. Antemortem there was a subsidence of symptoms. In Pinner's[3] case there was sudden diarrhea, vomiting, and collapse. Three days later stools became bloody. Adenot[4] reports a case occurring in the course of a generalized atherosclesosis. Three days before death there was collapse with diarrhea. No blood was passed. Elliott's[5] case also was one of atherosclerosis. Patient developed colic, abdominal distention, followed by bloody stools. He considers a chronic endarteritis as having been the cause of the occlusion. Ritterhaus[6] reports a case occurring during the course of a decompensated valvular lesion; patient also showed atherosclerosis. Three days before death there was pain in the left side of the lower abdomen. No bloody stools were passed. Jürgens[7] reports a case occurring during the course of a mitral stenosis (where embolism is so common). Schnitzler's[8] patient had attacks of pain in the abdomen. Bloody stools appeared on the last day of life. Merkel's[9] case was one of atherosclerosis. The patient showed pain in the left side of the abdomen, but no vomiting. Bloody stools appeared, and there was tenderness over the descending colon. Fleiner[10] reports the case of an atherosclerotic individual who suddenly developed colicky pain and tenesmus, and passed a large fluid stool, consisting, according to his description, of "pure blood." Digital examination of rectum showed only blood on end of finger cot. No hemorrhoids were present. Rectoscopy practiced several days later revealed nothing. (Collateral circulation well established?)

Diagnosis: We must think of these accidents in all cases of the so-called acute abdomen. We must exclude organic disease of the bowel (gastric and duodenal ulcer) and portal obstruction and thrombosis. A careful watch should be kept over the stools and rectoscopy should be practised in all cases suggesting abdominal angina or atherosclerotic colic. The etiological factor may be cardiac disease, atherosclerosis, endarteritis (lues). In the case of a patient with valvular disease, who had previously shown no gastrointestinal symptoms, one would think rather of embolism. In the case of an individual with atherosclerosis, contracted kidney, and hypertension, with associated sclerosis of the splanchnic vessels, we would think rather of thrombosis. Some cases may show only a sudden pain with partial collapse, then the symptoms disappear. In these cases we should think of mesenteric occlusion and examine the feces for occult blood.

I might append the words of Kussmaul, who first made the diagnosis of embolism of the mesenteric arteries. "This diagnosis is to be made when, under circumstances permitting the assumption of embolism, symptoms of intestinal bleeding, enteritis, or peritonitis occur, without there being any other cause for these accidents. The hemorrhage will be absent when paralytic meteorism supervenes." In the diagnosis of inferior mesenteric occlusion, early rectoscopy should be of value.

In conclusion, I wish to thank Dr. Benjamin Jablons, pathologist of the Har Moriah Hospital, for the examination of the blood cast in case I.

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The "Bruit de Galop" in Typhoid Fever.—J. Mallard and A. Dumas state that when this sign appears late in the course of a severe case of typhoid fever it is evidence of an atrophy of the myocardium. If the cantering rhythm appears in the acute stage it indicates an affection of the myocardium, but only the very beginning of this process, for if the myocarditis becomes more pronounced the bruit will disappear with the weakening of the heart.—*Revue de Médecine.*

A CASE OF GIANT CELL SARCOMA SUCCESSFULLY TREATED BY A COMBINATION OF SURGERY AND THE X-RAYS.

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CURES of sarcoma have been previously reported by Pfahler and others. The report of the following case was withheld until a sufficient length of time had elapsed to warrant any positive claims for the action of the rays.

CASE.—J. H., age 55; married; 3 children. No family history of malignancy. Had been in good health until the summer of 1910, when a small mass appeared in the neck on the right side, just below the angle of the jaw. This was diagnosed as an enlarged gland and non-interference was advised.

The mass increased in size so rapidly that both physician and patient became alarmed and it was removed. A microscopical examination proved it to be a giant cell sarcoma.

Within a period of less than four weeks another small mass appeared in the neck and *x*-ray treatments were advised. The mass measured about 2 inches in diameter and was freely movable. Two erythema doses, in a series of twelve treatments each, were given. A filter of heavy sole-leather was used and an interval of four weeks was allowed between each series.

At the end of the second series the mass was about ½ inch in diameter. A severe dermatitis then appeared and further treatments were considered inadvisable. The remaining mass was again removed.

Immediately following this operation, the patient contracted a severe attack of erysipelas which kept him in bed for about two months. During this period another small mass appeared and as soon as he was able, he returned for *x*-ray treatments. This time the mass entirely disappeared.

During the following year the patient returned for observation at intervals of about six weeks. There was no evidence of a recurrence.

It is now three years and a half since the last treatments were given and the patient is apparently in fine health. The incident of the erysipelas seemed to cloud the issue in the mind of the surgeon and he was inclined to give it the credit for arresting the disease. Inasmuch as recurrence took place during and after the attack of erysipelas and the growth was not checked until after *x*-ray treatments were again begun, his opinion was, I think, not well founded.

Medicolegal Notes.

Sale of Medical Practice—Agreement Not to Practice—Rescission by New Contract.—A physician sold his practice to another, under an agreement whereby he agreed not to practice medicine in that town. The seller prepared in good faith to quit his practice as agreed, and did all in his power to turn it over to the purchaser. The latter, however, being shortly afterwards informed that another physician thought of locating in the town, proposed to the seller to enter into a copartnership for the joint practice of their profession. The seller agreed, and a new agreement was entered into for a partnership for three years. This new contract was complete in itself and did not refer in any way to the old contract. The partnership continued for over 8 months, when it was dissolved by mutual consent. The seller of the practice under the old contract continued in the practice of his profession in the town. The purchaser brought an action for damages and for an injunction. It was held that the two contracts were quite inconsistent with each other, and the second therefore abrogated the first, so that it was not revived on the dissolution of the partnership. The seller's agreement to become the purchaser's partner was held to constitute a sufficient consideration for releasing him from the prior agreement not to practice medicine in the locality.—Menefee v. Rankins, Kentucky Court of Appeals, 164 S. W. 365.

State Medical Board—Uncertainty of Statute.—The Colorado statute, Rev. St. 1908, §6068, authorizes the State Board of Medical Examiners to revoke a physician's license for certain specified acts, one of which is "obtaining a fee on the representation that a manifestly incurable disease can be permanently cured." In proceedings under the statute alleging that the defendant obtained a fee by representing that he could permanently cure a person of consumption, knowing the disease to be at the time incurable, it was held that the words "manifestly" and "incurable" applied to the disease and not to the person or the condition of the person afflicted with the disease, and, there being no disease known and understood to be manifestly incurable, the statute was to this extent void for uncertainty. Conceding that the words did relate to the condition of the patient, the statute was held to be still too indefinite and uncertain to form the basis of a judgment for the revocation of a physician's license. Three judges dissented.—Graeb v. State Board of Medical Examiners, Colorado Supreme Court, 139 Pac. 1099.

Authority of Officers of Corporation to Employ Medical Aid.—A corporation's foreman called its general manager on the telephone, informed him of an injury to an employee, and that he had called in three physicians. The general manager, in the presence of the president of the corporation and after consulting with him, told the foreman to employ competent physicians to perform the necessary operation (the amputation of both hands as the result of an explosion), and have them attend and care for the employee. In an action by the three physicians against the corporation for their services, it was held that their employment was authorized, and the corporation was liable for their services, since, whether or not a general manager has authority to employ a physician to treat an injured employee, there is no doubt of the president's authority to do so.

The employee's testimony that the general manager had offered to compromise his claim for injuries, and said that he would pay the doctors $100 for their services, was held to be admissible, the employee not representing any of the physicians, and not being their agent to effect any compromise for them.—Newberry v. Missouri Granite & Construction Co. (Mo.), 163 S. W. 570.

Examination of Medical Experts—Questions.—In a passenger's action for injuries from the collision between interurban cars, which hurled her against the back of a seat, producing, it was alleged, a diseased ovary, physicians testified directly from their own knowledge of the plaintiff's condition, which knowledge was derived from treatment and examination of her injury. It was held that questions put to them were not objectionable because they failed to include the facts bearing on the state of the injured part of her body. To the extent, at least, of their knowledge derived from personal observation, the questions propounded were not strictly hypothetical questions; and it was therefore unnecessary that they contain all the essentials of a hypothetical question.—Millirous v. Missouri & K. I. R. Co. (Mo.), 162 S. W. 1069.

Hypothetical Questions—Province of Jury.—A physician was asked a hypothetical question whether a prolapsed condition of one of the ovaries and an anteverted condition of the womb could be caused by injuries resulting from a woman, who was sitting in a street car when it was derailed, being thrown out of her seat with considerable force, and receiving a blow in the region of the thigh, and also receiving a bruise on the leg and an injury to the hip. He stated that a falling forward in a street car was liable to bring about an anteversion of the womb, which was constructed in the manner stated, and that a falling forward thereof causes a displacement of the uterus. Another physician was asked a question, to the effect that, supposing the evidence showed that a passenger was riding in a street car when it jumped the track onto the ground with some force, and she was thrown from her seat forward so as to receive a bruise on her hip and groin, "Would you say that such a falling as that would cause a prolapsed condition of the womb or the condition that you found there the first time?" The witness answered that an accident of that kind might produce a dropping down of the womb, and that such anteversion "could be" caused by the accident. It was held that the answers to these hypothetical questions did not usurp the province of the jury, in that they stated a conclusion rather than the opinion of the witness.—Patterson v. Springfield Traction Co. (Mo.), 163 S. W. 955.

MEDICAL RECORD.

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CEREBRAL COMPLICATIONS AFTER LIGATION OF THE COMMON CAROTID.

THE immediate operative mortality after ligation of the common carotid has been variously stated, the minimum being Crile's estimate of 3 per cent.; but there is cerebral softening or some other intracranial complication in approximately 25 per cent. of the cases, while about one-half of those that develop cerebral trouble die. Among the causes of death are shock, excessive hemorrhage, or some other factor dependent upon the nature of the operation, anomalies in the vessels usually forming the avenue for compensatory collateral circulation, thrombosis, embolism, and sepsis. Gilson-Herman (*Ann. de la Soc. Belge de Chir.*, March, 1914), after describing a very interesting case of arteriovenous aneurysm affecting the internal carotid and internal jugular, in which the common carotid was successfully tied, enumerates some of the different theories in explanation of the cerebral troubles that so frequently occur after this ligation, and advances a theory of his own. Among the theories quoted are the following: Friedländer believes that the cause is a change of the direction of the blood and of the hydrodynamic forces in the circle of Willis; Guinard contends that the brain is not subject to immediate lesions if there are collaterals in sufficient number, while the phenomena which make their appearance later, would be the consequence of progressive thrombosis, of emboli due to arteriosclerosis, or of infection; Kocher and also Mendès say that success depends chiefly upon the state of the arteries, and counsel not attempting ligature in the presence of arteriosclerosis; De Fourmestreux affirms that cerebral troubles do not follow except in the presence of infection.

To determine the extent and modus operandi of the collateral circulation, Gilson-Herman made a number of experiments upon the cadavers of newborn children, injecting a fluid opaque to the *x*-ray. Besides injecting after tying the common carotid alone, injections were also made after the common carotid, vertebral, and inferior thyroid arteries were tied on one side. *X*-ray plates were taken after all these injections, in the lateral as well as in the anteroposterior directions. In all instances the fluid found its way to all parts of the body, even when the vertebral and inferior thyroid had also been tied off. By examination of the plates and by dissection it was determined that when one makes the injection at the level of the arch of the aorta, after ligature of the common carotid, the liquid reaches the brain through the basilar trunk, proceeding by way of the posterior communicating artery to the internal carotid on the side which is tied, and as that is empty a flood of material takes place into it. This is well shown by the *x*-ray plates and in this engorgement lies the basis of this theory.

The same phenomena, Gilson-Herman believes, takes place in the living after ligation of the common carotid, and he thinks the great mortality of the operation may fairly be ascribed to this cause. As a matter of fact, when one ties the common carotid the portion distal to the ligature becomes momentarily deprived of blood. The artery, being an eminently elastic element, contracts and expresses a part of the blood which it contains into the different collaterals, then dilates. A negative pressure is thus produced in this part of the carotid. But a regular deluge of blood then comes along by way of the posterior communicating and internal carotid, and there is formed a veritable whirlpool. Besides, when the collateral circulation becomes established blood comes in great quantity to the external carotid, and this increases the whirlpool existing in the common carotid. It is not improbable that this abnormal circulation may detach and disintegrate the clot formed at the site of ligature and thus bring about fatal embolism. It is to be noted that embolism is the most frequent accident and that it habitually occurs many hours after the ligation. As the author says, proof of this phenomenon (we should say theory) should rest upon the most precise experimental basis; and we are promised that the attempt to furnish such proof will be made.

STREPTOLYSIN.

OF all the pathogenic microorganisms with which we are acquainted, the streptococcus is probably the cause of a greater variety of disease conditions than any other. The organisms gathered under this name, moreover, include a very great number of strains, some of which resemble each other apparently only in their morphology. The streptococci have proved a tempting field for research, but the yield has not been proportionate to the labor expended. The matter of classification, never satisfactorily settled, has been perilously near an upset as a result of Rosenow's work. Nevertheless, Lyall has endeavored (*Journal of Medical Research*, XXX, 1914) to separate them on a basis of their biological reactions. A characteristic of streptococci is their reaction to red blood cells, tested usually by growing the organisms on blood agar plates. Lyall has revived a method originally described by Marmorek in which a definite amount (0.5 c.c.) of an 18-hour calcium carbonate ascitic broth culture of the organism is added to 10 c.c. of a 5 per cent. emulsion of washed sheep's corpuscles and incubated one hour at 37.5°. Three distinct types of reaction occur in: (1) The hemolytic group which dissolve the cells and which

correspond to the *S. pyogenes, vulgaris*, or *hemolyticus;* (2) the methemoglobin producers which change the color of the undissolved cells from a bright red to a dark brown by the production of methemoglobin; (3) the indifferent group in which there is neither hemolysis or change in color. When grown on blood agar plates both 2 and 3 produce green pigment. The *Streptococcus viridans* is characteristic of group three. According to Lyall the sugar reactions of these groups are quite constant.

The production of a lytic substance is characteristic of a large group of these organisms and he tried to see if there was any consistent relation between virulence and lysin production. He found that while those strains isolated from the blood were usually most actively hemolytic, there was no recognizable relation between the severity of the disease and the hemolytic power of the strain. In the course of his investigation, however, he discovered some interesting facts concerning this streptolysin. It is apparently quite closely united to the bacterial cell since it will not pass through a coarse Berkefeld filter, and agents which bring about the death of the organism also deprive the emulsion of its hemolytic properties. It is destroyed by heating to 56° for 30 minutes, but does not behave like an enzyme. Its production is favored by the enriching of the media with ascitic fluid. One of the most interesting points which he was able to demonstrate was that normal serum of man as well as that of several animals contained appreciable amounts of an antistreptolysin and that this inhibiting power was tremendously increased by giving the animal salvarsan before obtaining the serum. This action was out of all proportion to any minute amount of arsenic which the serum might contain. The carbohydrates also act to inhibit hemolysis and of these glucose is the most powerful.

These observations open tempting fields for speculation in the line of therapy. Although it cannot logically be argued that an antistreptolysin will cure a streptococcemia, nevertheless there is a chance that an agent which inhibits one of the functions of an organism, may in some way injure the cell and thus help to bring about a cure. It seems probable that the ultimate remedy will be one that stimulates the body to the production of efficient antibodies, whether it be by the administration of vaccines or by some other method yet to be devised.

The Benzol Group and Hematopoiesis.

Benzol as a remedy in the treatment of leucemia has attracted considerable attention within recent years, but there has been some difference of opinion as to the real action of benzol upon the leucocytes. Pappenheim has advanced the view that these are not destroyed by benzol, but are only made to accumulate in the capillaries of the internal organs and especially in those of the liver. On the other hand G. B. Bianchi claims to have demonstrated an actual leucopenia evoked by benzol as well as a severe aplasia of the bone-marrow and an atrophy of the spleen and of the enire lymphatic apparatus. In *Pathologica*, August 15, 1914, the same observer reports the results of his experiments undertaken with the view of determining the effects of other hydrocarbons belonging to the same group as benzol, namely, toluol, xylol, and cumol. Although these substances bear a close resemblance chemically to benzol, they have a different effect upon the leucopoietic apparatus. This effect is an excitatory one, being manifested by a leucocytosis. In daily doses of one to two cubic centimeters per kilogram of body weight, these substances cause in the rabbit a leucocytosis associated with a hyperplasia of the bone-marrow, an hypertrophy of the spleen, and a slight enlargement of the lymphatic glands. It has been noted by Selling that in certain cases the first injection of benzol causes a slight leucocytosis. This is interpreted as evidence of an initial excitatory phase in the action of benzol. Bianchi suggests that the other aromatic bodies studied by him might in larger doses have an action similar to that of benzol, namely, an irritative phase followed by one in which depression and atrophy are pronounced characteristics.

Pineal Gland Deficiency Symptoms.

These are fairly well known in so far as they depend on tumors of the gland, although under such circumstances we could also think of a dyspinealism, from the analogy of the hypophysis, in which plus and minus symptoms occur side by side. In recent years notes on tumors of the pineal gland have accumulated until we have fifty-six recorded cases which comprise sarcomata, gliomata, and teratomata. Most of these cases show correspondence to a fixed type, the subjects being young individuals with marked longitudinal growth, abnormal distribution of hair, enlarged genitals, and sexual precocity. In some cases there is also psychical precocity. To a certain extent this syndrome is coherent, and suggests that deficiency of pineal secretion enables a hormone from some other endocrinic body to stimulate growth and development. At a session last summer of the Aerztlicher Verein of Munich (*Berliner klinische Wochenschrift*, September 7) Schmincke, from whose article the above notes are cited, presented two cases of tumor of the pineal gland from young women of twenty-one and seventeen years of age respectively. One of these was an example of so-called three-leaved or trefoil teratoma.

Rectal Aerophagia.

This curiosity of medicine is exemplified in the case reported by Taillers in the *Archives des Maladies de l'Appareil Digestiv et de la Nutrition*, January, 1914. The patient was a nervous impulsive girl of fifteen years, in whom an extreme flatulence was found to be caused by the habit of rectal aerophagia. The girl would assume the genu-pectoral position, in which the intestines would gravitate toward the upper part of the abdomen. The resulting vacuum in the lower abdomen and in the pelvis would create suction. At the same time there would occur an active relaxation of the anal outlet. As a result air would be sucked into the anus, thus completing the phenomenon of rectal air-swallowing. The author states that the same practice is sometimes indulged in by European soldiers as a pastime or game while they are off duty in the barracks or in camp. In this martial sport the winner is the one who at the greatest distance can blow out the flame of a candle by means of the air expelled from the rectum!

News of the Week.

Appointment of a State Medical Inspector of Schools.—The New York State Civil Service Commission invites applications for appointment as State Medical Inspector of Schools, Education Department. Salary $5,000 per year. Open to men only. Applicants for this position must be graduates of a college approved by the University of the State of New York. Applicants must also have had at least five years' experience in the practice of medicine in this State and must also show at least three years' experience in public health inspection. Applicants must also show a reasonable familiarity with the general organization and administration of the public school system. Preference will be given those who show important experiences in public health and sanitation work and who have had experience in public speaking upon health propositions. Candidates will not be required to appear at any place for written examination. They should be careful to set forth their training and experience in full in their applications. They may be summoned for a personal interview with the examiners.

Convocation of the University of the State of New York.—At the fiftieth convocation of the University of the State of New York held in the Education Building, Albany, on October 22 and 23, the program for Thursday included an address on "What Is a Profession?" by George Herbert Palmer, L.H.D., LL.D., Alford Professor of Natural Religion, Moral Philosophy and Civil Polity (Emeritus), Harvard University. Discussion of this topic was led by Robert Abbe, M.D., New York City; Adelbert Moot, LL.D., Buffalo; Edward C. Kirk, D.D.S., Philadelphia, Pa., and William M. Polk, M.D., New York City.

Brooklyn Pediatric Society.—At the meeting of this Society to be held October 28, in the building of the Medical Society of the County of Kings, 1313 Bedford avenue, the paper of the evening will be on "Tonsillotomy *vs.* Tonsillectomy," by Dr. Thomas R. French. The paper will be discussed by Dr. D. Bryson Delavan, Professor of Laryngology in the New York Polyclinic; Dr. Henry L. Swain, Professor of Laryngology in the Medical School of Yale University; Dr. G. Hudson Makuen, Professor of Laryngology in the University of Pennsylvania, and others.

Medical College of the University of Vermont.—There has been some talk of discontinuing this institution, but at the meeting of the State Society held during the first week in October the proposition was rejected by a vote of 78 to 1.

Proposed Revision of the Kansas Medical License Law.—At the request of the Kansas State Medical Association, Governor George H. Hodges has appointed a committee of five to suggest amendments to the present laws governing the practice of medicine in Kansas. The members also are commissioned by the governor to suggest a codification of the medical laws of the state, if they think it advisable. The following have been appointed on the commission: Dr. J. A. Milligan of Garnett, Dr. J. E. Sawtelle of Kansas City, Dr. W. L. Burdick of Lawrence, Fred Dumont Smith of Hutchinson and F. T. Ransom of Wichita.

Dr. Bulkley's Dermatological Clinics.—The governors of the New York Skin and Cancer Hospital announce the annual course of lectures by Dr. L. Duncan Bulkley on Wednesday afternoons at 4.15 o'clock. The course this year will be devoted to the "Medical Aspects of Cancer." The following are the titles of the lectures: November 4, nature of cancer; November 11, frequency and geographical distribution of cancer; November 18, metabolism of cancer; November 25, relation of diet to cancer; December 2, medical treatment of cancer; December 9, clinical considerations and conclusions. Each lecture will be preceded by a half-hour clinical demonstration of dermatological cases. The lectures will be free to the medical profession, on the presentation of their professional cards.

Vermont State Medical Society.—At the one hundred and first annual meeting of this Society held at Rutland on October 8 and 9, the following officers were elected: *President*, W. W. Townsend of Rutland; *Vice-President*, W. J. Ricker of St. Johnsbury; *Secretary*, J. M. Hamilton of Rutland; *Treasurer*, C. F. Dalton of Burlington; *Auditor*, E. M. Brown of Sheldon. The next meeting will be held in Burlington, October 14 and 15, 1915.

Wisconsin State Medical Society.—At the annual meeting of this Society, held in Oshkosh on October 8 and 9, the following officers were elected: *President*, Dr. T. J. Redlings of Marinette; *First Vice-President*, Dr. H. E. Dearholt, Milwaukee; *Second Vice-President*, Dr. Spencer Beebe, Sparta; *Third Vice-President*, Dr. H. W. Morgenroth of Oshkosh; *Delegates to American Medical Association*, Drs. A. H. Levings of Milwaukee and J. F. Pember of Janesville.

Norfolk, Va., County Medical Society.—The following officers were elected at a meeting of this Society held October 5. *President*, Dr. E. T. Hargrave; *Vice-President*, Dr. J. J. Miller; *Secretary and Treasurer*, Dr. W. P. McDowell, reelected.

Connecticut Eclectic Medical Association.—At the fifty-ninth semi-annual meeting of this Society in Hartford on October 13 the following officers were elected: *President*, Dr. James E. Hair of Bridgeport; *Vice-President*, Dr. H. H. Converse of Eastford; *Secretary*, Dr. Thomas S. Hodge of Torrington; *Treasurer*, Dr. Thomas Mulligan of New Britain.

Prevention Inoculation of Soldiers.—Typhoid fever is said to be practically non-existent among the French troops owing to the fact that antityphoid inoculation is compulsory in that army. The French recruits of the class of 1915, which is being organized, have been invited to take advantage of the free antityphoid vaccination that will be supplied before they join the colors instead of waiting until after they are enrolled in the army. Among the Germans, however, this measure was never so enthusiastically approved and the result is there are many cases of typhoid reported by a Dutch physician among the Germans in the army of the west. The troops of the Allies are also, it is said, inoculated against tetanus before being sent to the trenches. A large order for tetanus antitoxin has been placed in this country by the British government.

English Physicians to the Front.—The British War Office has appointed Sir John Rose Bradford, Sir Wilmot Herringham, and Sir E. Almroth Wright consulting physicians with the British expeditionary forces in France. The three physicians, who will have the rank of Colonel, left England this week, accompanied by three expert bacteriologists.

Americans Donate Ambulances to the Red Cross.—A dispatch to *The Sun* from London says that the American residents of that city have

equipped ten motor ambulances under the auspices of the British Red Cross. They will probably serve under British control at Amiens. Most of the donors will drive the cars themselves, accompanied by mechanics.

Cholera in Austria.—It is reported from Rome that there are several thousand cases of cholera in Galicia and Hungary, and that the Russian army has withdrawn from Hungary, repelled by the comma bacillus rather than the Austrian bullets.

Bequests to Charities.—By the will of the late Charles H. Whitright of Philadelphia an estate of $3,000 is to revert on the death of his widow to the Orthopedic Hospital and Infirmary for Nervous Diseases for the endowment of a free bed.

By the will of the late Robert H. Crozer of Upland, Pa., the sum of $200,000 is bequeathed in trust for the organization of a corporation to maintain a hospital in Upland or Chester to be conducted under the "allopathic" system; also the sum of $5,000 is bequeathed to the Women's Hospital of Philadelphia in trust, the income to be devoted to maintain a free bed; also the sum of $5,000 is bequeathed in trust for the maintenance of a free bed in the Philadelphia Home for Incurables.

By the will of the late Isaac Cohen of Philadelphia the sum of $500 is bequeathed to the Jewish Hospital of that city.

Addition to Municipal Nursing Service.—Provision has been made by Philadelphia Councils for the installation of ten additional nurses in the Division of Child Hygiene of the Department of Public Health and Charities.

Personal.—Dr. W. J. Aldrich of St. Johnsbury is the candidate for governor of the Progressive Party of the State of Vermont.

Dr. Louis Livingston Seaman has resigned his commission as first lieutenant Medical Reserve Corps, U. S. A., in order to be free to tell of what he had seen of the horrors of war in Belgium, President Wilson having forbidden officers of the Army and Navy to comment on the situation.

Dr. HENRY S. GOODALL, the superintendent and medical director of Stony Wold Sanitarium at Lake Kushaqua, has resigned, to take effect on December 1. Dr. Goodall has been connected with Stony Wold for the last ten years during which time the number of patients at the sanitarium has increased from forty-five to one hundred and six.

Dr. ALBERT C. THOMAS, for many years assistant superintendent of the Connecticut State Hospital and later superintendent of the New Haven Hospital, has been appointed superintendent of the Foxboro, Mass., State Hospital.

Dr. ANTHONY TRAILE, provost of Trinity College, Dublin, since 1904, and the only medical man who ever occupied that post, died October 11, at the age of seventy-six years.

New York and New England Association of Railway Surgeons.—The twenty-fourth annual meeting of this Association was held at the Hotel Astor, New York City, on Wednesday, October 21, under the presidency of Dr. C. A. Pease of Burlington, Vt. The secretary is Dr. George Chaffee, 338 Forty-seventh street, Brooklyn, N. Y.

State Board Examinations.—Hereafter the New York State Board of Medical Examiners may ask candidates questions on the duties of practitioners under the Sanitary Code established by the State Public Health Council, and also on the duty of reporting industrial diseases under the Labor Law.

Hospital Notes.—A two-story addition to the Bridgeport, Conn., Hospital has just been completed; it will be used for surgical work, the surgical ward being on the ground floor and the anesthetizing and operating room on the floor above.

The Winyah Sanatorium at Asheville, N. C., was destroyed by fire on October 2. The institution was for the treatment of tuberculosis and was under the care of Dr. von Ruck.

Dr. Simon F. Cox, formerly superintendent of the Boston Hospital for Consumptives, has been appointed superintendent of the New Haven Hospital to succeed Dr. A. C. Thomas, resigned.

The tuberculosis camp of the New York Throat, Nose, and Lung Hospital is ready to receive patients for the winter. Only moderately advanced cases in men are received.

The James Buchanan Brady Urological Institute was opened October 9. This is the third of the "special units" for general hospital work that have been erected to form part of the Johns Hopkins equipment. The building is seven stories in height and contains departments of bacteriology, chemistry, and pathology, as well as a museum, laboratories, and clinical amphitheater.

Obituary Notes.—Dr. ALEXANDER MARTIN HERON of Lakewood, N. J., a graduate of the Medico-Chirurgical College of Philadelphia in 1899, and a member of the American Medical Association, the Medical Society of New Jersey, and the Ocean County Medical Society, died at his home on October 11, aged forty-nine years.

Dr. JEDEDIAH MARCUS BARTON of Worcester, Mass., a graduate of the Hahnemann Medical College and Hospital, Philadelphia, in 1870, a member of the American Institute of Homeopathy, and a former president of the Worcester Homeopathic Medical Society, died at his home, after a long illness, on September 30, aged 69 years.

Dr. ERVING A. LIBBEY of Cranston, R. I., a graduate of the Medical School of Maine, Portland, in 1897, and a member of the Providence Medical Society, died at his home, after a short illness, on October 7, aged thirty-nine years.

Dr. GEORGE BROWN REYNOLDS of Baltimore, Md., a graduate of the Washington University School of Medicine, Baltimore, in 1872, and a member of the Medical and Chirurgical Faculty of Maryland and the Baltimore City Medical Society, died suddenly while hurrying to a patient, on October 2, aged 68 years.

Dr. FRANK M. THOMS of Lansing, Mich., a graduate of the University of Michigan, Department of Medicine and Surgery, Ann Arbor, in 1891, and a member of the American Medical Association, the Michigan State Medical Society, and the Ingham County Medical Society, died at his home, after a long illness, on October 5.

Dr. MADISON M. HOLLAND of Statesboro, Ga., a graduate of Vanderbilt University, Medical Department, Nashville, Tenn., in 1884, died at his home on September 30, after a long illness.

Obituary.

JAMES GREGORY MUMFORD, M. D.

CLIFTON SPRING, N. Y.

Dr. JAMES GREGORY MUMFORD of Clifton Springs, N. Y., died on October 18. Dr. Mumford was born in Rochester, N. Y., on December 2, 1863, and was educated at Harvard University, receiving the de-

gree of A. B. in 1885 and of M. D. in 1890. He was appointed assistant surgeon to Carney Hospital, Boston, in 1892, and assistant surgeon to the Out-Patient Department of the Massachusetts General Hospital in 1894, and in 1896 became assistant in surgery in the Harvard Medical School, advancing to the position of instructor in 1903. In 1905 he was made visiting surgeon to the Massachusetts General Hospital, serving in this capacity until 1912, when he resigned to become physician-in-chief to the Clifton Spring Sanatorium and Hospital, a post which he held at the time of his death. From 1892-93 he acted as surgeon in the Naval Brigade of the Massachusetts Volunteer Militia, and also served as surgeon in the Medical Reserve Corps of the United States Army. He was a fellow of the American Surgical Association, the American College of Surgeons, and the Massachusetts Medical Society, and a member of the American Medical Association, the Boston Society for Medical Improvement, the American Society of Clinical Surgery, of which he was also secretary, the Surgical Club of Boston, the Boston Obstetrical Society, The Boston Medical Society, the Boston Society of Medical Sciences, and the Société internationale de chirurgie, as well as of the Hasty Pudding Club of Harvard and the University Club of New York. Dr. Mumford had written largely and always entertainingly on many phases of medicine, among the better known of his books being the "Narrative of Medicine in America," 1903; "Surgical Aspects of Digestive Disorders," 1905; "Surgical Memoirs and Other Essays," 1908; "Practice of Surgery," 1910, with a second edition in 1914; and a "Doctor's Table Talk," 1912.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

OPENING OF WINTER SESSION AT THE MEDICAL SCHOOLS—LECTURES AT MIDDLESEX HOSPITAL—PROTECTION OF NEW BORN INFANTS AND MOTHERS—WAR NOTES—OBITUARY.

LONDON, October 2, 1914.

THE winter session of our medical curriculum opened yesterday. The metropolitan hospitals and schools observed the day for the most part in the traditional manner. Some of the provincial schools delay a day or two and the Scottish colleges open a month later. It is most convenient for the student to begin his curriculum with the winter session, which is a sufficient reason why the "opening day" has for so many generations been devoted to the "first year's man." The introductory lecture, which still continues to inaugurate the work at most schools, was designed in his interest, serving as a medium for advice as well as information on the special advantages of his chosen school and his wisdom in selecting it. Occasionally this point of view has been forgotten or but slightly touched upon, the lecturer occupying most of his time with a subject interesting enough to his colleagues and former students who may be present but hardly adapted for the freshman.

Older students at many schools have been accustomed to celebrate the opening day by a dinner, at which practitioners educated at the college often put in an appearance as visitors. But on account of the war such reunions are being canceled for this year.

The opening of the session at the Middlesex Hospital School aptly illustrates the foregoing remarks. The lecture was delivered by Dr. Hubert Bond, who seized the opportunity of dealing with some points in the management of mental derangement. He complained of the difficulty of filling junior posts in asylums, which he attributed to the decrease of those considered to be the plums. Some local authorities had substantially improved the conditions, and he thought they were within measurable distance of the time when no resident whom it was desirable to keep should be debarred from marriage or other social advantages. Several universities had instituted diplomas in psychiatry and these it was to be hoped would soon be followed by clinics. But to establish them the sympathy and help of the general hospitals was necessary, but he only knew of the Mandsley that had done anything in this direction. Specialties in general hospitals have come to stay, but the gamut is not complete without psychiatry. Yet not one general hospital can boast a clinic on this subject. If there were such clinics and out-patients departments in connection with them he felt sure that many a mental breakdown could be prevented. The Middlesex professed to cater to every branch of medicine, but a gap existed as it did at every other general hospital. It would be in accord with its highest and best traditions if the Middlesex were to lead the way.

Recent legislation has made considerable additions to the provisions which have long been in operation for the care and protection of the new born infant as well as of the mother during parturition and some time after. Both the local Government and the educational boards have authority to dispose of certain sums granted by Parliament for assisting institutions which meet the necessities of a large class of mothers whether in maternity hospitals or by securing them prompt attendance in their homes by midwives or when needed by further help. It is now announced that "schools for mothers" will receive grants in aid as will dispensaries, special hospitals and infirmaries, baby clinics, maternity clinics, and any other institutions or associations founded by voluntary efforts or depending more or less on State or municipal aid. Some weeks ago the local government board brought the subject under the attention of the local authorities who desire to avail themselves of the proposed State grants, and Dr. Newsholme, their medical officer, suggests arrangements for (a) supervision of midwives, (b) provision for attendance at the mother's delivery at her home, or in special cases at a maternity hospital, (c) superintendence of the infant, and medical treatment as may be required at home or at clinics, dispensaries, or other institutions. You will observe that these proposals do not conflict with the work of existing organizations, public or private, and no difficulty will arise as the change is rather to extend the sphere of their work than to supersede it; while it will give it the increased importance attached to State authority and assistance. The extension of the work will probably be greater than anticipated with a tendency to grow. In regard to the mother it is proposed to include the period of pregnancy and another period subsequent to childbirth—perhaps lactation—in the sphere of operation. In regard to the infant it is intended for the superintendence to continue up to the time of entering the first school, whether a nursery school or other.

The scheme has attracted less attention than might have been expected, but some disapproval is being expressed, especially by those politicians who oppose almost every interference of the State with the individual or the family as savoring of socialism. One such declares that the work was being very well carried on by voluntary associations who are to be superseded by an additional organization with the usual increase of cost entailed by public control. Another opponent insinuates that the plan of working by subsidizing the institutions engaged was adopted as the only means of reconciling them to the change.

The names of medical officers continue to be reported among the lists of killed, wounded, and missing arriving regularly from the seat of war.

A number of surgeons, nurses, and orderlies have gone and others are going over to France under the auspices of the British Red Cross Society. This society is also arranging in cooperation with the automobile club to send one hundred motor ambulances.

The Fishmongers' Company have furnished their magnificent hall as a hospital for wounded officers.

Sir Henry Duncan Littlejohn, late President of the Royal College of Surgeons of Edinburgh, Professor of Medical Jurisprudence in the University, and for a generation the recognized leader in matters of public health, died September 30, at the ripe old age of eighty-six. Through his long professional career he has been occupied with sanitary science. For nearly half a century he was Medical Officer of Health for Edinburgh, and his report in 1865 on the sanitary condition of that city stamped him as a leader of sanitary reforms. He was knighted in 1895, a tardy and inadequate recognition of his great public services. He was medical witness for the Crown in all the important criminal cases of his time, and his lectures were often illustrated by the points raised in the trials in which he had been engaged.

Dr. Charles Steele, consulting surgeon to the Royal Infirmary, Bristol, died September 20, aged seventy-six. He qualified at the two London colleges in 1860-61, proceeding to the F.R.C.S. in 1869, and adding M.D., Durham, in 1880. He had an extensive practice in Bristol and Clifton and was much trusted by his brethren in consultations. Besides the surgeoncy of the infirmary, he held that of the local Children's Hospital and was for some time a lecturer in the medical school. His chair supports for spinal curvature and some other inventions are well known, and he contributed freely to the medical journals.

OUR LETTER FROM THE PHILIPPINES.

(From Our Special Correspondent.)

INCREASE IN CHOLERA—SEARCH FOR CHOLERA VIBRIO CARRIERS—FILTHY RAILROAD TOILETS AS CAUSES OF INFECTION—BUBONIC PLAGUE IN HONG KONG—RISE IN FOOD PRICES CAUSED BY THE EUROPEAN WAR—MAJOR MUNSON ACTING HEALTH OFFICER IN MANILA.

MANILA, August 12, 1914.

A SHARP rise of cholera has occurred during the past month, spreading from Manila northward along the railroad as a result of temporarily incomplete and ineffective measures for control. Manila itself is showing an average of but one or two cases a day, but the problem is particularly perplexing because of the high proportion of healthy persons who are found bacteriologically to be "carriers" of cholera vibrios and whose occupations may be such as to render them particularly liable to convey their infections to others. Thus in one day three handlers of cooked food in native restaurants were found to be carriers. In another series, of one hundred and sixty-nine persons coming to autopsy from causes other than cholera, seven were found to be cholera carriers. In fifty-three persons taken at random from an infected district, eight were found bacteriologically positive for cholera. Of twenty-six contacts with a tuberculosis case found to be a cholera carrier, nine were found to be carriers also. A very high proportion of cases presenting disorders of the intestinal tract, as dysentary, tuberculous ulceration, diarrhea, etc., appear also to be true cholera carriers. As a result of these healthy and other carriers, there is a constant upcropping of cholera cases, but as yet in no instance developing into a local epidemic. The cases are scattered and the measures taken are usually entirely and promptly effective in preventing the development of further cases from these foci. The problem now seems to resolve itself into considering the frank cases of cholera as merely the expression of latent conditions in the healthy population, the cause of which can only be removed by the detection and isolation of the healthy harborers of the cholera vibrio. This, for a population of approximately a quarter of a million, is a task of herculean proportions. However, it will probably suffice in practice if the carriers of the most dangerous class can be reached and quarantined, and this especially dangerous class is undoubtedly to be found in the handlers of cooked food in tiendas and the kitchen forces of hotels, clubs, boarding houses, restaurants, ice cream parlors, etc. Plans are under way to examine all members of this class of persons, and the Bureau of Science is making examinations at the rate of some eight hundred per day. As a result, reports show that nearly a hundred carriers are constantly in quarantine at the cholera detention hospital. Many cases have been removed from hotels and other places where their presence was liable to start local epidemic outbreaks at any time. Most of the carriers seem to clear up in about two weeks under the use of saline catharties and intestinal antiseptics like salol—though how much real value the latter possesses for the purpose is problematical. Cases are held in quarantine until negative to two examinations several days apart. Examinations are based on cultures made from feces, or from swabs taken from the rectum, and given the agglutination test.

A tendency of cholera cases to gradually crop up along the railroad north of Manila has led to an investigation of the privy closet facilities at the railroad stations. Out of one hundred and sixty-three stations, only fifty-eight had closet facilities, fifteen of the latter were closed, and of the forty-three in use only twenty-four were reported as being fairly good as to surroundings. Most of those in use were found to be open to flies. In many of them the waste disposal methods were ineffective. In the majority of cases, the closet was found to be kept locked as a convenience for the station master and his family only. As a result, the vicinity of almost every station was found fouled by human deposits, and as food exposed to flies was sold at many stations, the possibility of transmission of infection introduced by carriers and disseminated by flies and food was very great.

The Public Utilities Commission has taken up the matter, and is forcing the railroads to install and maintain proper privy closet facilities. The results of this inspection make one wonder if the toilet facilities at small stations on the railroads of the United States would appear to good sanitary advantage if given similar sanitary inspection. Your correspondent has a vivid recollection of the insanitation and nastiness of some of them, especially in the South.

In a recent series of four thousand nine hundred and eighty apparently healthy persons, resident in Manila, the Bureau of Science has found one hundred and sixty-five to be "carriers" of cholera vibrios. This means that about three per cent. of the general population may be regarded as distributors of the cholera infection. This proportion seemed to hold good in the various sanitary districts of the city, though, as far as actual cases are concerned, the incidence of the disease is much greater in districts north of the river than south of it. No American has as yet been found to harbor the disease germs, and but relatively few Chinese; and likewise the actual cases of the disease are almost exclusively among Filipinos. The disease itself occurs almost wholly among the lower class Filipinos, among whom the standard of personal cleanliness is low, and who eat their food from common dishes into which all put their usually dirty fingers. Of course these "carriers" are an imminent danger to even the most careful individuals and households, for personal care cannot offset the danger from "carriers" among apparently healthy servants. The Bureau of Health has therefore issued a warning requesting all householders, in addition to their own personal hygiene, to see to it that servants habitually wash their hands after visiting the toilet and before handling food.

The last health report from Hong Kong states that since January 1, 1914, that city has had 2,136 cases of bubonic plague, with 1,986 deaths therefrom. The fact that Manila is now kept almost entirely free of plague, though the seven epidemics of 1901-1902 indicate that this city presents an environment most favorable to the development of plague infection, is very conclusive evidence as to the efficiency of the preventive measures being employed. The difference is more notable since in Hong Kong any degree of compulsion can be employed in the repressive measures, while here they are really dependent upon public approval and good will.

One immediate result of the outbreak of the European War was a sharp rise in prices of certain foodstuffs, especially canned milk. In forty-eight hours the price in Manila rose from nineteen to thirty-six centavos per can. As practically no fresh milk is available in these islands, the people are dependent on the canned variety and any interference with the supply of the latter must have a strongly prejudicial effect on the mortality of children. With the low scale of wages prevailing over here, it is a financial strain on the lower classes to buy canned milk for their children even at the former low prices. Hence even a slight increase in cost may remove milk from the reach of a very considerable portion of a Filipino community. To meet the needs of the situation, the Governor General was appealed to, and the latter announced that the Government would enter into the sale of milk for the purpose of keeping down prices. The military authorities placed some six hundred thousand cans of milk at the disposal of the Government at cost for this purpose, and sales of milk, in small quantities to each purchaser, were made in all the public markets and stations of the Bureau of Health in Manila. The selling price was fixed at what would yield a fair profit to the dealer, as the idea of the Government was not so much to sell milk as to leave the trade in the hands of the usual dealers and use Government participation in the business merely as a means of lowering prices. As a result, the inflated price of thirty-six centavos has fallen to an average of about twenty-four centavos.

Dr. Edward L. Munson, surgeon and major in the United States Army Medical Department, who has been appointed Acting Director of Health for the Philippine Islands in the place of Dr. Heiser, who has gone to the United States on a long leave of absence, has arrived in Manila from Zamboanga, where he has been serving as health officer for the Moro country and established and put into operation an effective sanitary organization among its lately hostile people. Dr. Munson is not unfamiliar with the work of the Bureau of Health, as he was on duty therewith a number of years ago and served as Acting Commissioner of Health in 1903-1904. He is the author of a number of books on hygiene and sanitary work, and has been teacher in these subjects in the army schools in Washington and Fort Leavenworth. Dr. Munson has many old friends in Manila, and it is understood that his selection as health officer was favored by the Filipinos, whose support and confidence he had acquired during his previous tour of health work among them.

Dr. W. E. Musgrave gave a beautiful dinner at the Manila Hotel complimentary to the new Acting Director of Health, at which thirty guests were present. The latter included Secretary Denison, Commissioner De Veyra, and the prominent American and Filipino medical men of Manila. There were no formal speeches.

Progress of Medical Science.

Boston Medical and Surgical Journal.

October 8, 1914.

1. Epidemiological Features of an Outbreak of Paratyphoid Fever (*Bacillus paratyphosus alpha*). M. M. Canavan.
2. Clinical Features of an Outbreak of Paratyphoid Fever. M. E. Gill-Noble.
3. Notes on the Blood Cell Picture in Paratyphoid Fever and after Vaccination with *Bacillus typhosus*. M. M. Canavan.
4. Note on the Relation of Paratyphoid Fever to Antityphoid Vaccination. M. M. Canavan.
5. Conclusions from Work on the Paratyphoid Fever Epidemic at the Boston State Hospital, 1910. E. E. Southard.

1. Epidemiological Features of an Outbreak of Paratyphoid Fever.—M. M. Canavan states that this epidemic consisted of about 30 cases of a mild form of paratyphoid fever which occurred at the Boston State Hospital, between October 19 and December 1, 1910. There were no deaths. The epidemic was confined largely to employees, although a few patients were also affected. The first indication of a disease of a typhoidal nature was obtained by the discovery of a positive Widal reaction in a female patient assisting in the serving-room of the nurses' quarters. From the blood of this patient actively motile organisms were recovered. One of the male patients who was an assistant in the preparation of food and had for one of his duties the turning of the meat machine, was found to have fever (101°); from the blood of this patient the *Bacillus paratyphosus alpha* was cultivated.

3. **The Blood Cell Picture in Paratyphoid Fever and After Vaccination with Bacillus Typhosus.**—M. M. Canavan states that leucocyte counts may prove of some service in differentiating paratyphoid from typhoid fever, since counts show that the paratyphoid blood picture remains within the normal range, (a) without a tendency to hypoleucocytosis at any stage of the disease and (b) without loss or drop in the eosinophiles. In interpreting this result it must be remembered that the epidemic from which these data were derived was one of mild paratyphoid fever (*Bacillus paratyphosus alpha* type). The blood cell picture after antityphoid vaccination remains within the normal range, with a tendency to a slight initial rise in leucocytes.

5. **Paratyphoid Epidemic at the Boston State Hospital.**—E. E. Southard states that apparently the source of the epidemic was infected meat or else a patient with paratyphoid infection may have spread the epidemic through meat. The clinical features of the epidemic were of great interest. Initial fever was practically constant. Anorexia, diarrhea, abdominal pain, general malaise and vomiting were not as frequent as they usually are in typhoid fever. Of the special modes of onset bronchitis was frequently noted. In the course of the disease stiff joints occurred in 19 out of 30 cases of paratyphoid fever, whereas in typhoid fever arthritis is rare. Four of the patients suffered from muscle pains in the back of the neck. Malaria was suspected in one case from the nature of the acute symptoms. There are points of interest in the temperature curves. A case occasionally has a beginning temperature suggestive of typhoid fever, but this is not the rule. The intercurrent bronchitis fails to affect the temperature reaction, being possibly a portion of the disease rather than a truly intercurrent phenomenon. Insane patients show some differences in fever reactions to various infections from the reactions shown by sane persons. Eight cases in 30 showed a peculiar drop of temperature to subnormal in the second or third week—as a rule between the tenth and fourteenth day. This temperature drop is accompanied by a drop in the pulse and by an access of the most severe subjective symptoms felt at any time in the disease.

New York Medical Journal.

October 10, 1914.

1. The Technique of Spinal Anesthesia. W. W. Babcock.
2. Continuous Uterine Drainage. A. E. Gallant.
3. Cervical Adenitis. N. P. Stauffer.
4. Present Status of the Verumontanum in Deep Urethral Diseases. J. A. Hawkins.
5. Acquired Organic Hourglass Stomach. G. A. Humphreys.
6. The Modern Treatment of Bright's Disease. J. Herold.
7. Substitution Reactions. C. P. Oberndorf.
8. Gonorrheal Stomatitis. H. J. Farbach.
9. The Present Status of Functional Liver Tests. E. B. Krumbhaar.

6. **Modern Treatment of Bright's Disease.**—J. Herold points out that free elimination by the skin, lungs, and bowels is of paramount importance in chronic interstitial as well as in chronic parenchymatous nephritis. Lung elimination is aided by fresh air, as is the anemia. The bowels are kept active by fruits, green vegetables, the coarser cereals, salines, cascara, senna, or aloes, and by occasional doses of calomel or of elaterin. The stomach should be invigorated by bitter tonics, the headaches relieved by bromides, and the anemia combated by a judicious use of iron and moderate exercise when the patient's health permits it. When the urine or urinary solids are deficient, digitalis, caffeine, potassium acetate, or theobromine sodiosalicylate may be employed. The prognosis of chronic nephritis is much less favorable than that of the acute forms, but if the strength is kept up and the quality of the blood is improved, life may be protracted and amelioration within certain limits may be attained.

7. **Substitution Reactions.**—By C. P. Oberndorf. (See MEDICAL RECORD, May 30, 1914, page 1007.)

9. **The Present Status of Functional Liver Tests.**—E. B. Krumbhaar concludes that although no satisfactory single test for the functional capacity of the liver has yet been accepted, the phenoltetrachlorphthalein test of Rowntree promises the greatest value. The levulose and galactose tests, though easy of application, are positive in too many non-liver cases to be considered reliable. The amount of urea in the blood or urine or its percentage to the total noncoagulable protein is totally unreliable in cases of cirrhosis or passive congestion. Like the tests for fibrinogen and lipase content of the blood, however, it may be of value in such obscure toxic conditions as phosphorus poisoning or acute yellow atrophy, where the great mass of liver cells is simultaneously and deeply involved. Tests for urobilinogen in the urine, increased permeability to methylene blue, positive Abderhalden reaction, and diminished glycolytic activity of the blood serum have also been described. The careful employment of one or more of these tests in the study of any given case of liver disease will unquestionably reveal facts of value. Further clinical and experimental work in this direction will probably furnish a diagnostic technique, the success of which is comparable to that employed in diseases of the kidney.

Journal of the American Medical Association.

October 10, 1914.

1. Osteoplastic Closure of the Trifacial Foramina. A. B. Kanavel.
2. Myositis. Ischemic Myositis; Infiltration Myositis: Cicatricial Muscular or Tendon Fixation in Forearm: Internal, External, and Combined Compression Myositis, with Subsequent Musculotendinous Shortening. J. B. Murphy.
3. The Rodman Operation for Breast Cancer. D. Guthrie.
4. Cancer Vaccine and Anticancer Globulins as an Aid in the Surgical Treatment of Malignancy. J. W. Vaughan.
5. The Association of Erythema Nodosum and Tuberculosis. O. H. Foerster.
6. Diseases and New Growths of Lymphatic Origin. G. Arndt.
7. Paresis Patients Treated with Intraspinal Injections of Salvarsanized Serum. A Brief Report. L. B. Pilsbury.
8. Results of One Hundred Injections of Salvarsanized Serum. C. E. Riggs and E. H. Hammes.
9. Juvenile Psychosis; Report of a Case. H. H. Drysdale.
10. Beriberi. J. M. Little, Jr.
11. The Pathological Affinities of Beriberi and Scurvy. S. T. Darling.
12. A Comparison between the Urochromogen and Diazo Tests in the Prognosis of Tuberculosis. K. Schaffle.

1. **Osteoplastic Closure of the Trifacial Foramina.**—By A. B. Kanavel. (See MEDICAL RECORD, June 27, 1914, page 1192.)

2. **Myostitis.**—By J. B. Murphy. (See MEDICAL RECORD, June 27, 1914, page 1193.)

3. **The Rodman Operation for Breast Cancer.**—By D. Guthrie. (See MEDICAL RECORD, July 11, 1914, page 85.)

4. **Cancer Vaccine and Anticancer Globulins as an Aid in the Surgical Treatment of Malignancy.**—By J. W. Vaughan. (See MEDICAL RECORD, July 11, 1914, page 85.)

5. **Erythema Nodosum and Tuberculosis.**—O. H. Foerster states that from a study of the case reports now available in the literature it appears reasonable to regard the close association of erythema nodosum with tuberculosis in these cases as more than accidental. If one looks on erythema nodosum as an infectious disease due to a specific microorganism one can adopt the suggestion of Abt, that like other infectious disease as measles and pertussis it may act by preparing the soil for tuberculous infections. It has not yet been definitely established, however, that erythema nodosum has a specific cause, while there is experimental evidence to show that in some cases tubercle bacilli are present in the blood at the time of the eruption, and in

the lesions themselves. This would establish the tuberculous etiology of some cases of erythema nodosum, which can then be classed as symptomatic, along with the nodose lesions occurring in syphilis, gonorrhea, scarlet fever, and typhoid fever. Furthermore, Foerster maintains, every case of erythema nodosum occurring in young children with a family or personal history of tuberculosis should be regarded with suspicion and as perhaps indicative of the change of a latent or unsuspected focus of tuberculosis into an actively advancing process.

11. The Affinities of Beriberi and Scurvy.—S. T. Darling notes that Funk mentions five groups of symptoms observed in diseases caused by food theoretically deficient in vitamins: (1) Nerve degeneration with paralysis and contractures. (2) Cardiac: dilatation of right heart, dyspnea, cyanosis, oliguria. (3) Anasarca, hydropericarium, hydrothorax, ascites. (4) Scorbutus with mouth lesions, skin and subperiosteal hemorrhages, and bone lesions. (5) Pellagra syndrome, stomatitis, gastrointestinal lesions, skin erythema, and multiple nerve symptoms. The author believes that if it can be shown that scurvy, a typical example of a food deficiency cachexia, possesses certain pathological features identical with those of beriberi, about which the etiology in the minds of some is as yet undetermined, it will help to establish a place for beriberi among the dietetic cachexias. He had the opportunity of observing cases of scurvy on the Rand, South Africa, and his impression of these cases was that the disease is of an infectious nature, but this impression rapidly gave way to a confirmed opinion that it is due to dietetic errors. Not only has the Rand type of scurvy affiliations with beriberi, in that cardiac degeneration and degeneration of the vagus occur in typical scurvy as well as in beriberi, and by reason of the appearance of beriberi or neuritic features in certain epidemics of scurvy, but G. P. Turner of Johannesburg has observed that many of the negro miners dying of various diseases, at necropsy disclose slightly edematous calves without any other sign of scurvy or beriberi. Scurvy has definite affiliations with rickets, and infantile scurvy, too, for in the case seen at Bulawayo there had been extensive destruction of the chondrocostal junction, with depression of the entire sternum. Three severe cases of scurvy, practically free from complication (one had a little tuberculosis), came to necropsy at one of the Ancon hospitals. The anatomical findings were closely similar and are summarized in a composite anatomical diagnosis: Hemorrhagic extravasation into muscles of both legs, left forearm, and left psoas muscles, involving the muscle fascia between muscles, old and recent; subperiosteal hemorrhage, shaft of left femur; hemorrhage into left knee-joint; old subcapsular hemorrhage (knee-joint); ulcerative gingivitis with hemorrhages; separation of mandibular periosteum; anemia of all viscera; hypertrophy and dilatation of right heart; fatty degeneration of musculature of right heart; hyperplasia of femur marrow; edema of lungs, and scaly desquamation of both legs. The striking eccentric hypertrophy and dilatation of the right heart with extensive fatty degeneration of the same musculature, the left heart remaining apparently normal, and the severe degeneration of the vagus nerve described in several fatal cases of scurvy from the Rand, furnish new and additional facts which show the intimate relationship between scurvy and beriberi as to etiology. The presence of affinities between these two diseases (scurvy and beriberi) and certain other cachexias, Darling maintains, lends emphasis to the opinion that they are one and all the result of the continued use of a one-sided and deficient diet.

The Lancet.

October 3, 1914.

1. Application of Suturing to the Vascular System, Including One Case of Suture to a Wound of the Heart and Two of Wounds of the Arteries. R. Warren.
2. On the Value of Antistreptococcal Sera. J. W. McLeod.
3. The Operation of Sclero-Corneal Trephining, Considered in Relation to the Principles Which Should Guide an Operator in the Performance of a Sclerectomy. R. H. Elliot.
4. Electrolytic Prevention of Lead Poisoning. K. Goadby.
5. Electrolytic Treatment of Lead Poisoning. W. H. F. Oxley.
6. Observations on the Improvisation of Apparatus in the Treatment of Certain Fractures in Modern Warfare. J. H. Watson and T. Snowball.
7. Ambulance Work in France. J. Donelan.
8. Dieppe as a Military Hospital Base. W. K. Sibley.

1. Application of Suturing to the Vascular System.—R. Warren points out that there are three main difficulties to be encountered in the practice of suturing blood-vessels: (a) Hemorrhage, which is overcome by very accurate suturing; (b) thrombosis due to the effect of interposing foreign bodies (in the form of sutures) in the blood stream—this ill-effect is minimized by the use of suture material steeped in liquid vaseline; and (c) infection, which leads to thrombosis and disintegration of the tissues sutured, and spoils all hope of success, indicating the need for the most rigid asepsis in these operations. Wounds of the heart fall into two main groups according to the size of the wound in the thoracic wall and pericardium. (1) Where the wound in the latter is large and widely open and there is a penetrating wound of the heart of any size, death from uncontrollable hemorrhage will be so speedy that opportunities for surgical interference can hardly arise, except in such exceptional cases as that described by Travers where the penetrating object remained in the wound and effectively plugged it. (2) A more usual condition is where the external wound is small and slitlike, as from a stab, and consequently the blood effused from the wounded heart cannot escape from the pericardium, but remains pent up in this cavity. The diagnosis of traumatic hemopericardium and "cardiac compression" rests on (a) finding a wound over the precordium, and (b) on the general symptoms of the patient, since local signs pointing to the condition, such as an increased area of cardiac dullness, diminished strength of the heart sounds, or adventitious sounds, may be quite unnoticeable. Where the signs point to hemopericardium only it will suffice to turn out a flap of soft tissues over the fourth and fifth right rib cartilages and the half sternum opposite these, removing the cartilages and half sternum. Where further injuries to lung, etc., are suspected it will perhaps be safer to employ positive pressure insufflation anesthesia and open the thorax widely along the fifth costal space, separating the ribs with suitable retractors. The fibrous scar resulting after the rib cartilages are removed is quite strong enough for practical purposes. Having exposed the pericardium the presence of blood is easily recognized by the tenseness of the sac, the impaired action of the heart, and the dark color of the contained blood seen through the translucent wall. When in doubt a small incision through the wall of the pericardium will permit egress to the contained blood, and if the patient's condition is bad will relieve the pressure on the heart. The next step is to open the pericardium freely and search for the wound in the heart; free bleeding may render this somewhat difficult. Having found the aperture it should be temporarily secured with catch-forceps and sutures passed taking up the whole thickness of the wall of the wounded portion. Ordinary silk sutures have proved successful, but to prevent thrombosis and pulmonary embolism vaselined sutures would be an improvement, since both cases coming under notice de-

veloped signs of embolism after some days. The pericardium should be closed without drainage, and the skin flap sutured in place, a drain tube passing down to the pericardium for 24 hours. Blood-vessels may be sutured for (a) injuries, (b) in the treatment of aneurysms, and (c) to reverse the circulation in parts where the arterial circulation is becoming impaired.

2. **The Value of Antistreptococcal Sera.**—J. W. McLeod draws the following conclusions: A certain type of streptococcus exists very virulent for rabbits and capable to a peculiar degree of producing toxin in the body of an infected animal, against which rabbits cannot be readily immunized, and that the serum of a horse treated with injections of these streptococci is not capable even in large doses of conferring passive immunity on the rabbit. A careful perusal of the literature with regard to antistreptococcal sera leads to the opinion that none of the sera available is likely to afford a supply of immune opsonin at once adequate in amount and sufficiently adapted to the strain of streptococcus involved markedly to alter the course of streptococcal infection in man. In the treatment of severe streptococcal infections normal heated horse serum, which has been proved slightly superior in the author's experiments, and which would in any case be cheaper and more easily preserved, might if administered in large doses, be substituted with advantage for commercial antistreptococcal serum. Experimental work on the therapy of streptococcal infections which aims at finding some artificial antibody to streptococcal toxin is much more likely to be fruitful than any further efforts to amend and improve the methods of immunizing horses to this type of bacteria.

British Medical Journal.

October 3, 1914.

1. The Surgical Treatment of Nephroptosis by Occlusion of the Perinephric Fascial Sac (Capsular Occlusion). C. B. Lockwood.
2. The Use of an Aperient Before X-Ray Examination of the Intestine in Chronic Constipation. R. Gompertz and M. Scott.
3. Insects and War: Fleas. A. E. Shipley.
4. Bacilli and Bullets. Sir William Osler.
5. A Case of Ruptured Ectopic Gestation Complicated by Splenomedullary Leucemia. L. E. Sutcliffe.
6. A Discussion on the Thymus Gland in Its Clinical Aspects. A. E. Garrod.
7. Discussion on Headache, Its Causes and Treatment. H. Campbell.
8. Acute Atrophy of the Thyroid Gland. F. C. Eve.
9. A Case of Anemia with Enlargement of the Spleen: Splenectomy; Cure. J. S. McKendrick.
10. The Urinary Diastase Test in a Case of Ruptured Duodenum. A. H. Lister.

1. **Surgical Treatment of Nephroptosis by Oclusion of the Perinephric Fascial Sac.**—C. B. Lockwood describes this operation as follows: The patient is placed in the usual position for nephrotomy with a sandbag or an inflatable air cushion between the table and the flank. An oblique incision is made about an inch below the twelfth rib, not quite parallel to it, but more in the direction of the fibers of the external oblique. The incision begins behind at the outer border of the erector spina and is carried forward for four or five inches. The length of the incison depends upon the thickness of the abdominal wall. The muscles are split in the direction of their fibers. No nerves are divided and the bleeding is trifling. The fascia transversalis having been opened the kidney is sought for. The author has found this step, usually a troublesome one, made quite easy by rolling the patient over until the wound faces the table. Then the finger is passed over the kidney to separate the perinephric fascia from the colon and peritoneum, and the perinephric fascia is taken between the finger and thumb at the lower end of the kidney, which is squeezed upward within its sac. When the kidney is gone up as high as is judged necessary the perinephric fascia is clamped at its lower end with pressure forceps and ligatures of No. 2 or No. 3 twisted silk are passed around it with a curved needle. The author has passed two and sometimes three of these silk sutures about half an inch apart. The ends of these ligatures are left long and used to fix the perinephric fascia to the abdominal wall. Before applying the pressure forceps the perinephric fascia is felt between the finger and thumb to make sure that the ureter is not being taken in. When the perinephric fascia has been ligatured the lower end of the kidney is at about the level of the twelfth rib and moving a little with respiration. The operation is completed by bringing the abdominal muscles together with chromic gut sutures and suturing the skin with silkworm gut. This operation hardly takes more than half an hour and is followed by very little shock, pain, or vomiting.

2. **The Use of an Aperient Before X-Ray Examination of the Intestine in Chronic Constipation.**—R. Gompertz and M. Scott conclude from their experiments that in chronic constipation the variations between the rates of passage of the bismuth along the intestine are but small whether the bowel has been emptied by a preliminary aperient or not; at the most the differences are not greater than can be said to be within the normal limits. Further, where differences were noted in the two series they were not constant, being in one case in the direction of greater rapidity after an aperient, in another of less, and in a third varying at different times in the same patient. It is, however, undoubtedly wise in most cases to give a purge before making an *x*-ray examination, on account, first, of the greater clearness of the skiagrams obtained when the intestine is empty; and, secondly, of the discomfort which the patient, deprived of his usual aids to defecation, may experience in the two or three days occupied by the *x*-ray observations, during which, of course, no aperient must be given. The result of the author's trials appears to show, nevertheless, that in cases in which time does not permit of a preliminary purge, or in which it is undesirable for any other reason to give it, the conclusions reached may be accepted without the fear that they have been materially vitiated by the omission.

6. **The Thymus Gland in Its Clinical Aspects.**—A. E. Garrod discusses the association of hyperplasia of the thymus with sudden death in children and adults. The subject is usually discussed under three headings—namely, thymic death, the sudden death of infants apparently healthy, apart from any antecedent signs of pressure upon the trachea; secondly, thymic asthma, a condition which may assume a more or less chronic form, or may manifest itself in paroxysms of stridulous dyspnea; and, thirdly, the condition known as status thymico-lymphaticus or status lymphaticus. Caution is needed in making the diagnosis of thymic asthma, and in some cases such a diagnosis made during life is shown to be incorrect post mortem. What is thought to be an enlarged thymus may prove to be an abscess around mediastinal glands, as in a case which Thursfield has described. Nor must it be forgotten that stridulous dyspnea in infants has several causes, such as enlargement of bronchial or tracheal glands, retropharyngeal abscess, membranous laryngitis, laryngeal spasm, and the abnormality of the larynx causing congenital stridor. Lastly, there is evidence that not a few cases of supposed thymic death have actually been due to suffocative bronchopneumonia. In some cases at least thymic asthma is due to pressure, but in others the stridor appears to be due to laryngeal spasm rather than to narrowing of the trachea. Paltauf brought the subject of status lymphaticus into the field of practical medicine and surgery. He presented the picture of a general constitutional state which predisposes to sudden

death from causes apparently inadequate and in which hyperplasia of the thymus is no longer the dominant feature but only one of a group of deviations from the normal. Not a few of the factors which go to make up the clinical picture are such as cannot be detected in the living patient. Such are the general enlargement of the intestinal follicles, the unduly small aorta, and the diminution of the chromaffin tissue, which may be the most important of all. Of the accessible signs special stress may be laid upon the hyperplasia of the lymphatic tissues at the root of the tongue, which may be seen with the laryngoscope and which is regarded by good observers as specially characteristic. Enlargement of the tonsils and adenoid vegetations are so common apart from status lymphaticus as to have little diagnostic value, and the same is true of slight enlargement of the lymphatic glands in the neck, axilla, and groins. An increase of lymphocytes in the blood is of similar service, and if it can be shown that the thymus is abnormally large this affords evidence of considerable value.

7. **Headache, Its Causes and Treatment.**—H. Campbell. (See MEDICAL RECORD, August 22, 1914, page 355.)

9. **Anemia with Enlargement of the Spleen; Splenectomy; Cure.**—By J. S. McKendrick. (See MEDICAL RECORD, August 22, 1914, page 355.)

Berliner klinische Wochenschrift.

September 7, 1914.

Lupus Syphiliticus.—Heinemann reports a case of that which was clinically ordinary lupus vulgaris, but which yielded to antisyphilitic measures. The skin of the external nose was reddened, swollen, and ulcerated. The lesion had persisted for seven years, and from the nose had extended to the upper lip. Former ulcers had healed with formation of large scars. The interior of the nose was covered with crusts, and there was a perforation of the septum. The condition had proved refractory to the usual antilupous remedies. The ulcers alone were not typical of lupus, and were more like those of tertiary syphilis. There is no mention of a Wassermann test. The prompt response to iodide of potassium convinced the author that the lesion was syphilitic. Under this medication the lesions underwent complete involution. A history of infection, dating back to three years before the appearance of the lesion, was obtained. To the iodide of potassium was later added an inunction cure. The author will also employ salvarsan, doubtless with the aim of obtaining a negative Wassermann reaction. Syphilitic lupus in the strictest sense of the term is a very rare affection. Patients suffer for years, as in the author's case, during which all antilupous remedies are tested in vain. Of great interest is a double case in mother and daughter, reported in 1910. The disease spread to the eyes before its true nature was recognized, causing total and partial blindness. The vision could have been saved had antisyphilitic measures been tested.

Certain Unknown Activities of the X-rays and Their Therapeutic Utilization.—Eckstein refers to the fact that as far back as 1896 the claim was made that the then newly discovered rays relieved the pain of cancer of the stomach. A year later Gocht stated that the rays relieved neuralgic pains. Animal experiments showed further that they depressed reflex excitability. Since those days the rays have come into such extensive use for organic disease that the undisputed fact of nervous sedation has either dropped out of sight or been set down to suggestion. The author has been at work on the subject for the past five years and has treated many painful conditions with relief of suffering. These include rheumatic and gouty pains, herpes zoster, neuralgia, and neuritis. Moreover spasmodic states like bronchial asthma and pseudo croup have similarly yielded, as has also paroxysmal cough of reflex character. There appears to be a direct action of the rays upon the terminal nerve filaments. Vasomotor crises also appear to yield in the same manner, as shown in a case of gastric crisis and angina pectoris. Finally various postoperative (postnarcotic) symptoms, such as pain and nausea, appear to derive benefit from the rays. No unpleasant collateral effects have been noted as a result of the treatment.

Münchener medizinische Wochenschrift.

September 1, 1914.

Action of X-Serum on the Blood.—Glaubermann of Moscow uses the term x-serum to denote blood serum which has been *x*-rayed, 8 c.m. of serum having been made to absorb 100 x. The idea of testing this product appears to have originated with Wermel during the present year, and already it has been tested on animals in a number of laboratories. The author's experience is summed up as follows: subcutaneous injection into rabbits causes characteristic blood changes—a rapid leucocytosis is followed shortly by a transitory leucopenia which reaches its acme at the end of 1½ to 2 hours and then gradually declines until in 24 hours the blood picture is normal. Leucopenia is accompanied throughout with lymphopenia. The parallel between this indirect method and direct *x*-raying is complete, although in the former the transitions are more abrupt and the phases much shorter. The x-serum contains two components which are antagonistic. The serum *per se* tends to cause leucocytosis, while the *x*-rays have the opposite tendency. The therapeutic possibilities of the combination have not yet been studied.

New Occupational Diseases Due to Calcium-Nitrogen.—Koelsch refers to the use of calcium nitride as a fertilizer which is being employed as a substitute for Chili saltpeter. It is prepared in the electric furnace, the nitrogen being supplied by the atmosphere. The commercial product contains 57 per cent. calcium cyanide, 21 per cent. caustic lime, 14 per cent. carbon, and 8 per cent. of impurities (silica, phosphoric acid, iron, etc.). In theory those who work in this fabrication could be poisoned in several ways, in addition to the dangers of caustic action and explosion, but such accidents are also preventable. As a matter of fact, it appears that only such workmen as use alcohol are attacked while at work. After ingestion of the latter the head is flushed, the limbs shiver as if with cold, there is dyspnea, and sense of pressure in the chest. Even a few swallows of beer suffice to bring on this disturbance. The upper portion of the body participates in the congestion which is also visible in the upper extremities, although the hands are cold. The respiration is 20-25, pulse 100-130, blood picture not changed. The sensorium is clear, the tremor is sometimes accompanied by jactitation, and there is a suggestion that these motor disturbances are psychogenetic, due to mental impression. The attacks last an hour or two and are followed by prostration. Tolerance does not develop, but after the Sunday rest the subjects even with alcohol ingestion develop no Monday attack. Working in dust is a contributory factor, and both it and alcohol seem necessary for the production of the attacks. The workers are not drinking men as a class and many are almost abstinent. Cyanimid is probably the industrial poison.

Death from the Use of a Quinine-Veronal Combina-

tion.—Erdt reports a death from the careless use of a synthetic or mixture in whooping cough. This preparation, marketed as a proprietary, contains 36 per cent. of veronal, and the single dose contains over one grain of the latter. The daily dose is, of course, left to the medical practitioner. The medicament comes in palatable chocolate tablets. A child aged 2½ years who was being treated for pertussis got possession of the container and ate nine tablets, equal to ten grains of veronal. It soon passed into a stupor, with cyanosis, and never rallied despite full antidotal procedure. Veronal crystals were recovered from the brain. The question arises, did the large quantity of quinine—nearly 20 grains—contribute to the death? The author believes that it was a contributory cause—since 18 grains of quinine have killed a two-year-old child. It is of interest to note that the child's father attributed death to washing out the stomach by the author.

Phenolsulphonephthalein in Testing the Renal Function—Hess concludes a serial article on this subject as follows: the Rowntree-Geraghty test excels all previously known methods in simplicity. No dietetic preliminaries are necessary and it can be made on subjects irrespective of the mental state. It can be made by the practitioner without recourse to a laboratory. It is an important accessory in the diagnosis of chronic interstitial nephritis, a condition often without any constant symptomatology, and it also has important prognostic significance. Since it parallels the results of examination for sodium chloride and urea it may replace these in routine work. In acute renal lesions it is less valuable when considered alone, and the curve often contradicts the clinical evidence. The test is no less valuable in surgical conditions in which one kidney is involved the urine being obtained by ureteral catheterization.

Surgical Observations from the Seat of War.—Kraske, the well-known surgeon of Freiburg, who is now at the front, writes that after the fighting on August 9-10, he was able to follow up the cases of about 600 wounded, who had been injured chiefly with small arm projectiles at a distance of some 400 to 600 meters. From four to five-sixths of these wounds were seated in the extremities. The left hand, from its exposed position, was often struck. There were a number of wounds of the left side of the skull, which indicated that the men had been lying prone with heads turned to the right, and that all had been struck by the same volley. The sorriest wounds were those in which the spine and cord were ultimately injured by bullets received while lying prone. Of thirty soldiers wounded in the thorax, many did not spit blood; and of twenty hit in the abdomen the majority of wounds had only transitory effects. In the wound dressing pavilions everything went ahead smoothly, but the transportation of the wounded was much impeded by the nocturnal fighting. The author was somewhat pessimistic at the outset and the good results have greatly exceeded his expectations. Simple occlusion of the wounds is doubtless responsible for the fact that as a rule inflammation, fever, pain, and systemic reaction have been absent.

Deutsche medizinische Wochenschrift.

September 3, 1914.

Dietetic Treatment of Hyperacidity, Hypersecretion and Peptic Ulcer.—Strauss states that these conditions require practically the same diet. The first dietetic element for consideration is that which tends to inhibit hypersecretion. The classical researches of Pawlow have shown that the fats belong under this heading. The author at once tested this discovery in the clinic and learned that while egg-yolk, cream and butter were of use in this connection, fat bacon was unsuitable. Vegetable fats are well tolerated. Pawlow having shown that certain food articles increase secretion, such must be regarded as contraindicated, especially if they disagree with the patients. Here belong meat extractives, bouillon, coffee (even when deprived of caffein), carbonated drinks, sour wine, vinegar, mayonnaise, etc. A flesh free diet seems well borne in some cases, while in others it is enough to cut down the meat and order only that which is well cooked and tender and requires little mastication. Pawlow has proved that mastication causes a flow of gastric juice. The use of seasoning and relishes has the same result. For the same reasons the carbohydrate foods should also be tender and unseasoned. Soft bread, tender vegetables, cereal porridges, and plain puddings are recommended. If a peptic ulcer is present, with severe hemorrhage, the author advises exclusive rectal feeding, for which purpose he recommends cream, albumoses, milk, yolk of eggs, etc., with the addition of pancreatin. After hemorrhages has ceased, buccal feeding may be carefully resumed with bland foods having high caloric values. Cream, half milk and cream, yolks of eggs alone or beaten up with sugar, give a maximum of food value with a minimum of bulk. These fatty ingesta also antagonize the hypersecretion. After eight or ten days of absence of blood in the feces pigeon or chicken meat may be finely minced and passed through a sieve and then incorporated with flour porridge. Mashed potatoes and soft cheese stirred up with cream are also recommended. Other articles permissible at a later period, corresponding to the cicatrization of the ulcer, are calves' brains, roast pigeon, breast of chicken, brook trout, purees of vegetables with plenty of butter, dipped zwieback, apple sauce, etc.

Indicanemia and Uremia.—Tschertkoff states that in subjects, whether healthy or ill, whose kidneys function in the normal manner, neither urea nor indican are ever found in the serum. Whenever there is retention of urea we find indican in the latter. If the serum contains 1.5 per thousand of urea indican will surely be present. In chronic nephritis indicanemia has an unfavorable prognostic significance, showing a severe and irreparable alteration of the kidneys. In acute nephritis there is no such ominous significance attached to this find. In case as a result of special diet there is no marked retention of urea, indicanemia may still be present and be the sole evidence of renal insufficiency. The method of testing for indicanemia is as follows: the serum is freed from albumin with trichloracetic acid and then filtered. To 10 c.c. of filtrate add an equal amount of Obermayer's reagent. Indigo blue then forms. The filtrate is now agitated with 3 c.c. chloroform and the color compared with a standard scale. As is well known the mere addition of the acid to precipitate the albumin represents a qualitative test for indican provided the latter is present in large quantities, the mixture giving a color reaction which becomes more pronounced on standing in the sunshine.

Tuberculosis of the Mastoid.—E. D. Davis reports the case of a boy who had an abscess of the superficial parotid glands, and enlarged posterior auricular and upper deep cervical glands on the left side, left otorrhea, and left facial paralysis. The parotid abscess was opened and curetted, and the posterior auricular and cervical glands were removed. A radical mastoid operation was performed four months later, and more caseating cervical glands were removed. Finally, the area was opened up and a large sequestrum was removed. The disease was arrested.—*Proceedings of the Royal Society of Medicine.*

Insurance Medicine.

SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

SUICIDE.

THE mortality statistics compiled by the Bureau of the Census of the United States gives the number of suicides occurring in the registration area as 9,622, or 16.2 per 100,000 population in 1911, and 9,656, or 16.0 per 100,000 in 1912. Deaths due to accident in 1911 amounted to 50,121, in 1912 to 49,775. A certain proportion of deaths due to accident may be attributed to suicide. Dr. E. J. Marsh, in his Report on the Mortality Records of the Mutual Life Insurance Company, gives the following figures:

DEATHS FROM VIOLENT CAUSES

	1843-1873	1874-1885	1886-1893	1894-1899
Suicides	991	248	299	383
Casualties	2346	507	685	797

Claims to the number of 162 with suicide acknowledged as a cause of death were submitted to the same company in 1913, of which 8 occurred during the first policy year. The number of cases, including those in the first year, would be higher if the suicides ascribed to accident could be ascertained.

The question of death by suicide is important to insurance companies, for the reason that applicants have undoubtedly secured insurance while premeditating self-inflicted death. The disordered mind leading up to such an act may be laid to the suicidal impulse of melancholia in nearly every case. The idea of self-destruction may be firmly controlled, or openly avowed and attempted. On the other hand, the intention may be cunningly hidden and the utmost ingenuity exercised in carrying out the plan. Certain individuals in the class last mentioned seek to provide for the subsequent maintenance of their dependents through the means of life insurance. The successful concealment of their intention to destroy their lives has led some insurance men to believe that a large proportion of suicides are responsible, rational and thoroughly conscious of what they are doing. It is an open question, however, whether completely sane persons will commit suicide, or that, while actuated by some strong, impelling distortion of the mind, they have controlled and concealed the predominating desire for self-destruction so successfully as to deceive all those about them. Moreover, it is difficult, in cases when suicide is suspected, to get the true cause of death for two reasons: that suicide of a member becomes a stigma upon the family and a frank admission might defeat the payment of the insurance.

It is a simple matter to produce proof that those contemplating suicide regard life insurance at times as a means for the future support of their families. Companies with no suicide clause in their applications have experienced from three to five times a greater percentage of deaths in the first policy years than in subsequent years. The deaths have not always been designated as suicidal, but the remarkable fact remains that the so-called accidental deaths have been much greater in the first year. Certain fraternal societies have reduced their mortality by adopting a suicide clause. Attention is called to this form of selection against the company in a paper by Rhodes read before the Actuarial Society of America which showed that proportionately five times as many suicides occurred under extended insurance as in the general business. The following cases may be cited as examples of this practice:

1. A supposedly wealthy and prosperous merchant recently secured policies for large amounts in several companies. As soon as he had these policies in his possession he applied for more insurance and continued in this course until he had about $800,000 in force. Very soon after the last transaction had been consummated he fell off a ferryboat under suspicious circumstances, refusing to take advantage of assistance proffered him from a nearby launch. Subsequent investigation revealed the fact that his financial affairs were embarrassed and that he was on the verge of business difficulties.

2. An application for $10,000 came to the writer's notice recently. There had been a suspicion of syphilis when this person made an application several years previously, and the application had been declined until satisfactory evidence was offered to the company. No reference to the syphilis appeared in the recent report, and the examination was made up in the Maine woods among strangers, where he had gone ostensibly to spend his vacation. Suspicions were aroused and issuance of the policy was refused until a complete investigation could be made, and in this way considerable delay ensued. Six weeks after the date of examination the applicant was killed by the accidental discharge of his revolver. He had been evidently under the impression that the policy was issued and in the possession of his representative, as he had informed his wife that he was insured.

Every company should have a suicide clause in its application by which the applicant agrees that the risk of death will not be covered by the policy if such death occurs by his own act, whether sane or insane, during a certain period, at least a year, following the date of issue. An individual premeditating suicide will seldom take insurance with the prospect of having to live a year before he can carry out his plan. Furthermore, as soon as he understands that there is a restriction in the application covering this point, he may even undergo a change in his mental process and conclude that he will be more valuable alive than dead to his family.

One large company advertised some years ago that its policies would be incontestable, without any exception, from the date of issue. In a few months a claim for $100,000 was presented to it, the applicant having committed suicide shortly after paying the first premium. This experience caused a prompt modification of the company's rule. Keen competition leads too often to excessive liberality in the way of removing restrictions of this kind, but conservative companies find that the interests of their policyholders are helped by resisting this temptation.

Insurance purchased by a person contemplating suicide constitutes a fraudulent proceeding, and there is no moral reason which justifies the payment of a death claim under such circumstances from the funds belonging to other policyholders who secured their policies in good faith. Nevertheless, the legislators of a certain State have placed a law upon its statute books which compels a company to produce proof that the applicant contemplated suicide at the time the policy was issued. This ridiculous law puts a burden of proof upon the company which it can only furnish by obtaining an affidavit from the applicant to the effect that he intends to commit suicide.

Examiners will assist their companies by carefully observing the mental condition of applicants and ascertaining whether there are any suspicious circumstances connected with the application.

Book Reviews.

TRAITÉ DE CYSTOSCOPIE ET D'URÉTROSCOPIE. Par le Dr. GEORGES LUYS, Ancien Interne des Hôpitaux de Paris, Ancien Assistant du Service des voies urinaires à l'Hôpital Lariboisière, Lauréat de la Faculté et de l'Académie de Médecine. Price 24 francs. Paris: Octave Doin et Fils, 1914.

IF experience had not shown that there is no such thing as finality in medical progress, we would be tempted to say that this treatise of Dr. Luys was the last word in endoscopy of the urinary tract. The author is one of the best known of Parisian urologists who has given us the results of more than fifteen years' practical experience in urethral and vesical endoscopy.

The first two chapters are devoted to urethroscopy, the others to cystoscopy. The first of these chapters, the third in the book, describes the various forms of cystoscope; the second the view of the bladder walls, normal and pathological, as seen through the cystoscope; in the third chapter cystoscopy by direct vision is described in detail; the next two contain an account of catheterism of the ureter and of the indications for treatment furnished by this procedure; the following chapter is devoted to the various operations upon the bladder wall performed through the cystoscope; and the final chapter deals with foreign bodies in the bladder and cystitis. The book is superbly illustrated with 217 figures in the text and 24 colored plates. It is a notable addition to the literature of urology.

TEN SEX TALKS TO BOYS (10 YEARS AND OLDER). By IRVING DAVID STEINHARDT, M.D. Author of "Ten Sex Talks to Girls" (14 years and older), Instructor in Clinical Surgery and Assistant Surgeon Cornell University Medical School; Assistant Pediatrist, Mount Sinai Hospital, O.P.D., New York City; Orthopedic Surgeon, New York Hospital, O.P.D., and Bronx Hospital and Dispensary; First Lieutenant, Medical Reserve Corps, U.S.A. With Twelve Illustrations. Philadelphia and London: J. B. Lippincott Company, 1914.

THERE may be valid differences of opinion as to the proper methods of teaching sex hygiene, but there can be no question that the growing boy should be told the fundamental facts about sex, that he should be impressed with the absolute compatibility of sexual purity with physical health, and that he should be warned against the dangers of illicit sexual indulgence. The average father hesitates to broach this subject with his son; the public school teacher is restrained by the conventional limitations of discussing sex hygiene with a large class of boys; and the family physician cannot as a rule spare the time to give a systematic and clear exposition of this subject to his young patient. The logical alternative is therefore the book that may be placed in the hands of the boy. This is the purpose of the book before us, and the book seems to answer the purpose very well.

PROCEEDINGS OF THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION, at the Sixty-Ninth Annual Meeting held in Niagara Falls, Canada, June 10-13, 1913. Published by American Medico-Psychological Association, 1913.

TWENTY-SEVEN papers are embodied in this, the twentieth, volume of the transactions of the association. Among the more valuable articles of special interest to the general medical reader, may be mentioned: "The Genetic Concept in Psychiatry," by W. A. White; "Precipitating Mental Causes in Dementia Præcox," by A. Hoch; "The Diagnosis of the Higher Grades of Mental Defect," by W. E. Fernald; and "The Father Complex," by Helene J. C. Kuhlmann.

DAS ULCUS DUODENI. Von Dr. J. SCHRIJVER, Arzt für Magen- und Darmkrankheiten in Amsterdam. Paper; price 10 marks. Berlin: S. Karger, 1914.

THIS monograph is largely based upon a very scholarly analysis of the literature, most of which is of very recent origin, and every phase of the subject is adequately covered. The first chapter deals with the history of the recognition of duodenal ulcer, and the author admits that continental Europe has been far behind England and America, both in its recognition as a distinct clinical entity and in the development of the present operative technique, credit being given to Moynihan of Leeds and to the Mayos and Codman in America for having done the most valuable work along this line. Other chapters cover statistics as to relative and absolute frequency; etiology and pathogenesis; symptoms and diagnosis; differential diagnosis; explanation of phenomena, such as the character and time of appearance of pain, etc.; course and treatment; while the final chapter summarizes the author's personal experience of 95 cases in the last three years, 13 women and 82 men, in whom he had made the diagnosis of ulcer of the duodenum, together with the history and operative findings in a number of his cases. The work is an excellent epitome of the subject.

FEEBLEMINDEDNESS—ITS CAUSES AND CONSEQUENCES. By HENRY HERBERT GODDARD, Ph.D., Director of the Research Laboratory of the Training School at Vineland, N. J., for Feebleminded Girls and Boys. Price $4.00 net. New York: The Macmillan Company, 1914.

THIS book constitutes one of the most important studies in feeblemindedness that has been made within recent years. It is based upon the large amount of material in the Training School at Vineland, N. J., for Feebleminded Boys and Girls. An investigation was made of 327 cases in the institution, and field trips were made to the homes of the inmates or to the localities in which their families had lived and all the available data pertaining to their antecedents were gathered and recorded. The book opens with a discussion of the social problems that must be considered in connection with feeblemindedness. Emphasis is placed upon the conception of intelligence as a relative quantity: individuals who may be normal in a simple environment may be unable to get along in a more complex social group. The greater part of the book consists of detailed case histories with pedigree charts of 327 families, and with 121 portraits of children. These data are then analyzed with the view of determining the causes of feeblemindedness. The overwhelming influence of heredity is pointed out. Other factors such as accidents before or after birth, meningitis, etc., are discussed. The family charts are summarized and an analysis is made of the conditions or diseases accompanying feeblemindedness, such as paralysis, epilepsy, insanity or syphilis in the parents, tuberculosis, sexual immorality, illegitimacy, criminality, consanguinity, etc. The author discusses the Mendelian law in relation to feeblemindedness, and finds that although before he studied his data he doubted the applicability of this law to his cases, nevertheless he is led to conclude that feeblemindedness is transmitted as a unit character. In the final two chapters there are presented the conclusions of this most important study. The eugenic program is outlined and the relative merits of colonization and sterilization are discussed. The points brought out in the final analysis are clearly summarized in the following words: "First: the mere recognition that there is a problem of the feebleminded will go a long way toward its solution. Second: a large part of the mental defectives who cannot be segregated may be reasonably and safely cared for in their homes, when we learn to recognize them for what they are, children in intelligence, though men and women in body. Third: We must increase our efforts to segregate as many as possible, because for a long time to come there will be a larger number who need colonization than we can possibly care for. Fourth: We must have sterilization wisely and carefully practised for the solution of many individual problems that are not reached by any other method. In conclusion we believe that we have demonstrated that feeblemindedness is sufficiently prevalent to arouse the interest and attract the attention of all thoughtful people who are interested in social welfare; that it is mostly hereditary; that it underlies all our social problems; that because of these facts it is worthy the attention of our most thoughtful statesmen and social leaders; that much of the time and money and energy now devoted to other things may be more wisely spent in investigating the problem of feeblemindedness; and that since feeblemindedness is in all probability transmitted in accordance with the Mendelian Law of heredity, the way is open for eugenic procedure which shall mean much for the future welfare of the race." These sentences present the problem of feeblemindedness in a clear light as one of the most important with which society has to deal. Dr. Goddard has performed an invaluable service in writing this book, which may be recommended without reserve to physicians, educators, legislators, and all others who are interested in social welfare.

Blood Pressure: Its Clinical Applications. By George W. Norris, A.B., M.D., Assistant Professor of Medicine in the University of Pennsylvania; Visiting Physician to the Pennsylvania Hospital; Assistant Visiting Physician to the University Hospital; Fellow of the College of Physicians of Philadelphia. Illustrated, with 98 engravings and 1 colored plate. Cloth, $3.00, net. Philadelphia and New York: Lea & Febiger, 1914.

In these days when so much is said and written of blood pressure one wonders how we got along as well as we did a few years back when all we had to guide us as to the state of the circulation was the pulse. As a matter of fact, however, the significance of blood pressure is by no means fully understood as yet, and whether high pressure is a cause or a consequence of certain morbid states is still a matter of investigation. There is no lack of literature on the subject, but in the fluid state of our knowledge regarding it this is to be welcomed, for each book as it appears, if of any value whatever, is sure to have something new and much that is old expressed in a new way. The latest contribution to this literature is the work before us. In it Dr. Norris has presented the subject in condensed and practical form, and as definitely as the present state of our knowledge permits.

After a discussion of blood pressure—what it is and why it is, and the present methods of estimating it, the book takes up the question of blood pressure in relation to acute and chronic infectious diseases, cardiac and cardiovascular troubles, arteriosclerosis, nephritis, metabolism, surgery, gynecology, and ophthalmalogy, a final chapter, and a very good one, being devoted to treatment so far as this can be devoted to a condition which is becoming more and more to be regarded as a symptom rather than a morbid entity.

Hygienisches Practikum, Ein Taschenbuch für Studierende, Ärzte und Kreisarztkadidaten. Von Dr. med. Paul Uhlenhuth, Geh. Reg.-Rat und ordentl. Professor der Hygiene an der Universität Strassburg, i. E. und Dr. med. Hermann Dold, Privatdozent der Hygiene an der Universität Strassburg, i. E. mit 1 Tafel und 89 Abbildungen. Price, $1.25. Berlin: Verlag von Urban & Schwarzenberg, 1914.

This book contains a description of the subject matter offered in the hygienic course at the university of Strassburg. The book is not a substitute for the larger works on this subject and only attempts to give a slight stimulus for the practical application of most of the methods of examining soil, water, food products, clothing, air and light.

Ambidexterity and Mental Culture. By H. Macnaughton-Jones, M.D., M. CH., Q.U.I. (Hon. Cau.) F.R.C.S.I. and ED., Ex-University Professor, Queen's University, Ireland; Honorary Member of the Societies of Obstetrics and Gynecology, Leipzig, Munich and Rome; Ex-President of the Obstetrical and Gynecological Section of the Royal Society of Medicine, The British Gynecological Society, and the Irish Medical Schools and Graduates' Association. Price $.75 net. New York: Rebman Company, 1914.

An interesting and convincing brief for ambidexterity is presented in this volume. The physiological and psychological bases of ambidexterity are discussed. Of the various selective influences that have brought about the predominance in the use of the right hand, environment, circumstance, education, and heredity are the main factors. The influence of asymmetry or of so-called mental polarization is also a potent factor. The author points out the important relationship between the speech and writing centers and the centers which control the movements of the upper limb on the opposite side of the body. Early education of both hands tends to develop the functional powers of the speech and writing centers on both sides of the brain, and inasmuch as these centers tend to dominate the entire intellectual field, the conclusion is drawn that ambidexterity makes for greater mental development, *i.e.* "greater facility of expression in language, greater retentiveness, more rapid conversion of thought into audible and invisible speech, quicker appreciation of impressions, as of size, form, weight, and color, and the fixing of these on the tablets of memory for future use." Ambidexterity is taught in the Japanese schools and is practised in all their arts. The author points out a subtle relationship between ambidexterity during its acquisition by the developing mind and the molding of character. Among the great artists who were ambidextrous are mentioned Leonardo da Vinci, Hans Holbein, and Landseer. The author would add to the Montessori method of education the cultivation of ambidexterity. Among the practical benefits of ambidexterity are the advantages of the use of the left hand when the left speech and motor centers are affected by disease; and the obvious advantages in self-preservation, particularly in averting accident.

A Treatise on the Mineral Waters of Vichy for the use of Practitioners. By Charles Cotar, (M.D., Paris), Consulting physician at Vichy with a foreword by Vaughan Harley, M.D., Professor of Pathological Chemistry, University College, London. Price, 4 shillings, net. London: H. K. Lewis, 1913.

The waters of Carlsbad and other German Spas, as a medical means of treatment, are thoroughly appreciated by our British confreres. It is only by reading a book like the admirable one brought forward by Dr. Cotar that one can readily realize the great value of a systematic course of mineral water treatment as carried out at Vichy, in the various medical cases where it is applicable. The book deals with the subject in a truly scientific way and a most valuable chapter is appended showing the reasons why mineral waters are, from a physiological point of view, a proper method of treatment. The value to medical men lies in the complete résumé of the whole treatment of disease by Vichy waters in particular, as well as by mineral waters in general.

Recreations of a Physician. By A. Stuart M. Chisholm, Author of "The Independence of Chile." Price $2. New York and London: G. P. Putnam's Sons, 1914.

With rare literary skill the author has written a volume that cannot fail to interest and delight the physician who would seek relief from the monotony of his scientific books by an occasional excursion into the byways of belles-lettres. The book consists of the following essays: Specialization; Physicians As Men of Letters; Banquo; The Symbolism of Names; Royal Authors; The Inherent Spirit of Medicine; On Some Translations of Horace; Some Features of the Science of Medicine in the Seventeenth Century; The Picaro in Fiction; and On the Prevention of Disease. In the essay on specialization the author discusses the narrowing and blighting influence of the latter and describes the many ways in which the physician may counteract this influence in his leisure hours. In "Physicians As Men of Letters" there are presented charming word-portraits of Keats, Smollett, Goldsmith, Sir Samuel Garth, Akenside, Rabelais, Sir Thomas Brown, Cowley, Arbuthnot, and Oliver Wendell Holmes. Among the other medical men who transferred their allegiance from Æsculapius to the fine arts are mentioned Sir Samuel Smiles, Marat, Lessing, Schiller, the elder Scaliger, Christopher Wren, Charles Lever, the philosopher Locke, and George Crabbe. In "Banquo" the author delineates one of the "stars of the second magnitude" among Shakespeare's characterizations. "On the Symbolism of Names" is a scholarly and witty disquisition on the psychology of this subject.

A Manual of Diseases of the Nose and Throat. By C. G. Coakley, A.M., M.D., Professor of Laryngology in the College of Physicians and Surgeons, Columbia University; Consulting Laryngologist to the Sea View Hospital, to the New York Infirmary for Women and Children, and to the New York Board of Health; Consulting Otologist to Minturn Hospital; Fellow of the American Laryngological Association; Fellow of the American Otological Association; Fellow of the New York Academy of Medicine; Member of the Medical Society of the County of New York, of the State of New York, and of the American Medical Association, etc., etc. Fifth Edition, Revised and Enlarged. Illustrated with 139 Engravings and 7 Colored Plates. Price $2.75. New York and Philadelphia: Lea & Febiger, 1914.

This work admirably serves the needs of the student and the practitioner. Emphasis is placed, as in former editions, upon the practical aspects of the study of diseases of the nose and throat, *i.e.* upon examination, diagnosis and treatment. In presenting the treatment of any condition the author describes in detail the method which he considers the best. A special chapter on therapeutics has been added. The book is profusely illustrated, the series of seven colored plates particularly being admirable.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held October 1, 1914.

THE PRESIDENT, DR. WILLIAM M. POLK, IN THE CHAIR.

Wesley M. Carpenter Lecture.—Dr. WALTER B. CANNON of Boston, George Higginson Professor of Physiology, Harvard University, delivered this lecture, choosing as his subject "The Physiological Equivalent of War." He stated that his original intention had been to present an account of some of the recent investigations which they had been conducting in the Harvard Physiological Laboratory, but that the events of the past summer had suggested a practical application of their results pertinent to present interest. He pointed out that the doctrine of human development from subhuman antecedents had done much to unravel the complex nature of man both in solving the puzzle of the details and conditions of anatomical structure and in accounting for functional peculiarities. In no respect, however, had biology contributed more to clarify our views than in throwing light on the ways of human behavior. The comparative study of the behavior of men and lower animals was making it clear that the springs of action were to be found in the influence of certain emotions which expressed themselves in characteristic instinctive acts. Dr. Cannon then described the combinations, anger-emotion with pugnacity-instinct, and fear-emotion with fight-instinct, and said that the major emotions, anger and fear, were also peculiar in being accompanied by bodily changes which were probably much more profound than those attending any other affective states. It was with these changes that their studies were concerned. The parts of the organism which were peculiarly called into action in emotional excitement were glands and the smooth muscle of viscera. The pouring out of tears, the "cold sweat," the dilation of pupils, the erection of hairs, the pallor from contracted blood vessels were well known changes from the routine of life in organs not subject to voluntary control. That there were other important visceral responses in strong emotions suggested itself to the speaker while he was watching the movements of the stomach and intestines with the *x*-ray, during 1896-97, when he noted that any sign of rage or anxiety or distress would be accompanied by total cessation of these movements. It had since been shown that the secretion of every one of the digestive glands, as well as the flow of bile, was stopped under great excitement. A rather remarkable feature of such inhibition of secretory activity was its prolongation. The portion of the nervous organization of the body by which these emotional alterations were directly wrought was the so-called sympathetic division of the viesceral system. Subject to the same impulses that brought about these changes were the adrenal glands. When these glands were stimulated through their nerve supply they poured into the blood stream a substance, adrenin, which had remarkable properties in relation to the organs to which the sympathetic fibers were distributed. It was capable of evoking in these organs all the changes that were evoked by the sympathetic nerve impulses themselves. It seemed possible, therefore, that the continuance of emotional disturbance in the body long after the occasion for it had disappeared might be due to adrenal secretion. In that case it might be true that the visceral changes attending excitement would be produced initially by the nervous discharges along sympathetic fibers, that these impulses would also arouse secretion of the adrenal glands, and that this secretion circulating in the blood would continue by chemical influence the disturbances which were nervously initiated. Such was the theory which underlay their investigations. The speaker then recounted the experiments with the blood of "quiet" and "excited" animals from which they drew the conclusion that the inhibitory influence of excited blood was in fact due to adrenal secretion, and that therefore the adrenal glands were brought into action under strong emotions. This conclusion had been confirmed both in this country and in England. For many years it had been recognized that the injection of adrenin brought about a liberation of sugar from the liver and thereby might increase the sugar content of the blood to such an extent that it flowed over the dam in the kidneys and resulted in glycosuria. It altered the distribution of the blood in the body, depleting abdominal viscera, and flushing the heart, the lungs, the central nervous system and the limbs. It seemed to act as an antidote for muscular fatigue. The question thus at once arose after the above investigation "Does the adrenal secretion poured out in emotional excitement likewise produce or cooperate in producing these same effects?" They had found that from emotional excitement alone a greater or less degree of glycosuria resulted. The glycosuria failed to appear if the adrenal glands were removed. These observations harmonized with the experimental discoveries that stimulation of the nerves supplying both the liver and the adrenal glands would increase blood sugar at the expense of hepatic stores, but that this failed to occur if the adrenal glands were not present. The establishment of glycosuria, therefore, implied help from the adrenal secretion. Evidence reported both from this country and abroad during the past two years tended to emphasize the importance of emotional conditions for the increase of blood sugar, and the expression "emotional glycosuria" was becoming recognized as descriptive of an important bodily reaction. Adrenin, besides checking the function of the digestive organs, drove out from these organs the excess of blood no longer needed there and forced it the more rapidly through the heart, the lungs, the central nervous system and the limbs, and it was significant that all these organs were intimately cooperative in vigorous muscular exertion. Muscular work was favored by the effects of adrenin not only through the altered distribution of blood, but also in a more direct manner. As a muscle was fatigued it became much less irritable. If instead of waiting for a natural recovery from fatigue a small dose of adrenin was injected into a vein, or if through their nerves the adrenal glands were stimulated to secrete, full restoration of the fatigued muscle had been observed to take place within a few minutes. These remarkable changes which occurred in the presence of fear and anger were not in the slightest degree subject to voluntary control, and hence it was pertinent to inquire as to their utility in either preserving the welfare of the organism or safeguarding it against injury. The speaker then proceeded to show that underlying both the fear-flight and the anger-attack complexes was the instinct of self-preservation—in the weak developing into fear and running, and in the strong into hostility and aggression. Under circumstances demanding either flight or combat there would be a use of the great muscular masses in the body in supreme, and perhaps prolonged, effort. The sugar which, with the aid of adrenal secretion, was liberated from storage in the liver at times of great excitement would consequently be of immediate benefit to the organism in the strenuous muscular efforts involved in running, confiict, or struggle. The adrenal secretion poured out under excitement would place the muscles of the body unqualifiedly at the disposal of the nervous system. At the same time the difficulty which nerve impulses might have in calling into action the muscles would be practically abolished; this, together with the sugar newly swept into the circulation, would provide the mechanism most efficient for putting forth the utmost efforts. Quite in harmony with this interpretation were the vascular changes wrought by adrenin in cooperation with sympathetic discharges, which gave to the parts called on for action a bounteous supply of blood. The speaker also considered the part played by the adaptive reactions, forced respiration and "sweating," and showed that all of these physiological changes were directly serviceable in making the organism more effective in the struggle which fear or rage might involve.

Dr. Cannon stated that it was commonly recognized that the major emotions had an energizing influence, and cited instances of extraordinary feats accomplished under the impulse of fear. It was highly significant that in periods of great excitement there was no infrequent testimony to a sense of overwhelming strength that lifted a person to a new high level of confidence in his ability. He described the intense satisfaction in these moments of supreme elation and the fascination found in critical dangers of adventure. For these reasons vigorous men went forth to seek danger and to run large chances of injury. In the major sports the conditions were favorable for the development of intense emotional excitement and for the exhibition of great feats of strength and endurance. Football was instanced as an example where all the pomp and circumstance attendant on a great contest made every member of the team to realize vividly his responsibility

for the supreme, all-important result—victory for his group. Last fall twenty-five members of the Harvard University football squad were examined directly after the game with Yale, and in twelve of them glycosuria was found. Five of the twelve were substitutes who did not have a chance to play, and it was clear that the bodily responses in these athletes were wholly analogous to those previously found as accompaniments of strong emotion in the lower animals. Furthermore, the changes in the men were quite as directly adapted to the powerful muscular efforts which their game demanded, as were the similar changes which occurred in the lower animals which were adapted to their occasional fierce struggles for existence. What was true of football was true to a lesser degree of such sports as running, rowing, hurdling.

Dr. Cannon traced the analogy between fear and rage as exhibited in animals in their struggle for existence to those emotions and instincts in human beings which sometimes seize upon individuals in groups and spread like wild-fire into larger and larger aggregations of men, until vast populations were shouting and clamoring for war. The strength of the fighting instinct in man had been one of the main arguments of the militarists. They pointed to the historical fact that even among highly civilized peoples scarcely a decade passed without a kindling of the war spirit which exploded in actual battle. War, they said, was therefore, inevitable. They argued that the warlike qualities were essential to human welfare, and that they must be occasionally exercised lest the people sink into self-indulgence and become weakened and softened. War disciplined character, taught men to be brave and patient, promoted virility and hardihood and renewed a true order of life's values. These arguments were nowadays strongly contested. War had become too horrible; it was conducted on too stupendous a scale of carnage and expenditure; it interfered too greatly with consecrated efforts to benefit all mankind by discovery and invention; it involved too much suffering among peoples not directly concerned in the conflict; it was too vastly at variance with the methods of fair dealing that had been established between man and man; the human family had become too closely knit to allow some of its members to bring upon themselves and all the rest poverty and distress and a long heritage of bitter hatred and resolution to seek revenge. There was, then, a war against war, a willingness to fight against monstrous carnage and destruction that grew in intensity with every war that was waged. The situation thus developed revealed clearly the importance of preserving the martial virtues. What was needed was not a suppression of these capacities to feel and act, but their diversion into other channels where they might have satisfactory expression. As James wrote "We must make new energies and new hardihoods continue the manliness to which the military mind so faithfully clings." Martial virtues must be the enduring cement; intrepidity, contempt of softness, surrender of private interest, obedience to command, must still remain the rock upon which states are built." James suggested what he called "a moral substitute for war," which should consist of such required service in the hard and difficult occupations as would take the childishness and superciliousness out of our youth and give them soberer ideas and healthier sympathies for their fellowmen. He conceived that by proper direction of its education a people should become as proud of the attainment by the nation of superiority in any ideal respect as it would be if the nation were victorious in war. "Strenuous honor and disinterestedness abounded elsewhere. Priests and medical men were in a fashion educated to it, and we should all feel some degree of it imperative if we were conscious of our work as an obligatory service to the state. We should be owned as are the soldiers by the army and our pride would rise accordingly. We could be poor, then, without humiliation, as army officers now are. The only thing needed henceforth is to inflame the civic temper as past history has inflamed the military temper."

In the evidence offered earlier, Dr. Cannon believed, lay the alternative to the claims of the militarists. As James offered a moral substitute so coordinately he offered a physiological substitute for war. It was shown that when as a result of intense excitement the body went onto a war footing a number of fundamental physiological changes suddenly occurred, all of them adapted to the putting forth of supreme muscular and nervous power. That was what primitive battle consisted of, through countless myriads of generations. A comparison of such contests with modern warfare showed that war under modern conditions of the dull grind of drill, the monotonous regularity of subservience, the substitution everywhere of mechanism for muscle, and sometimes even the attack of an enemy beyond the range of vision failed to satisfy the lust of combat. On the other hand, it was a demonstrable fact that strenuous athletic rivalries presented, better than modern warfare, the conditions for which the body spontaneously prepared when the passion for fighting prevailed. In the competitive sports the elemental factors were retained, man was again pitted against man, and all the resources of the body were summoned in the eager struggle for victory. The evidence was wholly clear that under such circumstances the same physiological alterations occurred that occurred in anticipation of mortal combat. For what might be called a physiological equivalent of war Dr. Cannon, therefore, suggested the promotion of great international athletic contests, such as the Olympic games, which would do for our young men much that was now claimed as peculiar to the values of military discipline. Such a substitution of athletic rivalries for battle had been successfully applied among several of the fiercest Philippine tribes. There were other aspects of international games which strongly commended them as an alternative to the pursuit of military discipline. The high standards of honor and fairness in sport; its unfailing revelation of excellence without distinction of class, wealth, race, or color; the ease with which it became an expression of the natural feelings of patriotism; the respect which victory and pluckily borne defeat inspired in competitors and spectators alike; the extension of acquaintance and understanding which followed from friendly and magnanimous rivalry among strong men.

SECTION ON PEDIATRICS.

Stated Meeting, Held May 14, 1914.

Dr. WILLIAM P. NORTHRUP IN THE CHAIR.

Pyloric Spasm.—Dr. MARK S. REUBEN presented this patient, the youngest of three children. The first child died of inanition at the age of three months, having presented the same symptoms as the patient except that they were more severe and persisted until death. The child probably had a hypertrophic stenosis of the pylorus. The second child was five years of age and had always been well. The patient came under observation at the age of eleven weeks. When six weeks of age he began to vomit, the vomiting being projectile in character and taking place from five to ten minutes after nursing. There was steady loss in weight and obstinate constipation. A pyloric tumor could be felt and the peristaltic waves were perceptible. The diagnosis of pyloric obstruction was made. After three or four attempts Dr. Hess succeeded in passing the duodenal tube, thus ruling out pyloric stenosis, and making the diagnosis of pyloric spasm possible. There were four to five ounces retention three hours after nursing. The infant was kept on the breast alone for four weeks, the intervals between feedings being three hours. The child continued to lose weight and all the symptoms persisted. The combined acidity at this time was from 115 to 85 degrees, and there was no free hydrochloric acid. By weighing the infant before and after feeding it was found that he was getting from four to five ounces at a feeding and examination of the mother's milk showed it to be of good quality. Complementary feeding was instituted after four weeks. Two grains of sodium citrate were added to every ounce of milk. Immediately the child began to gain in weight and all the symptoms subsided. A pyloric tumor could no longer be felt and the peristaltic waves were no longer visible. The retention in the stomach gradually diminished. The combined acidity continued to be from 100 to 85, and a trace of free hydrochloric acid was present. The points of interest in this case were: (1) There were two cases of pyloric obstruction in one family, both males; in one case the obstruction was of high grade and led to a fatal termination, while in the other it was mild and led to speedy recovery. These cases lent proof to the statement of Dr. Holt, who was of the opinion that in all these cases there was a real stenosis varying in degree in different cases. (2) The almost immediate improvement when complementary feeding was instituted.

(3) The disappearance of pyloric tumor when the child began to gain. (4) The persistence of the high acidity even when the infant was doing well, proving that the spasm was not due to high acidity. (5) An *x*-ray of the stomach taken since the child was doing well still showed much delayed transmission of food. Therefore too much reliance should not be placed on the *x*-ray findings in these cases but rather more on the clinical phase.

Congenital Hypertrophy of the Left Half of the Face in a boy Seven and One-Half Years of Age.—Dr. SARA WELT-KAKELS presented this patient, whose family history showed no consanguinity, no lues, and no tuberculosis. A sister two and one-half years of age was perfectly healthy. The patient was born at the end of a normal pregnancy. The deformity was noticed at birth. There was nothing abnormal in dentition or in the time of walking or talking. The patient has had whooping cough and measles, and occasionally sore throat, but otherwise has enjoyed good health. The facial hemihypertrophy had retained its proportions in relation to the right half of the face. At present the enlargement of the left half of the face was mainly in the lower two-thirds, not only the soft parts but the bones as well were involved. The enlargement of the cheek was most prominent; the upper and lower lips were much hypertrophied; the left angle of the mouth was drawn downward; the left nasolabial fold was effaced. The left half of the nose was large, but there was no hypertrichosis or coarseness of the hair. In the malar region there was a small elangiectasia about a quarter of an inch in diameter surrounded by a small pigmented area. The action of the facial muscles was somewhat interfered with by the hypertrophy, but the boy could frown, laugh, and whistle. There was a slight diminution in the response to the faradic current, but no disturbance of the sensibility of the special senses. There was sometimes salivation, seemingly from the left side. The mouth was mostly kept open, the left half projecting and the upper lip forming an ectropon. The appearance of the tongue was very conspicuous. It had been said that this organ participated only in the congenital and not in the acquired form of facial hemihypertrophy. The point of the protruded tongue deviated to the right. The left half of the tongue was four or five times the size of the right. The left half of the hard and soft palate, the left tonsil, and submaxillary gland were involved. On the inner surface of the left cheek were a few small tumors about the size of a pea. Like the cheek they gave the impression of lipomatous growth. The left upper jaw was much enlarged and thickened, especially in the alveolar portions, and the teeth were irregularly inserted. The left half of the lower jaw was also involved but to a slighter degree. The boy was otherwise fairly well developed and showed no other abnormalities. He had a good intellect.

Dr. HENRY M. STARK said that in view of the fact that the lipomatous tissue of the cheek and upper and lower lips were the seat of the maximum "giant" growth, it had seemed to him that the enormous hypertrophy was not without surgical possibilities, even though it was quite possible that subsequently, and after a long while, the initial results might have to be revised. That was, that even though some of the excess tissue should now be removed, as it was proposed soon to do, there might be in time a regrowth of this tissue, again calling for its plastic removal. It was proposed to remove in several sittings enough of the excess tissue to give for the present, and it is to be hoped for a long time, a good cosmetic effect. As Dr. Kakels had said, all the histologi-elements in the region were involved in the giant growth. Should the bony structure at any time take on extraordinary growth, any attempt at plastic correction would then be out of question.

The Roentgen Ray as a Diagnostic Help to the Pediatrist.—Dr. L. E. LA FETRA presented this paper. He stated that the value of the *x*-ray as an aid in diagnosis in surgical conditions that involved the bones and joints, and in abdominal and chest conditions in the adult were too well known to require comment. In children the value of the *x*-ray in fractures, dislocations, rachitis, chondrodystrophy, tuberculosis, and syphilis was thoroughly appreciated, but there were also medical conditions in which the *x*-ray made an early and positive diagnosis, which would not be possible otherwise and it was these that the essayist considered, confining himself to such conditions as had come under his personal observation. Enlargement of the thymus gland had been found several times simply as an incident of thoracic examination when there had been no cause to suspect it. The frequent fallacy of percussion in the diagnosis of enlarged thymus had been demonstrated by the *x*-ray. In several instances plates taken for the purpose of showing the extent of an empyema had revealed foreign bodies in the bronchus as the cause of the broncho-pneumonic abscess in empyema. This had directed the treatment along proper lines and proved life-saving. For the detection of abscess of the lung, the extent of empyema, and also in the early diagnosis of pneumonia, the *x*-ray had proved of the greatest value. In pneumonia where it had been impossible by the physical signs to localize the disease, the *x*-ray had shown with great delicacy the beginning of consolidation. Pneumothorax was another condition beautifully shown by the *x*-ray. The *x*-ray and the von Pirquet test had removed the diagnosis of miliary tuberculosis from a region of suspicion to one of certainty. Often unsuspected cavities had been found, usually near the apex and in very young children. The *x*-ray was of service in diagnosing pericardial effusion from cardiac enlargement, and also in showing the best place for puncture of the pericardium. It also enabled one to follow with greater accuracy the increase or diminution in the amount of pericardial fluid. The *x*-ray furthermore gave valuable information in regard to stenosis of the esophagus, especially where this was spasmodic or cicatricial, and it might be of value in pyloric stenosis, though here it was not at all essential and was sometimes misleading. For the diagnosis of early bone syphilis and for the differential diagnosis of syphilis from scurvy and of syphilitic bone disease from tuberculous bone disease, particularly in cases of dactylitis or epiphysitis, the *x*-ray was of the greatest value.

An Application of the Roentgen Ray to Infant Feeding.—Dr. CHARLES HENDEE SMITH presented this communication. He pointed out that the teaching of doctors and nurses for many years had been that the child must be kept at the breast or bottle for twenty minutes, must then be held in a perfectly horizontal position, and be put to sleep at once without change of position. Many mothers did not follow this plan, but allowed the child to take a longer or shorter time for nursing and then held him up against the shoulder after feeding, or prone across the knees or trotted him up and down in a sitting posture; finally, after an interval putting him to sleep. One of these plans must be more desirable than the other. The posture of the child after feeding was of importance because of its relation to vomiting, colic, sleep, and general health. Radiography had shown the fallacy of the old idea that the stomach was vertical in infancy. The cardiac orifice was held firmly to the posterior abdominal wall. The fundus lay in the left paravertebral groove, on the diaphragm, spleen, tail of the pancreas, kidney and mesocolon, reaching a plane considerably posterior to the cardia; since the vertebræ projected forward some distance into the abdominal cavity the pyloric end of the stomach was also pushed forward by the vertebræ, the head of the pancreas and the duodenum, and lay in contact with the anterior abdominal wall and liver anteriorly. The pyloric opening was directed backward to the duodenum, but lay in a somewhat more anterior plane than the cardia. There was therefore an obliquity of the long axis of the stomach from behind forward and to the right as well as from above downward and to the right. The cardiac opening was nearer the most posterior plane of the stomach than it was to the most anterior. The second factor in regard to posture was that there was a certain amount of gas in the stomach of every individual. Practically every radiograph taken in the erect position showed a bubble of gas in the fundus end of the stomach. In the prone position it was not possible to estimate the amount of gas present. The gas in the stomach might be derived from swallowed air, gastric fermentation, and intestinal gas. Swallowed air accounted for the gas in the stomach in the majority of cases. If the child was held in the horizontal position the liquid gravitated to the posterior part of the stomach, and that was the fundus, and forced the gas to the anterior part and to the right end of the body of the stomach and pyloric antrum. Hence it followed that the cardiac orifice situated well back against the vertebral column would be covered by the liquid and the gas could not escape into the esophagus. It could only escape through the pylorus if at all. If the amount of food plus gas was enough to distend the stomach either food or gas must be forced out through the pylorus, or

food must be regurgitated through the esophagus until the tension was relieved on the stomach wall. When the child was held upright the liquid gravitated at once to the most dependent part of the stomach, displacing the gas to the highest point, making it possible for it to escape through the esophagus. Dr. Smith exhibited *x*-ray plates illustrating these points and drew the following conclusions: (1) Regurgitation, colic, and indigestion depended not only on the food but on the manner in which it was given and the posture of the child between feedings. (2) The food must be of proper composition and proper amount. It should be given at as long intervals as possible, depending on the gastric capacity and the total amount of food required per day. (3) A feeding should not be taken too slowly, five to ten minutes being long enough and fifteen minutes being the maximum time. (4) The child should be held upright before feeding to get rid of any gas in the stomach. If air was swallowed in large quantities it was often necessary to interrupt the feeding one or more times holding the child erect until the air had been expelled. Immediately after feeding the child should be held upright against the mother's shoulder and given the opportunity to eructate gas. (5) The child should be placed in bed preferably in the prone position with the head of the bed somewhat elevated. This routine might be followed with every child even though he did not regurgitate. Habitual tongue suckers had to be held up sometimes between feedings.

The Roentgen Ray and Pneumonia.—Dr. HOWARD H. MASON made this presentation, a lantern slide exhibit showing what the *x*-ray revealed in pneumonia. A series of slides demonstrated the correlation between the beginning of the physical signs of pneumonia with the appearance of the shadow showing the beginning of consolidation. Other plates showed that with the disappearance of the physical signs of pneumonia the shadow of consolidation cleared up. The *x*-ray had shown that when a lung cleared it seemed to clear equally all over and not from within outward or from without inward. Quite a change in the shadow was frequently noted within twenty-four hours. In all the early cases before the lung consolidated there was just dullness, but when consolidation extended to the larger bronchi one got all the signs of pneumonia, bronchial breathing, râles, etc. Still other slides showed the differences between the shadow of bronchial pneumonia and that of lobar pneumonia.

Dr. WILLIAM P. NORTHRUP asked Dr. Mason whether in the old-fashioned so-called central pneumonia it was an undiscovered marginal lobar pneumonia that one had.

Dr. MASON replied that it was like the case shown, usually in the region of the scapula and difficult to make out. There were breath sounds, a few râles, and dullness, but no bronchial breathing.

Dr. NORTHRUP said he was reminded of a case in his practice in which the child had a high temperature and slight stupor; in fact, all the rational signs, but no local physical signs of pneumonia. The patient recovered by crisis and went on living. Competent men had seen the case in consultation with him and they all felt chagrined that they could find no local signs of the disease.

Dr. WARD BRYANT HOAG asked why there was so much consolidation shown in lobar pneumonia, while in typical pneumonia with high temperature, rapid respiration, and bronchial breathing, the *x*-ray did not show such a marked shadow. In one case that came under his observation in which there were no physical signs on the sixth day Dr. Kerley was called in consultation and he could make out no local physical signs. On the seventh day they did not take the sounds, but on the eighth day the child began to show physical signs and the first attempt to take the sounds with the stethoscope revealed the lesion, and on that same night the child's temperature fell from 106° to 96° F.

Dr. S. I. HIRSCH said that in regard to the difference between bronchial and lobar pneumonia he did not agree entirely with Dr. Mason. It was the general consensus of opinion that the pulmonary markings were due in lobar pneumonia to the blood vessels passing from the hilum to the periphery; the veins, arteries, and capillaries all took part, and the density was due to the congestion of the blood vessels. The bronchi in the *x*-ray picture seldom showed except at the hilum and then but slightly in contrast to the thick shadow at the base. In pneumonia there were small spots showing the infiltration in the air vesicles. In all bronchial pneumonia there was a tendency to confluence and these small spots tended to coalesce. In lobar pneumonia there was an even density during hepatization and this served to differentiate the two forms of pneumonia.

Dr. NORTHRUP said it was most illuminating to see what had been unearthed by the *x*-ray. In the Presbyterian Hospital Dr. Mason had had a case of tuberculous meningitis in which the lungs showed no signs whatever of tuberculosis and yet the *x*-ray showed the lungs studded with miliary tubercles. The *x*-ray had certainly brought to them a new and valuable aid in dealing with children's diseases. In this case just referred to, at autopsy all the areas that the *x*-ray had indicated as affected were found to be involved.

Roentgen Illustrations of Birth Fractures and Atresia of the Esophagus.—Dr. EDWARD D. TRUESDELL exhibited two roentgenograms showing atresia of the esophagus. The baby from whom the first picture was taken was a full-term child, who when he attempted to nurse suffered from peculiar attacks of choking and cyanosis. Careful examination did not throw any light on the case until an attempt was made to pass a catheter into the stomach. This could not be done and the *x*-ray showed the catheter in the blind pouch which ended at the bifurcation of the trachea and the cricoid cartilage. In the second case the condition was exactly similar. A number of slides were presented showing pressure deformities and fractures of the skull. They had never met with a fissure fracture, all that they had seen having been depressions similar to those of a ping pong ball. Illustrations of microcephalus with irregularities of ossification were also shown. Dr. Truesdell said he had seen ten birth fractures of the clavicle, but that they showed no particular feature; several of them were bilateral and in all union took place. They usually put these up in a figure of eight or a Velpeau bandage. Of particular interest as showing what nature could do in the way of repairing fractures unassisted was a series of plates showing an angular deformity of the humerus resulting from a fracture without displacement. At the end of two weeks there was firm union, but a marked angular deformity. Successive plates showed the angulation becoming less and less, and at the age of two years the humerus was practically normal. The same thing had been shown to occur in other instances. Roentgenograms were also shown of fracture in cases of Erb's paralysis, fracture of the femur, and syphilitic periostitis.

Thymus Obstruction.—Dr. FREDERICK M. LAW said that the first plate exhibited was taken fifteen minutes after death and the findings had been confirmed at autopsy. The child had been operated on for cleft palate, the operation lasting one-half hour. Six hours after the operation the child appeared to be all right. The nurse observed him at this time; then turned to care for a child in the adjoining bed. A few minutes later she looked at the patient and he was dead, having died without a struggle. The plate showed the enlarged thymus of the cap variety holding down over the heart. This was a case of status lymphaticus. A second plate showed an enlarged thymus of somewhat different shape.

Types of Infant Stomach.—Dr. LEON THEODORE LEWALD gave this lantern slide exhibit. He first showed an illustration of an intussusception in an infant. The exact location was not apparent from the physical examination as the tumor could not be made out, but by means of the *x*-ray the tumor was located so accurately that the incision could be made directly over it. At operation the intussusception was found to be exactly where the *x*-ray had indicated. A series of roentgenograms showed the variations in size, shape, emptying time, and the amount of gas in different stomachs of infants. The supreme test of stomach function in infants as in adults was the emptying time. Even peculiar shaped stomachs were able to empty themselves in a reasonable time. The *x*-ray was sometimes a positive help in making the differential diagnosis between pylorospasm and pyloric stenosis, and in deciding whether an operation was necessary or not. The roentenogram from one case showed a small amount of food passing the pylorus; this case went without operation and got well. On the other hand, in another instance it was found that nothing had passed the pylorus in twenty-five minutes, and even at the end of an hour nothing had passed, and it was decided that operation was necessary. Two illustrations of congenital syphilitic stomach were shown. Both children

gave a marked Wassermann reaction. In one of these cases there was a cicatricial area in the lower half of the stomach and an enteroanastomosis was done. The child did well for about a week when she began to vomit and another *x*-ray examination gave the clue to the trouble. The esophagus was found to be very much dilated on account of the small cardiac pouch and by feeding small quantities of food the child finally recovered. Roentgenograms taken two years or more after operation for congenital pyloric stenosis showed the food passing through the gastroenterostomy opening. If one could decide on the proper cases, one need not hesitate to operate since the results had been shown to be very satisfactory.

Hysterical Brachial Monoplegia Following Electrical Shock.—P. Stewart reports the case of a patient who was treated for this condition for two and a half months by various forms of electricity and numerous psychical and sensory stimuli, but without success. On the contrary, the total flaccid paralysis of the left upper limb persisted and the anesthesia advanced proximally on the trunk so as to include the outer part of the pectoral region in front and of the scapular region behind. Suggestive treatment by attempted hypnosis was assiduously carried out for a number of weeks. No improvement having resulted after two and a half months of hospital treatment, it was decided before discharging the patient to try the effect of administering a general anesthetic in the hope of loosening the hysterical obsession during the stage of delirium preceding general anesthesia. Accordingly the patient was placed on a couch with the healthy right arm fixed to his trunk by means of a bandage. Ether and nitrous oxide were then administered, freely mixed with air. Within a few moments the patient began to make purposive movements with the "paralyzed" left arm and these soon amounted to violent fighting movements, in which he endeavored to tear away the anesthesia mask from his face. While the patient was in this excited condition numerous suggestions were made to him that he should move his paralyzed arm in various directions, these suggestions being accompanied by various painful stimuli—*e.g.* twisting the ear, pressing the supraorbital notch, etc. During this stage it was also suggested that his unaffected right arm should become temporarily analgesic to pin-pricks, and this duly occurred. It was then suggested to him that all his sensory and motor symptoms should disappear. On recovery from the effects of the anesthetic patient had lost his previous anesthesia and was able to move both upper limbs in the normal fashion. He has since remained well. The paralysis of the left upper limb has lasted over eleven months from the time of the original electric shock.—*Proceedings of the Royal Society of Medicine.*

Multiple Idiopathic Pigment Sarcoma Treated by X-Rays.—J. H. Sequeira reports the case of a male patient suffering from Kaposi's so-called multiple idiopathic pigment sarcoma, to show the remarkable improvement under *x*-ray treatment. The case was an early one, characterized chiefly by chronic purplish infiltration of the feet and ankles, and to a less degree of the wrists and backs of the hands. There were a few small nodules upon the generally infiltrated areas. The *x*-ray treatment was begun in August and was repeated at somewhat irregular intervals. In all, each part affected received about 50 H units, the applications being made through a screen of aluminum 0.2 mm. thick. There had been no reaction. The condition of the infected areas was now completely changed, the skin was of normal consistence, and the purplish tint had gone. Beyond some brownish staining of the parts there was no evidence of the disease.—*Proceedings of the Royal Society of Medicine.*

Therapeutic Hints.

Treatment of Pulmonary Edema.—J. E. Talley points out that the aim should be to equalize the work of the two ventricles. The pulse tension gives the most important clue to treatment. If there is hypertension glyceryl trinitrate, 1/100 to 1/50 grain, is indicated. Dry cupping of the entire chest should be practised: and if the condition is severe venesection should be performed, a small amount of blood being withdrawn, but as much as 400 to 600 c.c. may be removed. It may be advisable to inject with the glyceryl trinitrate morphine sulphate, $\frac{1}{8}$ to $\frac{1}{4}$ grain. If there is much cyanosis oxygen is useful. Atropine, 1/100 to 1/50 grain, is commonly recommended in acute pulmonary edema. The chief objection to its use has been its marked vasomotor stimulant influence, with consequent rise in blood-pressure. This effect is avoided if a large dose, 1/50 grain, is used. In patients with rapid feeble pulse and evident hypotension quick diffusible stimulants as aromatic spirit of ammonia, whiskey, citrated caffeine, camphor, and even digitalis hypodermically are to be used. In this condition atropine has not even a theoretical contraindication. Morphine, oxygen, and the dry cupping should be used. As regards suprarenal extract, Kinnicutt and Forchheimer reported that it acted favorably, but Meltzer and others have condemned its use, inasmuch as in experimental work suprarenal extract produces acute pulmonary edema. In view of these conflicting results it would seem advisable in acute pulmonary edema to use suprarenal extract only as a last resort. Haven Emerson has recommended the use of artificial respiration if there is cardiac insufficiency. In the type of pulmonary edema associated with subcutaneous edema heart stimulants and diuretics are usually indicated. In the chronic and recurrent form the salt-free diet should be given a trial.—Musser and Kelly: "Handbook of Practical Treatment."

The Legume Treatment in Diabetes.—Marcel Labbé has found that a leguminous diet is of particular service in the treatment of diabetic patients in whom malnutrition is marked. The following daily regimen is ordered: dried legumes, 300 grams; butter, 150 grams; 5 or 6 eggs; 5 or 6 aleuronat rolls or 30 grams of gluten bread. The legumes (peas, beans, or lentils) should be well baked in order that they may be easily digested. It is not necessary that they should be served in the form of a purée unless the patient's digestion is very weak. The above ration suffices for three or four meals. It should be repeated for at least three days, and even for a week with good results. In simple case of diabetes without nitrogenous denutrition, this method of treatment occasionally causes a rapid disappearance of the glycosuria. It is of particular service in the case of hearty eaters. In diabetes with moderate denutrition the legume treatment leads to a diminution or an arrest of acidosis. In the cases of denutrition with acidosis the treatment is of particular value. The treatment is carried out usually for three or four days and is repeated every ten or fifteen days. The effect of the legume diet is similar to that produced by the oatmeal cure, but is superior in these respects: the diet is better borne, is more satisfying to the appetite, maintains the patient's strength to a greater degree, diminishes to a great extent the glycosuria, and combats more effectively the nitrogenous waste.—*Revue de Médecine.*

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THE TREATMENT OF ADVANCED PULMONARY TUBERCULOSIS.*

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I DO not believe that I need to present an apology for the selection of this subject. I believe we all are more or less guilty of the neglect of this class of cases. By saying this I do not wish to imply any wilful neglect or lack of sympathy on our part, but I rather wish to convey the idea that in our enthusiasm to cure the early and apparently curable cases we fail to study and search for more and better means to render the lives of the advanced and often seemingly hopeless cases more comfortable.

I do not blame the many sanatorium directors of private and also of municipal or state institutions for preferring to have their institution known as one for early cases only. We all like to obtain good results, we all love to have our statistics make the best possible showing with the greatest number of cures or at least arrested cases. But to treat and care for the advanced case, to make him comfortable, diminish his suffering, prolong his life, and even make it happy and when possible to bring about a decided improvement, is also worth the while. And last, but not least, by taking good care of the advanced case in a special hospital, sanatorium, or a suitable home where isolation can be carried out, we diminish an important and often dangerous center of infection.

In the treatment of an advanced case whose condition demands care in bed for the greater part of the time, there is to my mind nothing more essential than to have two beds, one for the day time and one for the night. Each bed should be comfortable with covering according to season. In winter there should be used a device to support the heavy coverings, arranged in a manner so as to keep the feet and body warm and still not interfere with the comfort of the patient (Fig. 1).

While fresh and constantly pure air is as essential for the advanced case as it is for the early one, I consider the exposure of a patient in the last stages of the disease to the cold, biting air of the winter months unnecessary and rather inhumane. There are occasionally a few individuals suffering from pulmonary tuberculosis in the advanced stages who like to be out of doors or have their windows wide open in midwinter, but these are relatively few in number. As a rule, their anemic condition makes them very susceptible to the cold from which they suffer unless the room they are in is comfortably warm. In the homes of the well-to-do and in sanatoria, beds can be arranged and placed so that the patient can have the necessary amount of fresh air without suffering from the cold. An indoor window-tent, such as it was my privilege to devise some years ago, is to my mind the only means by which we can render the poor consumptive fairly comfortable at his home (Figs. 2, 3, 4). The amount of incoming cold air and the egress of warm air can be regulated so that the patient will not be subjected to drafts. If the patient is obliged to take his meals in bed, he should be propped up in a comfortable manner (Fig. 5), and the window should be closed when it is cold out of doors so that the room can be warm while he takes his meal. If it is possible, the patient's bedroom should be in close proximity to toilet and bathroom. At night he should be supplied with a urinal and a larger receptacle into which he can empty it so that he will not be obliged to leave the warm bed and be exposed to sudden changes of temperature.

For the well-to-do advanced case of tuberculosis, desiring to be cared for at home, there are several types of newer constructions for outdoor sleeping devices which seem to me particularly adaptable because they can be attached directly to the bedroom. When the weather becomes inclement the patient can walk or be transferred into his bedroom and on the return of fair weather he can occupy anew his outdoor porch.

There is first the comparatively cheap and light construction known as the Mitchell porchet, of which I give an illustration (Fig. 6), and which is self explanatory. It can be easily attached to any building, particularly frame buildings. The weight of this porchet is between 300 and 350 pounds. It is manufactured by the American Porch Construction Works, 305 East Madison Street, South Bend, Ind. Similar arrangements can be obtained with the aid of the so-called "Hanging Sleeping Porch," made by the Korff Manufacturing Company, Lansing, Mich., and the Robert Henry Manufacturing Company, of Pueblo, Colo., known as the Henry Sleeping Porch.

The Co-Ran Fresh Air Bed is also an ingenious device, enabling the patient to sleep out of doors when the weather is mild, and indoors when it is either too cold or too stormy, or when the patient for some other reason desires to remain indoors. Hence it is particularly adaptable for the advanced cases of tuberculosis. The bed rests in a small alcove, extending outside about 2½ feet. The dome-shaped ceiling of the alcove revolves, and by simply swinging it around to the inside the occupant finds himself out in the open, protected by a heavy wire screen and adjustable storm curtains. By reversing the operation, the bed is again inside (Figs. 7, 8, 9).

In New York City, where the fire laws are very

*Read before the Clinical Section of the National Association for the Study and Prevention of Tuberculosis, Washington, May 7, 1914.

severe and strictly enforced, a wall house or star-nook, made of corrugated iron, makes an ideal out-door sleeping device. I am showing a photograph of the one I am using myself. The four illustrations of it (Figs. 10, 11, 12, 13) show how this device serves

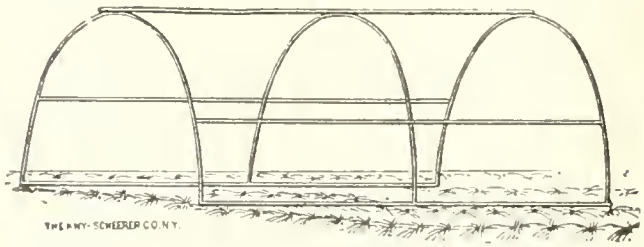

Fig. 1.—Device for supporting heavy bed-clothing.

in all kinds of weather and how its shutters are manipulated to allow free access of air and still assure absolute privacy. In order that all these devices have easy access and exit, it is essential that the window communicating with the outdoor sleeping arrangement should be cut down to the floor and changed into a door so that the patient can walk or be carried easily from the bedroom and back again.

The patient should have a pocket flask with water-tight cover preferably of oval form and metal, so as to be unbreakable (Fig. 14), which he can place under his pillow ready to receive his expectoration. This will do away with the necessity for him to reach out from the warm bed and bend over, thus exposing his back to the cold when he is obliged to expectorate. He should also have within easy reach some soft and slightly moistened cloths to wipe his mouth after having expectorated, or to directly receive the sputum, if manipulating the pocket flask is too much of an effort for him.

The garments which the patient wears in bed should also be according to season. Whenever the circumstances of the patient permit its use, I recommend the linen-mesh underwear and night-gowns. I prefer this material for two reasons. The linen-mesh material allows a freer respiratory action of the skin and the linen material will dry much more quickly when moistened by perspiration than cotton, wool, or silk. An additional pleasant feature of this underwear is an agreeable sensation produced by the friction of the linen-mesh on the skin. It goes without saying that a patient must always have two

Fig. 2.—The Knopf window-tent in position with patient in bed looking through celluloid window into the room, but breathing out-door air only.

sets of underwear—one for day time and one for night. Although there are various weights of linen-mesh on the market, in the advanced cases even the heaviest is not sufficient to keep the patient warm. Under such conditions I recommend the patient to wear one of his old cotton, silk, or flannel shirts over the linen-mesh, the latter to be in contact with the skin.

In winter woolen socks will help to keep the patient's feet warm, and in cold weather the patient

Fig. 3.—The Knopf window-tent when not in use.

should never enter the bed without its having been previously warmed. It is remarkable how even the advanced cases can stand the cold air much better if the bed is thoroughly warmed before the patient gets in and if a hot water bag is placed at the feet and one near the chest to keep him warm during the night.

In warm weather, or rather let me say, in hot weather, an electric fan, when properly placed, will often give an infinite amount of comfort to the suffering consumptive in the latter stage of the disease. Little down pillows placed under the small of the back for a while, or in other places, often give great comfort to the sufferer who is obliged to remain in bed all the time. Of course, in some instances rubber air cushions may become necessary.

The care of the skin of these patients is essential to avoid bed sores and other unpleasant complications. A weekly or semi-weekly inunction with some non-irritating oil, fat, or emulsion (olive oil, lanolin, or white vaselin) will act as a good preventive of skin erosions. Face, hands, and hair should be kept clean and tidy. No male patient in the advanced stage should wear a beard, and if he does not

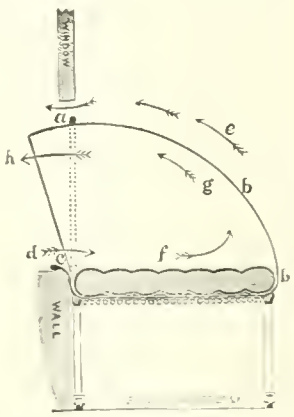

Fig. 4.—Diagram showing ventilation of the Knopf window-tent.

wish to part with his mustache he should at least have it closely clipped.

To diminish any possibility of the spread of the disease by infection of personal or bed linen, everything that comes in contact with the patient should

be of a material that can be boiled and easily washed. For this reason I strongly disapprove of the practice of letting the patient sleep between blankets instead of sheets, and I furthermore recommend that all blankets and comforters, puffs, etc.,

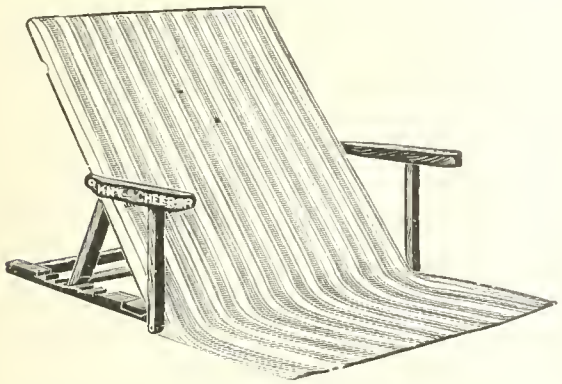

Fig. 5.—Adjustable back-rest.

should be covered with sheeting or slipped into large cases made for the purpose which can be easily removed and washed when soiled with sputum and saliva.

The room which is selected for the patient should, if possible, have a pleasant and cheerful outlook. To remain in a bed from which he can see nothing but the four walls is depressing often to the extreme. While the walls should preferably be oil-painted so that they can be washed off from time to time, they need not be without decoration or pleasing and cheerful pictures; and while I am opposed to fixed carpets and heavy curtains, a rug or two and washable curtains should be permitted. Let us not make the room, which in many instances must be the last home of the patient, into a cheerless place, resembling a prison cell more than anything else; but on the contrary, let us make the private rooms or the wards destined for advanced cases as attractive and as beautiful as possible.

It goes without saying that there must be protection against flies and mosquitos in the sick room of the consumptive. If the patient sleeps out of doors, his bed should be screened in summer and all precautions tending to do away with the fly pest should be taken. The sputum receptacles used by the patient should always be covered to make the access of flies or other insects to them impossible. Patients sleeping out of doors or with the windows wide open are often awakened by the glaring light. I know of nothing better to prevent this annoyance than to place over the eyes a band of some light weight black material and I find the leg of an old lisle thread stocking the most convenient thing, as this material is least heating of all.

The symptomatic treatment of the advanced case is perhaps the most important of all, for it is the numerous symptoms which accompany a pulmonary tuberculosis in the last stages and the complications which arise that tax our skill often to the utmost. There is first the distressing cough. In the earlier stages we may teach our patients to master their cough by discipline and insist that they should never cough unless they feel that they have to expectorate. But all those who have had experience with advanced cases will bear me out when I say that it is a very difficult thing to discipline a cough in the last stage of pulmonary or laryngeal tuberculosis. Nevertheless, the patient should be told to make an effort to control useless coughing (when he does not feel that he has to expectorate) either by a quick inhalation, by holding his breath, or by taking sips of cold water or small pieces of cracked ice.

Now what can we do to make the cough less painful or less frequent? There are besides the hygienic measures—air and quiet—some dietetic ones. I know that an increased ingestion of chloride of sodium, which has a very beneficial influence on the tenacious pulmonary secretions which are so often productive of violent and painful coughing, is a valuable dietetic adjuvant in the symptomatic treatment of pulmonary tuberculosis. It not only acts beneficially on the pulmonary secretions in rendering them less tenacious, but also has a tendency to counteract the demineralization which is always characteristic of a tuberculous disease. An individual eating much salt is, of course, also obliged to ingest more liquid and this in turn helps to counteract the often obstinate tendency to constipation in the tuberculous individual, on which topic we will speak later on.

A hot orangeade taken early in the morning, immediately after awakening, acts likewise as a pleasant expectorant. It aids the patient to get rid of the pulmonary secretions accumulated over night. He will naturally cough a good deal at that time, but the cough will be made easy by the hot orangeade, and after having made this "toilet of his lungs," so to speak, in the morning, he will be relatively free from cough during the day.

Some patients in the latter stages of the disease cough so violently that every muscle in their chest becomes sore and this is accompanied by a succussion of the entire thoracic frame. Under such conditions nothing feels more grateful to the patient and relieves his suffering more than a tightly drawn flannel band around the chest. If the pain is limited to one side of the chest, strapping the affected side with adhesive plaster will also give relief.

I cannot offer anything new in the medicinal

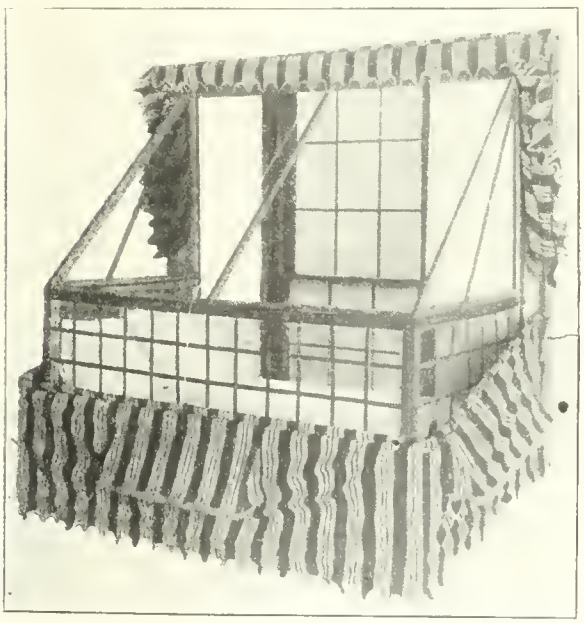

Fig. 6.—Mitchell porchet, can be adjusted so as to be suitable in all kinds of weather.

treatment of cough. Nearly all expectorants are good, and in many instances it becomes necessary to combine them with heroin, codein, or morphine. But before resorting to any of the well-known cough mixtures, I invariably try to obtain relief with in-

halations, and my favorite one is the eucalyptus oil, 3 parts, the spirit of chloroform, 2 parts, and the menthol, 1 part. Of this I give 15 to 25 drops on a Beverley Robinson inhaler or on a handkerchief, to be inhaled several times a day for 10 to 20 minutes.

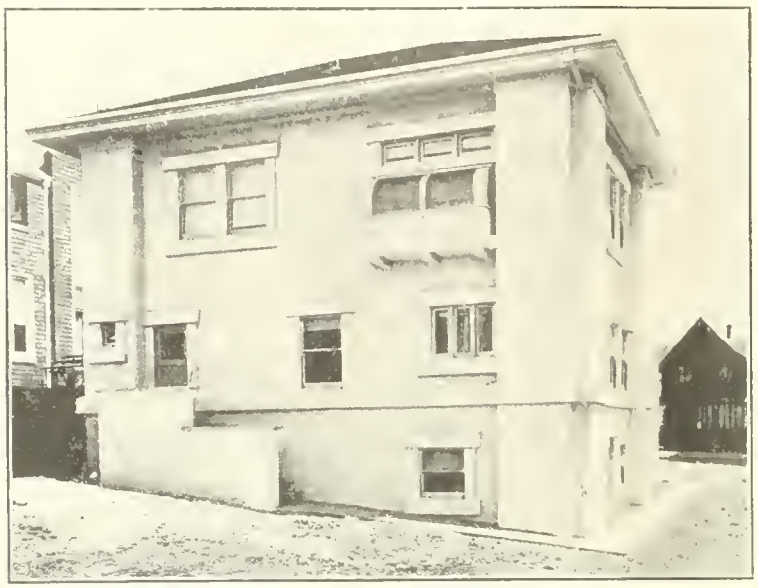

Fig. 7.—Co-Ran fresh-air bed attached to upper floor.

If the patient has no objection to the odor, the menthol can be replaced by the beechwood creosote. Sometimes the steam atomizer, medicated or non-medicated, can be advantageously used in tenacious cough. King recommends the following:

℞	Creosote (beechwood)	6%
	Menthol	2%
	Oil eucalyptus	12%
	Tinct. benzoin Co.....	80%

A teaspoonful of the mixture should be added to a pint of boiling water in an inhaler or croup kettle, and the vapor inhaled.

A gaseous pineen ozonide ($C_{10}H_{16}O_3$) produced by combining pure ozone and the officinal oleum trebinthinæ rectificatum of the pharmacopeia, which was recently presented to the profession by Dr. Bertram H. Waters, of New York, has in some cases of advanced pulmonary tuberculosis under my observation been quite helpful in combating tenacious and persistent cough. It has also proved of beneficial influence in the secondary anemias and as a general tonic to the enfeebled system. The general benefit of terpezone action is probably due to its germicidal powers on certain pathogenic microorganisms, which, by their association with the tubercle bacilli, are the cause of the distressing symptoms of mixed infection.

The anemia almost invariably accompanying the advanced stages of tuberculosis may be combated dietetically and medicinally. Raw, scraped beef, spinach, lentils, peas, cooked by the steaming process so as to have all the salts contained in the vegetables retained, the iron tropone (an albumen food product), tincture of iron, ovoferrin, and the various arsenical preparations, given in small doses, are the best means at our command for the symptomatic treatment of anemia.

In treating the distressing dypnea and thoracic pains we meet with so often in the advanced cases of pulmonary tuberculosis, I have found the old-fashioned dry-cupping a most valuable remedy. Sometimes the vague and undetermined pain can be relieved by a wet pack consisting of a cold compress over the apices and a wider one around the thorax, the whole covered with flannel. I like this better than the typical Priesnitz compress with its intervening layer of oil-silk. I do not favor the actual cautery recommended by French phthisio-therapeutists, nor blistering, nor the too frequent application of iodine. I would rather give the mustard plaster the preference. Of course, in some instances the dyspnea and pain are so intense, particularly in the last stages, that strychnine, nitroglycerin, or morphine alone will give relief.

High temperature in the advanced tuberculous cases is another symptom most exceedingly difficult to combat. Fresh air, repeated partial sponging with lukewarm water every two hours, particularly in the afternoon, the ingestion of plenty of cold water, ice bags or coils with circulating cold water over the head and over the heart, pyramidon in 3 to 5 grain doses 3 to 4 times a day, according to indications, are in my experience the most efficacious remedies ordinarily at command.

Against the troublesome night sweats, likewise a result of mixed infection, the fresh, pure, and cold air, whenever we can get it and if the patient can stand it, is our best non-medicinal remedy. The fact that sometimes the advanced case of tuberculosis, when accustomed to outdoor life and cold weather, feels best in the coldest weather has made

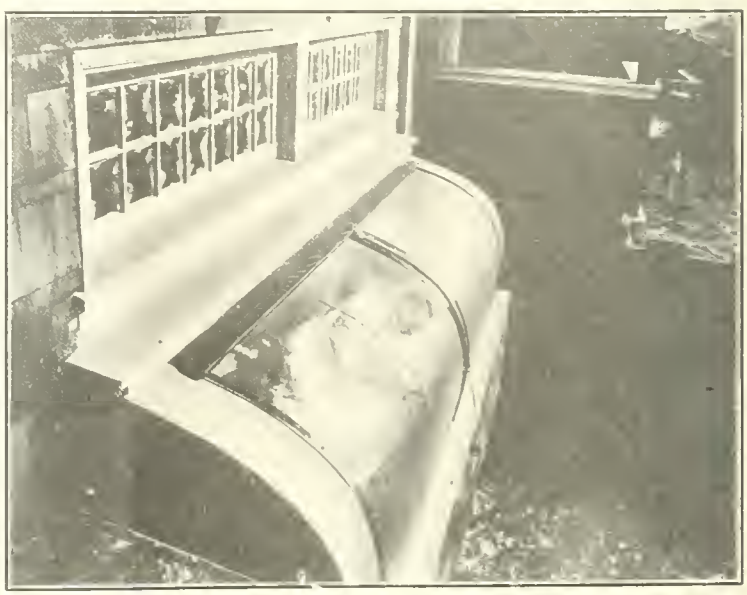

Fig. 8.—Co-Ran fresh-air bed with patient outdoors.

me think that if we could arrange in our sanatoria some sort of artificially cooled air chamber where the temperature could be graduated, and here place our highly febrile cases, we might perhaps be able to count a few more recoveries or at least improve-

ments. When medicine is needed, the atropine tablets of 1 100 or 1 60 of a grain, 5 grain powders of agaricine, or the same quantity of pyramidon may have to be resorted to to combat hyperhydrosis. A little dietetic adjuvant which I have often found helpful with my phthisical patients when suffering from night sweats, is a midnight luncheon consisting of a glass of milk and one appetizingly arranged sandwich for the patient to take when he awakes weakened because of perspiring.

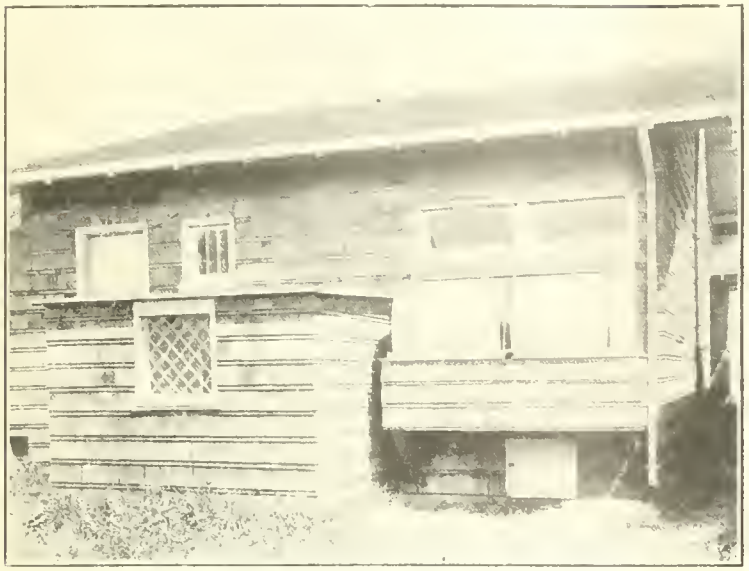

Fig. 9.—Co-Ran fresh-air bed with patient indoor.

Artificial pneumothorax, with a view to compressing the most affected lung to diminish the absorption of toxins and thus diminish fever and night sweats, must be considered as one of our most valuable modern therapeutic means in treating advanced pulmonary tuberculosis. Unfortunately we do not always succeed in performing a successful therapeutic pneumothorax because the advanced pulmonary case usually presents numerous pleuritic adhesions which make the entrance into the intrapleural space exceedingly difficult and sometimes impossible.

Insomnia, when not merely due to the distressing cough, can often be overcome by taking one of the well known hypnotics, such as trional or veronal with hot milk a few hours before retiring. One should, however, remember the depressing influences of these drugs and only give small doses and not constantly.

The gastrointestinal disturbances which manifest themselves almost invariably in the advanced cases will task the ingenuity of the attending physician. One will not only have to examine carefully the character and composition of the stool to discover possible dietetic errors and correct them, but must also study very intimately the idiosyncrasies of the patient appertaining to certain foodstuffs and his likes and dislikes. Sometimes the patient's intestinal tract has been impaired by overfeeding.

Anorexia, flatulence, and constipation alternating with diarrhea, may be the result of more functional disorders due to tuberculous invasion of the intestinal tract. One thing always to be thought of in combating anorexia is the oral hygiene. The teeth must be kept in as good a condition as possible. They should be brushed after each meal and the mouth kept clean by refreshing cleansing washes. A light mixed diet is the first thing to be insisted upon. Tonics may be indicated, and one of my favorite prescriptions for this condition is the following:

℞ Tinct. nucis vomicæ 5ii
Tinct. cinchonæ
Tinct. colombæ .....aa 5i
Tinct. gentianæ. ...q. s. ad. 5iv

M. S. One teaspoonful in three tablespoonfuls of water before meals.

Constipation in the tuberculous must be treated the same way as in other persons—first dietetically by ingestion of more liquid and the use of whole-wheat bread and stale or hard crusted bread, instead of the typical American doughy white bread, more fruit, and vegetables cooked by the steam process. If this does not suffice, medication becomes necessary, but it must always be varied. One should never give the same remedy a long time in succession, but rather alternate with calomel, the saline preparations, castor oil, cascara sagrada, etc.

Ten to fifteen drops of diluted hydrochloric acid given in one-third of a glass of hot water with meals will often help functional disturbances of

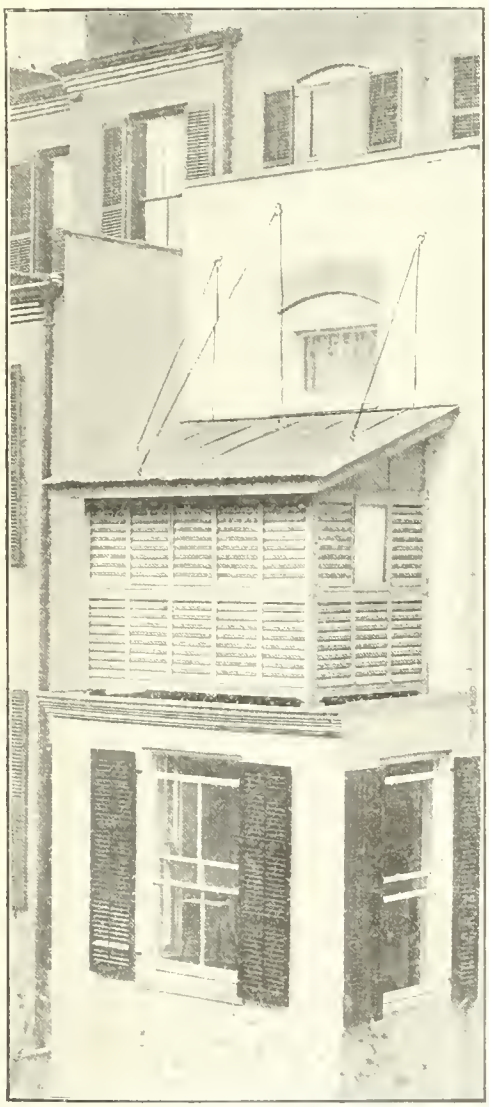

Fig. 10.—Wall house or "star-nook," Knopf model; particularly suited for the treatment of advanced cases at home.

digestion. Flatulence and diarrhea will be benefited by leaving off the carbohydrates in the diet; a mere milk and vegetable diet will prove valuable in combating this trouble.

The typical intestinal tuberculosis must be

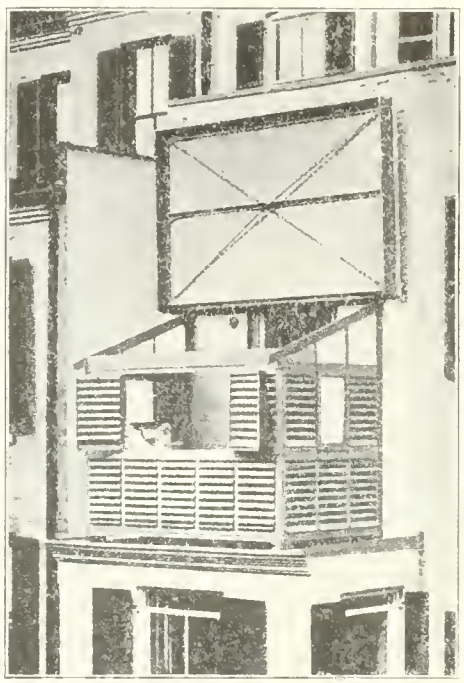

FIG. 11.—"Star-nook" transformed from a night-shelter to a pleasant rest-cure porch by day.

treated with careful liquid or semi-liquid diet; fruit and green vegetables should be avoided. The following two prescriptions are the ones which have rendered me the best service:

℞ Pulv. opii ..... gr. iii
Bismuthi subnitrate 5iss
Sodii bicarbonat ..... gr. xlv
M. F. in chart No. 9.
Sig.: One powder three to four times a day.

℞ Pulv. opii ..... gr. vi
Acid tannici 5i
M. F. in chart No. 12.
Sig.: One powder every 4 to 6 hours, as needed.

King, in his article on Tuberculosis in Forchheimer's "Therapeusis of Internal Diseases," says that colonic irrigations with silver nitrate (1 5,000 solution) seem to have a palliative effect in certain cases and may be tried.

Pulmonary hemorrhage in the advanced cases may vary in degree and duration just as it does sometimes in earlier cases. Quiet in bed and the controlling of the cough is, of course, indicated, no matter whether the hemorrhage is slight or severe. Morphine will perhaps always remain the most important remedy in pulmonary hemorrhage, and locally the application of ice to the chest wall, particularly over the heart, should also be considered indispensable. Emetine (hydrochloride ¼ to ½ gr.) or coagulose may also render good service.

In a severe pulmonary hemorrhage, the immediate thing to do is, of course, to ligate the upper and lower extremities with the aid of a silk handkerchief, flannel band, or some instruments specially devised for that purpose (Assalinische Schnallen) to diminish the flow of blood to the thorax. These ligations of arms and legs are made as near the trunk as possible, and just tight enough to hinder the return of the venous flow, but not to compress the arterial pulse. Every half hour or so, the bands should be loosened, provided a too painful compression of some nerves or a threatening anemia of the brain does not demand an earlier removal of the ligatures. Under ordinary circumstances these constricting bands can be renewed after short intervals as often as the condition of the patient may indicate. A hot water bag should at the same time be placed at the feet. To lower the arterial pressure the pituitary extract might be advantageously resorted to. If the reverse effect is desired, that is to say, if the hemorrhage has about ceased and there has been a considerable shock and a cardiac stimulant is indicated, adrenalin might be given in small doses, for example 5 drops of a 1 1000 solution.

In constantly recurring hemoptysis when there seems to be no tendency to clot formation, the use of fresh horse or rabbit serum' seems to be of value. I have only had experience with the fresh horse serum, and found that 15 to 25 c.c. injected for two to three days consecutively was most efficacious. Dr. M. Nicoll, Jr., who is in charge of the laboratory for making and distributing sera for the Health Department, and through whose courtesy I came into possession of the serum, writes me concerning the indication for the use of horse serum in hemoptysis as follows: "The cases that seem to respond favorably to the action of the horse serum are those who have a steady oozing from their lungs with occasional small hemoptysis. The ordinary procedures, *i.e.* rest, sedatives, ice, of course should not be omitted. The average dose for an adult should be 10-20 c.c., given hypodermically every 12 to 24 hours until results have been produced—say up to six or eight doses if necessary; 50 to 100 c.c. have been used I think unnecessarily and with no better result than from smaller doses. A serum rash perhaps with some rise of temperature may be expected in many cases. No bad results have, to my knowledge, followed the use of serum for this purpose. In asthmatic cases a few drops should be used at first and ten minutes allowed to elapse

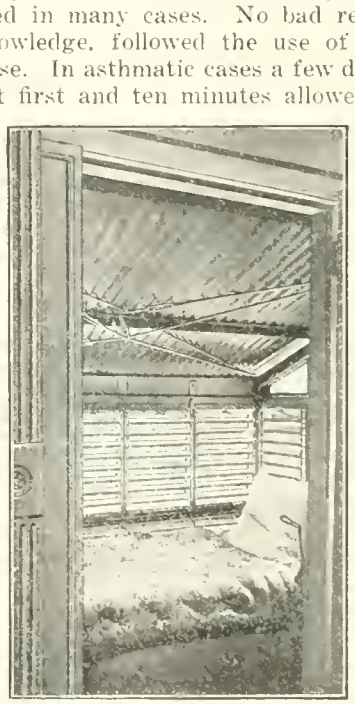

FIG. 12.—Interior of the "star-nook" with windows, roof, and shutters closed; view from adjoining room.

before giving the full dose in order to ward off the danger of anaphylaxis."

Of course, when it is possible to perform an artificial pneumothorax there seems to be no remedy which acts more promptly to check a seemingly un

controllable hemorrhage than this operation. I had remarkable success in a number of such cases with this procedure.

I have nothing new to offer in the treatment of the complications which so often arise in the advanced case. I refer to grippe, pleurisy, and pneumonia. Preventive measures are perhaps most important after all. During influenza epidemics let the patient not be visited by friends, nor nursed, or cared for by nurses or doctors suffering from the grippe, no matter in how slight a degree. The prophylaxis of pleurisy or pneumonia as intercurrent troubles in phthisical patients is more difficult, yet here too we can often guard against exposures and sudden changes of temperature.

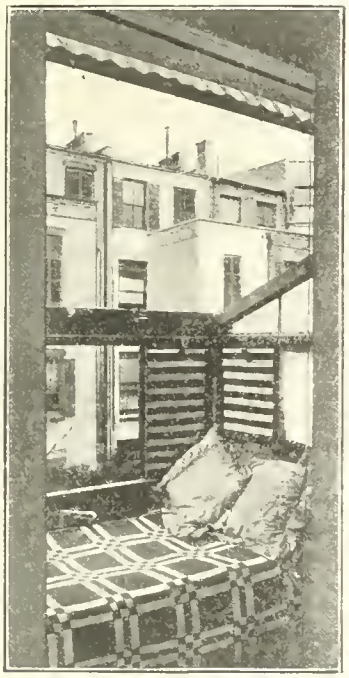

Fig. 1.—Interior of the "star-nook" with windows, roof and shutters open. View from adjoining room.

Now we come to the most painful of all complications in pulmonary phthisis, *i.e.* laryngeal tuberculosis. So long as the patient can be treated locally it often alleviates conditions to give intralaryngeal injections such as are recommended by Shurley (guaiacol (2½ per cent.), menthol, and camphor, of each 2 grains in olive oil).[2] A local application of a 20 per cent. solution of argyrol may also prove beneficial. Lactic acid, in my opinion, should not be resorted to except in very mild solutions because of its painfulness. For painful deglutition there is nothing better than a spray of 5 to 10 per cent. solution of cocaine before meals. Swallowing may also be made more easy by assuming the Wolfenden position. "The head is hung over the bed and the liquid drawn through a tube from the glass upon the floor. In this manner the patient drinks like a horse." (Shurley.)

The local ulcers can often be touched with nitrate of silver, and Freudenthal even recommends fulguration for the cure of these tuberculous laryngeal ulcers. When the patient becomes so weak as to make local application impossible, or they are no longer effective, one may resort to deep injections of alcohol into the region of the nerves supplying the larynx.

We have up to date no better means to relieve the distressing symptoms in advanced laryngeal tuberculosis. The injection of alcohol is now successfully practised by a number of laryngologists and phthisiotherapeutists. E. A. Davis recommends for this purpose a solution of two grains of eucaine in an ounce of 80 per cent. alcohol. Hoffman of Munich, who originated the treatment, uses the alcohol at 85 per cent. without the eucaine, and Freudenthal also omits the eucaine.[3] It would seem that Davis' method is to be preferred.

The modus operandi is as follows: The patient is placed on his back with the head and neck slightly extended. By pushing the larynx toward the affected side the most painful spot can usually be detected with the finger. Then the chin is turned away from the side which is selected for the injection. To avoid sepsis the skin in the region of the nerve is painted with iodine. The larynx is pressed out of the mid-line by the thumb and made to project on the side about to be injected. The nerve is marked out by the nail of the index finger, which is placed between the hyoid bone and the thyroid cartilage and immediately above the superior thyroid tubercle. The most painful spot is once more determined and into it the blunt needle of Schlosser's syringe is pushed with a jerk at right angles

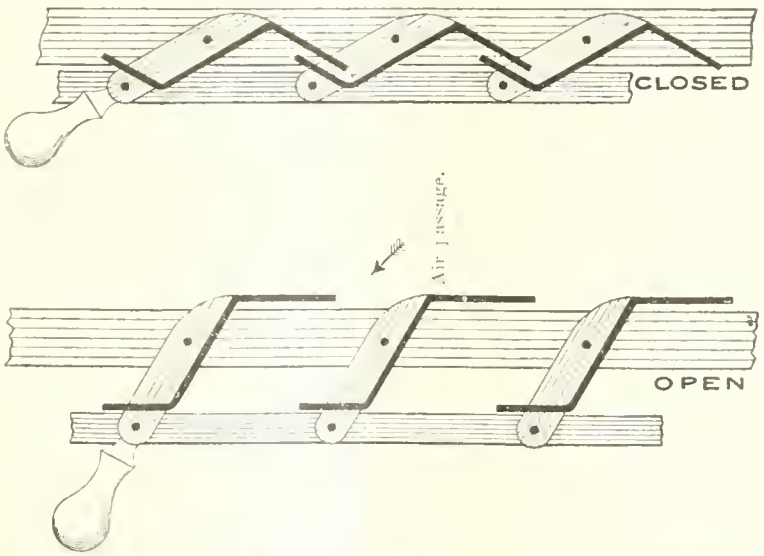

Fig. 14.—Diagram showing the mechanism of the movable iron slats of the "star-nook." (Knopf model.)

to the surface and at the middle of the finger nail to a depth of $1\frac{1}{2}$ cm., *i.e.* to the mark on the needle. A strong blunt needle should always be used so as to avoid injury to blood-vessels and the breakage of the needle. The needle is carefully moved so as to seek the spot on touching which the patient complains of pain in the ear. A few drops of the solution of alcohol are injected, and if there is a violent fit of coughing it indicates that the needle has possibly entered the pharynx and is too deep, but this very rarely happens. Finally, the slightly warmed alcohol solution (heated to about 112° F.) is injected until the pain in the ear has ceased. The initial pain after first injection is sometimes quite severe, but after its cessation a second injection can be made when the patient will feel little or no pain whatsoever. About 1 to 2 c.c. is generally sufficient.

If necessary, both nerves can be injected at the same sitting, but as a general rule it is wiser to allow a few days to elapse before the injection of the second nerve. As an additional precaution, it is well to tell the patient before the operation to be absolutely quiet, neither talk nor swallow while the operation is being made. When the operator has been successful in striking the external branch of the superior laryngeal nerve, the operation is usually

FIG. 15.—Oval water-tight nested flask; it can be manipulated with one hand.

followed by almost complete cessation of pain and the ability of the patient to swallow liquid and even solid food without any discomfort. One injection suffices as a rule to relieve the laryngeal pains for a period of from four to five weeks, after which the operation should be repeated.

On the indications of tuberculin in laryngeal and pulmonary tuberculosis large volumes and lengthy papers have been written and I am surely not expected in the short time at my disposal to elaborate on this subject. At the same time, my paper would be incomplete were I not to say a few words regarding this culture product. I agree with Shurley who in his latest contribution to Forchheimer's "Therapeusis," when speaking of modern "so-called specifics in tuberculosis," says: "Tuberculin, the double-edged sword, stands out preeminently as the most useful remedy discovered up to the present time," and until we find something better, tuberculin administered in small doses so as to avoid reaction would seem indicated in laryngeal as well as in pulmonary tuberculosis in cases where all other means seem to have failed; providing, of course, the patient is willing to have the treatment.

Baldwin of Saranac Lake, one of our best authorities on the subject, summarizes his attitude toward tuberculin in a few but very impressive words by saying: "First, tuberculin may work much good in some patients by lessening the sensitiveness to itself. Second, it may act as a stimulant to healing, or third, it may aggravate the disease."

However, before any physician attempts to use tuberculin I would advise him to study the subject most carefully, not merely by reading the literature but if at all possible by seeing it used with his own eyes and seeking an opportunity for a short visit to a hospital or sanatorium to personally observe the selection of cases, the modus operandi, and the effects of tuberculin therapy. I am not the only one who feels strongly on the possibility of great mistakes being made with tuberculin in inexperienced hands. King of Loomis, another of our high authorities on the subject, expressed himself regarding the danger of the indiscriminate or injudicious use of tuberculin as follows: "Tuberculin is a powerful toxic agent and one capable of doing much harm if improperly used. Only those physicians who are willing to devote considerable time to the study of the subject and who have had experience in observing and handling tuberculous patients should attempt its use."

Whether the old tuberculin (O.T.), the new tuberculin (T.R.), the bacilli emulsion (B.E.), or the bouillon filtration (B.F.) is used would seem immaterial as the same results have been obtained with any one of these culture products.

In spite of our conviction that there is no specific climate for any type of tuberculosis, it would be folly indeed to underestimate the value of certain climatic conditions which the accumulated experience of many years has shown to be advantageous in the treatment of tuberculosis. There does not exist a specific, but there exists an ideal climate for tuberculosis, and it can be described in a very few words. Where there is the least dust and most freedom from smoke and noxious vapors in the air, where the temperature and general atmospheric conditions allow the patient to remain out of doors the greatest number of days out of the year and the greatest number of hours out of the day with the greatest possible comfort and enjoyment, that is the ideal climate for the tuberculous invalid. To some patients this may mean a higher, to others a lower, altitude; to some a cooler, to others a warmer, zone than the one in which they live or have contracted the disease. Individualizing is as essential here as in any other therapeutic measure in tuberculosis.

Whether or not there is an indication for the removal of the advanced case to another climate will again depend entirely upon the individual case. If he is well-to-do and desires a change of climate, his wish should be gratified; the same consideration should be given to him as to whether or not he wishes to go to a sanatorium or have the sanatorium treatment installed in his home. For the vast majority of our advanced tuberculous cases, who are the poor, I believe in institutional treatment near their homes where they can be seen frequently by their friends and relatives without too much expense to the latter. However, a large number of municipal or state institutions for the treatment of advanced cases are in need of vast improvements in many respects. First of all, I would wish to call such an institution a "hospital-sanatorium" to take away that feeling of distinction in the minds of the tuberculous poor to which they have been educated by ourselves, namely, that the sanatorium is

for the curable and the hospital for the incurable cases. Let us give a ray of hope even to the poor consumptive in the latter stage by this more hopeful name "hospital-sanatorium." Let us make these institutions for our consumptive poor attractive, even beautiful, and above all comfortable so that the patient will not miss his home and that his relatives and friends can feel that the place where he is, is a good place for him to be. Occasional entertainments, music, or moving picture shows, an instructive and interesting lecture, anything that may tend to divert the patient's mind from his affliction, or may give him happy moments, should be resorted to. Let all that human skill, sympathy, and kindness can do be done for him there.

The life of the consumptive in the advanced stages, even under the best conditions, is not an enviable one, and one of the greatest difficulties is how to occupy him. If he is a well-to-do patient, and still up and about, let him cultivate some kind of a hobby which is not injurious to his physical condition but will keep him busy. In the afebrile hours he can do a little walking, botanizing, gardening, farming, or anything he likes which will not overexert him physically. In inclement weather he can read, write, use the typewriter, bind books, play on instruments if he is musical; the woman patient can do all kinds of needlework, providing she does not assume a stooping attitude. Non-exciting games of cards, chess, checkers, or dominoes should of course also be permitted. Although not a smoker myself and inclined to discourage smoking, and particularly cigarettes in early cases, I do allow the advanced case of tuberculosis to smoke to a moderate degree if this helps to make him happy and contented.

Much ordinary housework in the private home I do not think advisable for women in the advanced stage of consumption. In a public institution for advanced cases, where the work can be more closely supervised by the attending physicians, a greater variety of occupations for male as well as female patients is of course at their disposal. Patients can help the nurses to keep rooms and wards in proper condition and help in the dining room; they can help the patient ill in bed. In my service at the Riverside Hospital-sanatorium where the vast majority of patients are in the advanced stages, patients do raffia and reed work, and as a rule they take to this occupation most enthusiastically, hardly ever tiring of it. Very often the patients are able to dispose of their products by sale, thus earning a little money which increases their incentive to work. It is rather interesting to note the fact that because we have not sufficient occupations for the men at North Brother Island, not a few of them have taken up raffia and reed work, and some have quite excelled their sisters in this work.[6]

In order that the advanced tuberculous patient who is up and about should enjoy whatever work he does, it is best to have it be something the same as the work he had done when in the prime of health, providing, of course, it was congenial, it is not absolutely injurious to live in his present condition. The one thing which must always be impressed upon the patient's mind is that he should never do any kind of work when he has high fever or when the work he is doing causes a serious rise of temperature. Another good rule, particularly for the advanced case, is never to work when tired nor to the extent of getting tired. Of course, some patients with a lazy tendency may claim to be always tired and they may need to be impressed with the value of occupation as a therapeutic means when their general condition permits them to work.

The authorities in charge of institutions for the treatment of advanced cases should select physicians of experience in tuberculosis, men and women with sympathetic hearts and cheerful and optimistic dispositions, and they should exercise the same care in selecting their nurses. Self-sacrifice, devotion, patience, at times firmness, but always combined with sympathy, are the essential qualities of those who must be in attendance on the advanced case of pulmonary tuberculosis. By the judicious, skillful and humane treatment of these cases we will not only make the lot of the unfortunate ones much happier, but will diminish countless centers of infection and thus solve the perhaps most important phase of the tuberculosis problem of our day. There should be no uncared-for tuberculous patient in any stage of the disease, and there most certainly should be no consumptive sufferer living in lodging houses,[7] boarding houses, or tenement homes, for such persons should be immediately taken care of in a hospital-sanatorium. No municipality can make a wiser and more economic provision than to treat the advanced cases among the poor at the proper place, and no philanthropist could possibly render a greater service to his community than by helping in the establishment and maintenance of sanatoria for the advanced cases of tuberculosis.

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16 WEST NINETY-FIFTH STREET.

EFFECTS OF 40 YEARS OF CHOLELITHIASIS.

BY GEORGE HOWARD HOXIE, A.M., M.D.,

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IT is rather unusual to secure the opportunity of studying the viscera of a patient who gives an authentic history of having suffered from gallstones for over forty years. In the following case the patient had been attended by competent physicians, so that the diagnosis had been clear for years.

The interesting findings are those that show the effects of the disease on the neighboring and related organs. They have a bearing on the present-day discussions of abdominal pathology, particularly in reference to the causation of gastric ulcers and to the diagnosis of "gastritis."

Mrs. D. C. C., æt. 63, short, stout woman, quick and active. Complains of indigestion and constipation. History of attacks of colic since about 20 years of age, varying from one to several each year. Has always refused operative interference. Three years ago had an attack of "gastritis," when she was in bed several weeks.

Seen first April 3, 1913 in gallstone colic. Recovered promptly. Next attack April 11, 1913, not severe enough for morphine. The patient was put on hydrochloric acid and cascara which she continued for some weeks. Had an attack of "neuritis" in the right arm

May 11, 1913, which yielded to heat and methyl salicylate locally and diet and cathartics systemically. Gallstone colic June 9, 1913. On July 29, 1913, had an attack of severe diarrhea with temperature to 102 , pulse 116. After this she spent a week or so at Excelsior

Fig. 1.—Gross appearance

Springs and while still troubled with "discomfort" was free from severe colic until September 15, 1913. Again on September 30, she had an attack in which she complained chiefly of pain under the right scapula and as a girdle just above the waistline. Vomiting severe. I was called again on October 1, 1913, and found that a severe attack had come on just as she was recovering from the last. Drugs kept her quiet but the attack did not pass away. On the 2d the pulse was 100; temperature 98.6 . She complained chiefly of pain "in the liver." The epigastrium and posterior aspect of the liver region were very tender to pressure. I gave a hypodermic of morphine and hyoscine. After two hours the patient became stuporous and two or three hours later her temperature suddenly rose to 104 with a pulse of 130 scarcely perceptible at the wrist Peripheral stimulation restored the radial pulse and in the evening the temperature was 102 in the axilla; but the patient did not regain full consciousness. Abdomen bloated and liver dullness gone. Gall-bladder region exquisitely tender. On the 3d the patient was restless, only partially clear, hiccough, vomited coffee grounds. Feces had odor of foul pus and had that appearance. Heart regular. Gall-bladder region exquisitely tender. Patient collapsed, became unconscious, skin cyanotic, irregular respiration at 1 P. M. and pulse did not again appear at wrist.

Blood examination at 3 P. M. showed Hb 90; white corpuscles, 38,500; polynuclears, 89 per cent. no eosinophiles, no mastzellen; mononuclears, 11 per cent. Of the polynuclears 15 were immature, 54 were normal, and 20 vacuolated and amphophilic in type. She died at 4 P. M. and a post-mortem examination was held at 8 P. M.

Autopsy Notes.—Woman, gray hair, appearing to be about 60-65 years of age. Yellowish tint to skin. There are a few blotches on the skin of the chest suggesting a slight purpura. There are no scars. The main cut shows a panniculus adiposus about 1½ inches thick.

The anterior mediastinum contains an abundance of fat. The heart is not dilated. The wall of the left ventricle near the apex is the seat of a fatty change over an area of about the size of a quarter and extending about ⅜ inches into the muscle substance from the surface. The valves are normal, as is likewise the ascending aorta. There is about an ounce of straw-colored fluid in the pericardium. The lungs are compressed and the left broadly adherent to the apex, the right less so. The compression is due to the elevated position of the diaphragm, which is at the level of the fourth costal cartilage. The lungs show no change beyond a moderate pneumokoniosis along the lines of the lymphatics.

The intestines are covered by the great omentum which is adherent below to the left semilunar fold by a rather tough connection. It is also adherent to the gallbladder. There is no fluid in the abdomen and there are no signs of general peritonitis. The right lobe of the liver is markedly smaller and the left slightly larger than normal, especially by comparison. The liver is of a greenish-yellow color, seems to be atrophied. On section it is yellowish-white as if having undergone fatty change. The perilobular tissue is yellowish-white. The liver is not greasy on section.

The gall bladder is dilated to the size of an ordinary 16 candlepower electric bulb and many stones are felt in the region of the cystic duct, which are readily movable to any part of the viscus. The wall of the gall bladder is thickened and is for the most part free from adhesions to the surrounding tissues. As the cystic duct is approached dense adhesions are encountered to all the surrounding tissues and stonese are felt along the common duct. The latter is dilated to about the size of two lead pencils. On dissection dense adhesions are found along the common duct and about the head of the pancreas. When these are cleared away it is found that the head of the pancreas is quite inflamed and necrotic, being very soft, hemorrhagic, and disorganized. Imbedded in this necrotic mass is an angular gallstone impacted and obstructing the common duct and ready to rupture through at one point (Fig. 1). As the entrance to the duodenum is approached the pancreatic duct is found below the impaction, of normal appearance, and patent. As the common duct enters the duodenum its walls are much thickened. The thickened ampulla of Vater lies above the opening of the duct of Santorini. The portal vein shows no thrombosis or other alteration. The pyloric end of the stomach is the seat of an old scar and is slightly thickened. No pus is anywhere encountered. The hepatic duct is normal. The gall bladder contains viscid dark bile and 40 stones.

The stomach is small at the pyloric end and enormously dilated at the cardiac end, apparently being

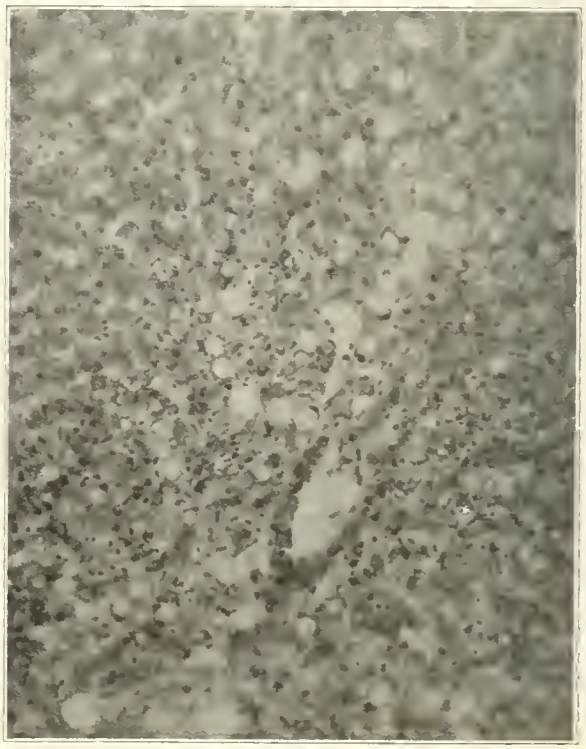

Fig. 2.—Liver

the cause of the elevation of the diaphragm. It contains fluid ingested shortly before death. The spleen is of normal size and consistency, is freely movable and on section is normal. The left kidney is apparently normal. The right kidney is slightly enlarged and on

section oozes freely with blood and is injected (congested). The uterus and adnexa are the seat of senile atrophy, but are normal. The appendix is normal and the cecum is dilated, freely movable, and free from adhesions.

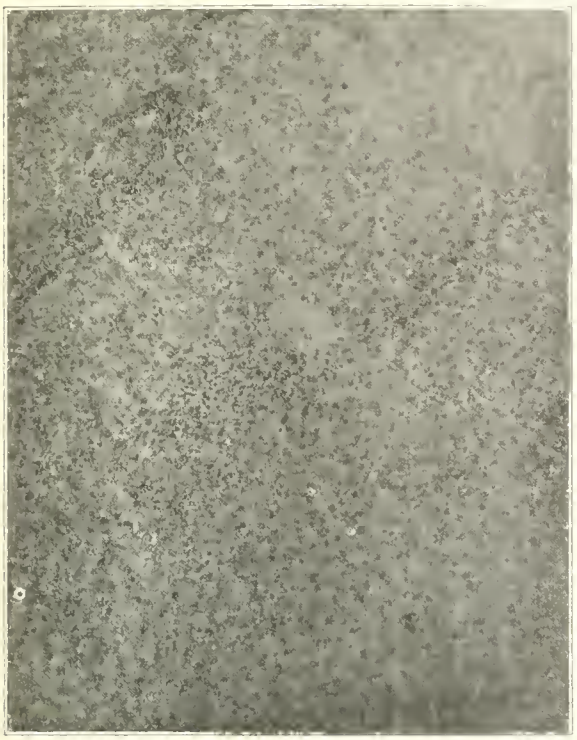

Fig. 3.—Liver.

A strong, tough band lies just above the cecum, constricting the lower end of the ascending colon and is attached laterally to the parietal wall and medianward to the root of the mesentery.

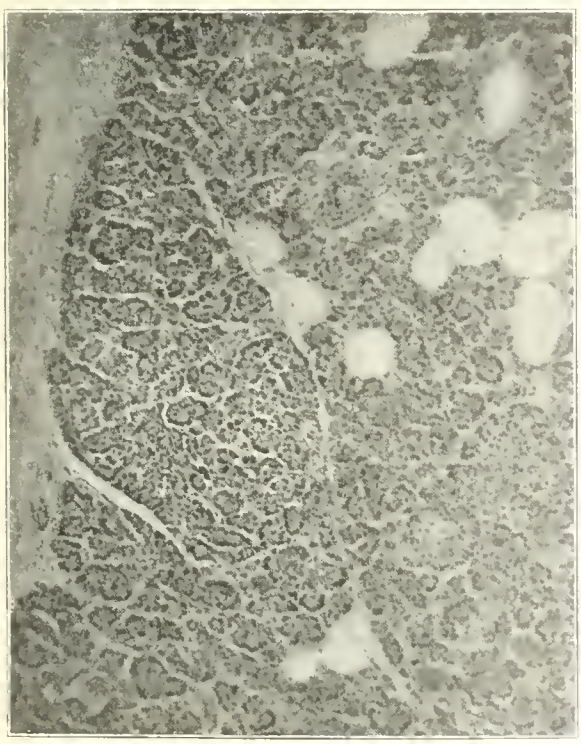

Fig. 4.—Pancreas.

Anatomical Diagnosis.—Acute pancreatitis with necrosis, impacted gallstone in common duct, local peritonitis in the region of the bile ducts and bladder, multiple gallstones in bladder and in cystic and common ducts, yellow atrophy (?) of the liver due to fatty degeneration, congestion of the right kidney, fatty infiltration of the heart, partial thickening of pylorus, partial obstruction of ascending colon due to constricting band, acute dilatation of the stomach.

Histological Studies.—Liver shows round cell infiltration of periacinic vein and fatty degeneration of discrete cells throughout the liver, apparently preferring the neighborhood of the branches of the portal vein (Figs. 2 and 3).

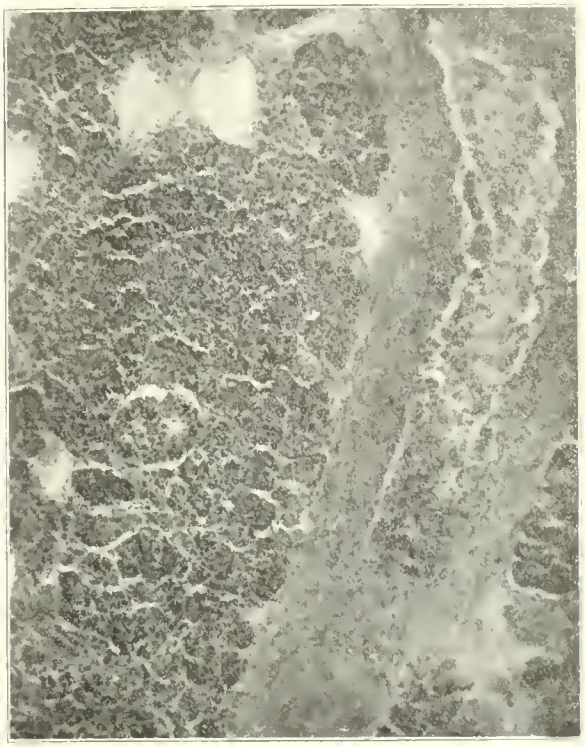

Fig. 5.—Pancreas.

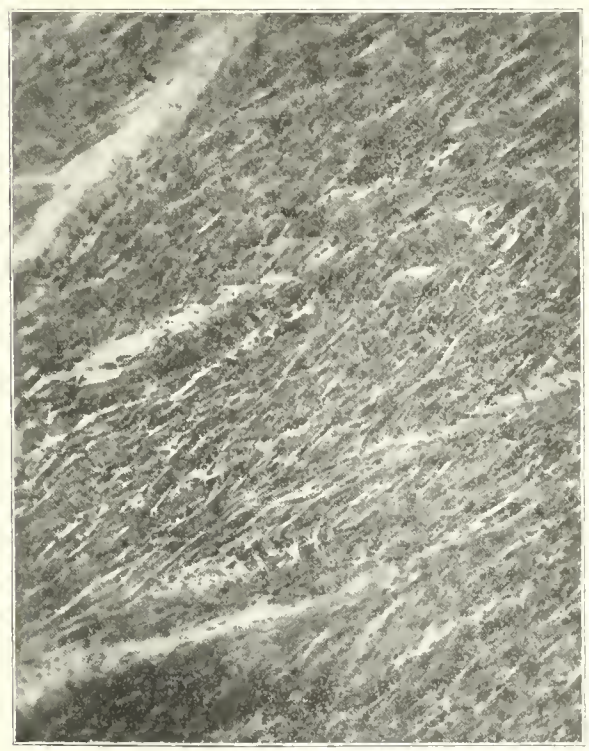

Fig. 6.—Heart muscle.

Left kidney shows some cloudy swelling but in general is quite normal. Right kidney cloudy swelling and glomerulitis. Head of pancreas shows fatty degeneration of individual cells (lipomatosis?). Tail of pancreas shows thickening of interstitial tissue of the in-

teracinar as well as the interlobular type of Opie. Lipomatosis also pronounced (Fig. 5). Areas of heart muscle show fragmentation of fibers and an apparent increase in the number of nuclei. In the accompanying illustration (Fig. 6) may be seen something of the round cell infiltration.

The need of a careful differential diagnosis between perforated gall bladder and pancreatitis is emphasized by this case history. The various medical men who saw the patient in her last hours accepted without much question the diagnosis of perforation as the explanation of her collapse. We were therefore distinctly surprised to find that the stone had not perforated the wall of the duct, but had set up an inflammation of the head of the pancreas. As we look back at the case it is evident that the location of the pains in the back and the discharge of "pus" in the feces should have put us on the watch for the pancreatitis.

The mechanism of the development of the pancreatitis is worth a moment's thought. Evidently the patient had had repeated attacks of pancreatitis with a more or less chronic (subchronic) inflammation always present. This is shown clinically by the history of fever and diarrhea; and anatomically by the evidence of the presence of both the interlobular and interacinar types of chronic inflammation (Opie's classification). The cause of the inflammation was probably the irritation provoked by the various stones ploughing their way down the common duct, together with the constantly increasing pressure of the dense adhesions.

Whether or not the constipation (caused by the band about the colon) had a part in causing the pancreatitis cannot be decided from the evidence at hand. But the lack of abscess formation would militate against such an hypothesis—for in that event colon bacillus infection would surely have occurred.

The duodenal ulcer preceding by three years the patient's death is quite evidently one of the effects of the chronic lithiasis. And in this case the cause of the ulcer must be looked upon as mechanical rather than infective, as an interference with the circulation (and nutrition) of the duodenal portion of the gut. It will be noted that it healed readily, so that the attending physician's diagnosis escaped without question.

The constipation was the result of the band over the ascending colon and also of the adhesions of the omentum. Whether or not the constipation preceded the cholelithiasis must of course remain unsettled. But granted that the original cholecystitis had been preceded by a slight constipation, then the very obstinate constipation that had prevailed for the last twenty years (or more) of the patient's life must have been aggravated by the chronic inflammation about the duodenum. The adhesions were evidently the response to passing inflammations, which may or may not have been due to the gallstones.

In thinking therefore of the possible outcome of cholelithiasis we should add pancreatitis to the list. Hitherto we have told our patients that the outcome might be (1) quiescence, (2) perforation, (3) empyema, and (4) perforation into the bowel. The addition of pancreatitis should be made because it explains the malaise, indigestion, localized inflammations of which patients with cholelithiasis are constantly complaining.

My thanks are due to Dr. Darwin Delap for assistance at the post-mortem examination.

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A SUGGESTION REGARDING THE TREATMENT OF FRACTURES ABOUT THE ELBOW JOINT.

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For the treatment of fractures about the elbow joint most authorities agree that the acutely flexed position offers many advantages over the semiflexed. This applies particularly to fractures of the external and internal condyles, the so-called T fracture of the distal end of the humerous and fractures combining these three types or in the form of a comminuted fracture.

Extension at the elbow after fracture, though extremely important, is not so vital to the patient as an amount of flexion which enables him to carry the hand to the mouth. Furthermore, as the securing of extension in its entirety is greatly aided by gravity, the carrying of weights and other occupational functions, it can be regained even if partially lost, while flexion when limited by adhesions is much more difficult to recover.

Fig. 1.

The main danger in the acutely flexed position is that of retaining the forearm in this position for too long a time. Just as in Colles fracture at the wrist proper reduction is of primary importance, followed by early passive motion and massage, so in fractures about the elbow joint of the type mentioned the forearm, once in the acutely flexed position, should not be allowed to remain long enough to permit adhesions to form. For this reason at the end of the first week passive motion and massage should be cautiously applied. This will avoid any but a very slight limitation of extension, and this is in time overcome. It is remarkable what excellent results can be obtained in these cases, especially in children, even when a severe deformity is threatened owing to the character of the fracture.

The method of securing acute flexion here suggested is simply a modification of those previously presented, but has been found useful at the New Haven Dispensary for the following reasons: First, the Jones position with the canvas jacket to which a glove is sewed, into which the hand is inserted to hold it to the uninjured side, while most excellent,

requires, as a rule, especially in dispensary practice, a new jacket to be made for each case. Second, when using the type of dressing suggested by Scudder, of Boston, the cloth swathe employed has been found rather unsatisfactory, as it does not retain the forearm firmly enough in position.

The method outlined below and illustrated by the three figures does this very satisfactorily, especially in children, and is not uncomfortable for the patient to wear.

After reducing the fracture and placing the forearm in the acutely flexed position the steps in the application of the dressing are as follows:

1. The placing of a gauze bandage extending from the wrist to the elbow permitting free movement at the elbow.

2. An adhesive strip is applied as suggested by Scudder, extending from wrist to arm (Fig. 1).

3. Starting at the elbow the center of a strip of adhesive plaster one and one-half cm. wide and of sufficient length to encircle the forearm and arm is placed posterior to the elbow and its ends brought forward to the anterior surface in the same manner as that employed in strapping the knee joint. A second strip is applied overlapping this one-half. This is followed by more strips of a similar nature, gradually ascending until the forearm and arm have been completely covered both anteriorly and posteriorly (Fig. 2). Protected as they are by the gauze bandage previously applied, the adhesive does not at any point come in contact with the skin except at the hand and shoulder.

4. The application of a strip of adhesive plaster five cm. wide along the dorsum of the forearm and over the uninjured shoulder. This holds the hand firmly in position (Fig. 3).

5. A similar strip of adhesive is then applied around the arm and chest just above the elbow (Fig. 3).

The subsequent treatment of the fracture requires:

Fig. 2.

Daily inspection for the first week. At the end of this time the adhesive plaster is removed and passive motion leading toward extension is applied.

If acute flexion can be easily regained the dressing is reapplied, reducing the angle of flexion by substituting a muslin or gauze swathe for the plaster, allowing only the adhesive band illustrated in Fig. 1 to remain.

This is permitted to stay in place for one week longer, when some form of an external angular

Fig. 3.

splint should be applied, which allows adjustment of the angle.

After the second week massage and passive motion are employed each second day until both flexion and extension are approximately normal.

The daily use of the extremity after the fourth week should in time enable the patient to present a practically perfect functional result in the majority of the cases treated.

1138 Chapel Street.

VASOMOTOR DISORDERS.

By WILLIAM HANNA THOMSON, M.D., LL.D.,

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The physiological interdependence of the various functions of the body is nowhere so fully illustrated as in the mechanism for the distribution of the blood. While the blood flows rapidly through its tubes three times a minute from head to foot, many persons have too great a mechanical conception of the process, because those tubes which consist of the arteries, capillaries, and veins are so different from any other tubes we know. This difference is well shown after the blood has passed through the lungs and has thus become arterialized. Arterial blood is the only kind of blood which the tissues want. Thus all muscles are thrown into a state of cramp if the arteries supplying them are plugged or even contracted by spasm. This cramp will persist so long as the arterial obstruction lasts, and may finally lead to marked wasting of the muscle. If, on the other hand, the obstruction is not complete but partial, instead of cramp we may have muscular stiffness in movement.

We have many examples of these effects in so-called muscular rheumatism. Voluntary muscles are enclosed in sheaths of connective tissues. These sheaths bear the same relation to the muscle that the bark does to a tree. All the blood vessels sup-

plying the muscles must first pass through their sheaths. Now there is no rheumatic myositis or inflammation of the muscles themselves, but instead such inflammation of the sheaths is very common when interstitial swelling compresses the arterioles and thus diminishes the muscular blood supply. According to the case this result may be quite general, or instead, very local. An example of the latter is a rheumatic affection of the deltoid and trapezius muscles of one shoulder which waste and cause the arm to hang down helpless or else with much pain in movement. The first question then is to settle whether the inflammation is rheumatic or not. If rheumatic, the prognosis is always good, no matter how long or extensive the resulting muscular disability may be. The reason is that the poison causing rheumatism is quite soluble and hence can readily be removed by absorption, while that causing gout is insoluble, and therefore is locally deposited. There is often much confusion between the two conditions, because as they involve joints their symptoms may be very similar. Hence we sometimes hear of rheumatic gout, which is as incorrect as designating the patient a Christian-Mohammedan, because rheumatism is due to a toxemia of its own kind, while gout is the result of a perversion of metabolism, particularly in the liver. These two inflammations, therefore, altogether differ in their results. A knee joint, for example, may be severely involved in a purely rheumatic inflammation accompanied with great pain and swelling. If such effects should occur from any other cause than rheumatism, we would have good reason to expect an extensive disorganization of the joint, but if the inflammation be rheumatic, everything may subside within 24 hours, leaving no traces, while the other knee follows in precisely the same steps in the inflammation. But a gouty inflammation does not occur without leaving permanent traces, as if it were leaving its card to signalize its visit. Cases have been reported of only a single attack of gout with the textural changes following its occurrence found years afterward.

Other cases of muscular cramp may be caused by inflammation of the coverings of the spinal cord, particularly of the dura mater. Once in my service at the Roosevelt Hospital I found a young man who had been a telegraph operator lying in bed with the muscles of both arms and legs so rigidly contracted that his knees were forced together until they were ulcerated. Similarly his heels were buried in his buttocks and the fingers forced into the palms of the hands so that the nails grew into the flesh. He begged not to be touched as every attempt to handle him caused such acute pain. I then told my staff that without giving him any medicine we would so free him from his contractions that he would walk out of the hospital. This he finaly did, and on my seeing him again he said that he had gone for a sail on Long Island Sound when he fell overboard and had to swim for his life. I mention this case because we have a very effective agent for remedying muscular contractions, which is by douching the affected parts with warm, not hot, water. When not above the temperature of the blood, water is a remarkable sedative for relieving pain and for causing muscular relaxation. This patient was treated for three weeks with douches of warm water lasting about 40 minutes four times a day with the gratifying results above mentioned.

Quite different from the conditions just described are the serious results caused by even a temporary absence of arterial blood from any mucous membrane tract. I have explained these derangements in the first chapter of my book "Clinical Medicine," where I have discussed the mechanism of that common cause of disease and death which is popularly termed "catching cold." This disorder, however local, is always caused by an interference with a supply of arterial, and not of venous, blood to the part, as was illustrated by the experiment of Overbach, who found that clamping the renal arteries for only 40 minutes so as to obstruct the flow of blood through the kidneys was followed by albuminous urine for 20 days, thus showing that any local shutting off of arterial blood will promptly induce nutritive changes in the territory of that arterial distribution.

Now the arterial flow in distinction from the venous is under the regulation of a special department of the nervous system called the vasomotor nerves. Every practising physician should become well acquainted with the function and distribution of these very peculiar nerves. Thus organs which are in symmetrical pairs, such as the two eyes, the two ears, the two hands, and the two feet, have their vasomotor nerves always associated. If thermometers be placed in the axillæ and then one thermometer be held in the left hand while the right hand is plunged in ice water, the thermometer in the left hand will fall two to five degrees Fahrenheit, while those in the axillæ are unaffected. If the semi-translucent ears of a rabbit are held up to the light, the readily seen pulsations in the arteries of one ear are found to cease at once when the other ear is pinched. Those organs which are not in symmetrical pairs, such as the two lungs, are not associated in their circulation. Inflammation of one lung does not necessarily cause inflammation of its fellow, but a serious injury of one eye is often followed by total blindness on account of the other eye becoming involved.

Another law is that the vasomotor nerves of areas of the skin are associated with the nerves of the parts underneath these cutaneous areas. That explains all the varied uses of surface applications, such as warm fomentations to soothe internal pain or spasm, and the varied uses of counter irritants. A sudden dash of cold water on the abdomen is used to check a dangerous postpartum hemorrhage, of course not by chilling the whole body, but only through the local association of the vasomotor system. Besides these there are also special relations which may be here mentioned. There is a close relation between the feet and the circulation of the pelvic viscera; also between the feet and the circulation of the throat. Hence, no one with an irritable stricture of the urethra should ever get his feet wet. A man may be warmly clothed, but if he sits in a room with his feet wet from walking in the snow he may have a severe inflammation of the throat or a laryngitis soon extending into a bronchitis. One of the great vasomotor centers is at the nape of the neck, for it controls the circulation of the face and head, and hence a cold draught on that part may be followed by extensive derangements in the circulation such as we have described, and is particularly illustrated in the long sequence of disorders caused by sunstroke.

From what has preceded, it is readily seen that the nutrition of the tissue cells may be appreciably disturbed by interference with their arterial blood. Among other serious results is that such areas become the sources of bacterial infection. Thus the

pneumococcus which causes pneumonia is always present in the secretions of the pharynx, but can do no harm so long as the surface of the mucous membrane there is healthy. But let those cells be damaged by withdrawal of their arterial blood, and an easy entrance of the infective agent may occur. This is also true in the case of the diphtheria bacillus which is often present in the throat and nasal passages of healthy persons without causing any disorder, but which promptly does so when the mucous membrane is affected in the way described.

We have seen that the constant supply of arterial not venous blood to a part is absolutely essential to healthy nutrition. We should not be surprised, therefore, that to a special department of the nervous system this important defensive mechanism is assigned. It is evident from ordinary observation that the distribution of arterial blood must be regulated by some special mechanism. Thus it is estimated that when the stomach is actually digesting its contents it must have nine times as much blood as when it is empty. Not only must it have this great increase in the quantity of the blood, but also it must have an increase of nerve power. Thus a deer shot through the stomach while fasting may run for miles, but if shot through the stomach while feeding, it drops at once from fatal shock. The mechanism above alluded to which so governs the arterial circulation according to time needs, is composed of a special kind of nerves called the vasomotor nerves. These nerves ramify on the coats of the arterioles, penetrating them until they reach the muscular layer which is found in all arterioles. Stimulation of these vasomotor nerves causes the arteries to contract, while if these nerves are cut and thus paralyzed, the arteries supplying those particular parts dilate. For the origin and distribution of these important nerves, however, the reader must be referred to works on physiology. We can mention here only the most important facts connected with this subject. Thus there is a general center of vasomotor control in the floor of the fourth ventricle of the medulla oblongata, whose nerves leave the spinal cord at various levels throughout its whole course, but soon connect with centers of the sympathetic system in such an intimate way that the whole class of vasomotor nerves may be properly called a branch of the great sympathetic. It should be further noted that besides ramifying on the coats of the arterioles, minute ganglia belonging to this system are found whenever an arteriole divides, whose function evidently is to contract or to dilate the peripheral vessels and thus control the local circulation.

Another fact of much practical importance is that the vasomotor nerves of any part of the skin are always associated with the nerves controlling the circulation underneath that cutaneous area. It is on that surface that a sedative or stimulant application can be used accordingly, but the converse of this law is also important. Whenever any internal inflammation occurs its effect is equally felt by the nerves of the corresponding cutaneous area. Any internal inflammation, therefore, will cause an increased susceptibility of the corresponding nerves on the skin. I once saw a distinguished clinician expose the chest of a woman in order that his class of students might listen to the rub of pericarditis. He thus exposed the patient's chest so that some twenty students could listen, with the result that in a few hours the woman's life was despaired of from the rapid extension of the internal inflammation. These facts explain the importance of surface protectors such as are commonly used in thoracic disorders, but they may also be applied in chronic abdominal affections. Patients who have been subject to chronic diarrhea and dysentery should wear over the abdomen a shield made of cotton batting, because we often find them particularly susceptible to surface chill.

A physician, therefore, should be well acquainted with all the remedies which we possess for vasomotor disorders. Often these are caused by blood poisoning as we see illustrated in chronic disease of the kidneys. Thus chronic interstitial nephritis causes such permanent contraction of the systemic arteries as to lead to hypertrophy of the heart from the heart's increased work in overcoming this contraction, and this complication must be treated accordingly. We have but few medicinal remedies for affections of the vasomotor system. We have, therefore, to go back to the general law controlling the functions of blood distribution, and we begin with the lungs. Muscular power throughout all animated nature is dependent upon the amount of oxygen taken in by respiration. Insects have proportionally far greater muscular power than any other creatures because they breathe through every part of their skin, and not through a pulmonary apparatus only. In man also the tone of the muscular layers lining the tubes of the body, such as the bronchial and alimentary tracts, are dependent upon the activity of breathing. Women, therefore, are much more subject to weakness of such muscular function than men on account of their sedentary habits. A person standing or walking breathes more than twice as actively as when sitting or lying down, and hence whole classes of persons troubled with poor circulation of the blood would not be so if they were constantly living out of doors, like farmers and sailors.

One of the most useful remedies for derangements of the vasomotor centers is by the proper recourse to the reaction from cold. Cold as a remedy should be defined as an irritant, which is primarily a sedative, but which is followed by reaction so soon as its initial sedative impression is passed. This property of cold gives it what is popularly known as its tonic effect, but in practice its application should always be proportioned to the power of reaction from it. Thus a cold shower bath may be a valuable vasomotor tonic in a young patient because of his vigorous reaction.

We have already referred to the fact that one of the great vasomotor centers is at the nape of the neck. This is particularly exemplified by the long-continued and varied disorders which follow sunstroke. Insolation or sunstroke causes the sufferer to have his whole head and face reddened by very slight causes which could not affect him in health. In addition to this his heart becomes easily disturbed with palpitation, so that he becomes virtually a coward and dreads the least excitement. The mucous membrane of the nasal passages is also seriously involved. The cold douches applied to the nape of the neck will frequently cure a long standing nasal catarrh. Here there is another irritant added, namely, the blow of falling water, technically called a douche. This should be used every morning on rising by the patient, care being taken not to wet the hair. The procedure should be followed by active friction.

It should here be noted that all chronic inflamma-

tions occurring anywhere are particularly apt to produce local weakness of the vasomotor nerves. A knee or ankle, for example, may swell and become weak from its own nerves becoming involved in a chronic inflammation, and nothing restores such conditions better than cold water douches followed by active friction.

70 East Fifty-fourth Street.

THE SUBJECTIVE AND OBJECTIVE SYMPTOMS OF FAVORABLE AND UNFAVORABLE REACTIONS TO TUBERCULIN.*

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Ability to recognize and interpret the symptoms produced by tuberculin is essential in one who would employ this therapeutic agent. It is from the patient's response to the dose given that we are able to study the effect of that dose. Hence unless we note every symptom of this response or reaction, we will miss important evidence as to the effect the particular dose given has had on the individual patient. Many of the phenomena of a tuberculin reaction are often unrecognized because they are slight or have not been recorded in the literature. The physician consequently does not seek for them and even when his attention has been directed to them may attribute them to other causes. In like manner the patient himself may fail to notice them or else may disregard them. Thus valuable information as to suitability or unsuitability of dosage is neglected, with the result that the appropriate dose is frequently increased, instead of being maintained, and the excessive dose often still further augmented, until the well-known book symptoms of a severe unfavorable reaction supervene. Unless the physician questions his patient closely—without, of course, suggesting the nature of the reply—and unless the patient observes himself carefully and reports his symptoms accurately, many of the less well-known symptoms of a reaction will be missed. A valuable guide as to the regulation of the treatment will thereby be lost.

Patients vary so in the manner in which they react to tuberculin that it is practically impossible for any one individual to personally observe all the manifest symptoms that may accompany a reaction. But if the observant physician will note every symptom occurring on the day of and on the day after the administration of tuberculin, that was not present before the dose was given, he may possibly discover symptoms of a reaction of which no mention has as yet been made. When, moreover, one is acquainted with the various described phenomena that may accompany a tuberculin reaction one will be much quicker in detecting and much apter in eliciting them. A symptom that might not have been noticed or might have been ascribed to another origin will receive more careful attention if it has already been reported as having followed the administration of tuberculin in other hands. Hence the more symptoms there are recorded, the more readily will these symptoms be recognized and the more frequently will they be looked for. In order to direct attention to the disregarded and unfamiliar symptoms I have tabulated all the subjective and obective symptoms that have followed the administration of tuberculin in seventy-one of my patients of whom I have sufficient notes and on whose records I could lay my hands. To this list, which contains ninety-eight separate symptoms, I have added twenty-eight more that have been described by other writers but not recorded by me.

I distinguish between favorable and unfavorable reactions to tuberculin and have grouped the symptoms under these two general heads. In regulating dosage I interpret the favorable reaction as meaning that the dose is just right, and a moderate or marked unfavorable reaction as evidenced that the dose is excessive. A slight unfavorable reaction I regard as an indication that the dose is reaching a dangerous point. The absence of any reaction at all I look upon as a sign of an insufficient dose.

Many of the ninety-eight distinct symptoms I observed I have not seen previously recorded. It is, of course, possible that some may not have been a result of the tuberculin, merely appearing coincidently, although I have tried to eliminate such an error. While I state the number of times each symptom was recorded, this is not of much significance, because the patients were questioned only at intervals and the notes often refer merely to the dose immediately preceding their interrogation. Many symptoms may have been present that were not elicited, the patients merely being allowed to tell how they felt, and having no list of symptoms to guide them, such as appears in the tuberculin record books. When a patient appeared in any way unreliable, no attention was paid to his relating of subjective symptoms. This necessitated the elimination of most of the children treated. No attempt has been made to enumerate the number of times temperature changes were observed, on account of the magnitude as well as the uselessness of the task. It should be borne in mind that this is an analysis not of patients taking tuberculin but only of those who presented symptoms of a reaction to tuberculin. A comparison of the number of favorable and of unfavorable symptoms observed would be misleading, as the dose that caused favorable symptoms was always repeated, while the dose causing unfavorable symptoms was always reduced. I find, too, that the more skilled and experienced in giving tuberculin I become the more favorable and the fewer unfavorable reactions do I see.

SYMPTOMS OCCURRING IN SEVENTY-ONE PATIENTS REACTING TO TUBERCULIN (98)

	Day of Administration		Day After Administration	
	Times	Cases	Times	Cases
I. *Symptoms of a Favorable Reaction.* (10)				
1. General or Systemic Symptoms. (8)				
General improvements (*e.g.* "Better," "Feels better," "Feels fine," etc.)	41	21	12	6
Increase of strength	11	5	4	4
Improvement of appetite	75	33	26	14
Exhilaration ("Brighter," "In better spirits," "More buoyant," "Stimulated," etc.)	20	7	14	7
Lessening of tire	5	2	1	1
Lessening of nervousness	3	3	1	1
Increase of restfulness	2	2	0	0
Ability to sleep better	1	1	0	0
2. Changes in the temperature (1)				
Depression of an elevated temperature.				
3. Lung symptoms (1)				
Diminution in cough	1	1	2	2

*Read before the Philadelphia County Medical Society, April 8, 1914.

	Day of Administration		Day After Administration	
	Times	Cases	Times	Cases
II. *Symptoms of an Unfavorable Reaction.* (88)				
1. General or Systemic Symptoms (36)				
Headache, slight or dull	9	5	3	3
Headache, moderate or very severe	31	16	9	8
Headache, increased	5	1	0	0
Headache on the crown	2	2	0	0
Headache in the temples	1	1	0	0
Headache over the eyebrows	1	1	0	0
Heavy feeling in head	1	1	0	0
Queer feeling in head ("Sort of soreness")	0	0	1	1
Tightening feeling in back of neck	2	1	1	1
Tightening feeling in arms	2	1	1	1
Malaise ("Dull," "Inactive," "Lacking ambition," "Languid," "Like a limp rag," etc.)	13	8	7	5
Indisposition ("Feeling bad," "Feeling mean")	5	5	3	3
Depression	2	2	2	2
Listlessness	1	1	0	0
Disinclination to exert	1	1	1	1
Tire (fatigue)	16	9	6	6
Yawning	1	1	0	0
Weakness and increase in weakness	32	10	11	8
Faintness	1	1	1	1
Drowsiness	23	17	4	4
Somnolence, sleep	8	7	2	2
Stupor	0	0	1	1
Restlessness	3	2	1	1
Nervousness and increase of nervousness	8	5	3	3
Irritability	4	3	1	1
Some insomnia	1	1	1	1
Dyspnea	2	1	6	3
Palpitation	3	1	4	3
Giddiness	3	3	4	3
Chilliness	1	1	2	2
Shaky ("Quivery")	2	2	0	0
Night sweats	0	0	1	1
General feeling of sickness ("Felt sick all over")	1	1	0	0
Toxic appearance	1	1	0	0
Symptoms of coryza	0	0	1	1
Nose bleed	0	0	1	1
2. Gastro-Intestinal Symptoms (6).				
Anorexia	54	27	23	18
Queer taste	1	1	0	0
Nausea	12	5	9	5
Retching	1	1	1	1
Vomiting	10	6	2	2
Indigestion ("Heavy feeling and pressure in abdomen")	1	1	0	0
3. Alterations in the Temperature (3)				
Slight rise of temperature				
Moderate rise of temperature				
Marked rise of temperature				
4. Lung Symptoms. (8)				
Cough	3	3	2	1
Increase in cough	14	7	4	4
Expectoration	3	3	1	1
Increase in expectoration	6	5	3	3
Blood streaked sputum	0	0	1	1
Slight hemoptysis	1	1	1	0
Whistling in chest	2	1	0	0
Oppression in lower ribs	1	1	1	1
5. Pains. (14)				
Pleuritic	0	0	8	5
Burning in chest	1	1	0	0
Pain in chest	5	3	2	1
Pain all over	2	2	2	2
Pain in eyes	1	1	0	0
Pain in lower vertebrae of neck	1	1	1	1
Pain in arms	1	1	1	1
Pain in legs	1	1	1	1
Pain in back	2	2	2	2
Pain in abdomen	1	1	1	1
Cramp in abdomen	0	0	1	1
Cramp in elbow	1	1	0	0
Cramp in knee	1	1	0	0
Cramp in ankle	1	1	0	0
6. Eye Symptoms. (14)				
Inflammation of eyes	0	0	1	1
Feeling as of foreign body in eye	0	0	1	1
Eyes hot	0	0	2	1
Increase in burning in eyes	1	1	0	0
Feeling of hot wave in front of eyes.	1	1	0	0
Feeling as if eyes were blo lshot	1	1	1	1
Throbbing in eyes	2	1	1	1
Soreness or pain in eyes	1	1	0	0
Queer pain in eyes	0	0	1	1
Feeling of and increase of weakness in eyes	1	1	0	0
Things looking queer	0	0	1	1
Brightness of eyes	1	1	0	0
Dilation of pupils	1	1	0	0
Black spots in front of eyes	1	1	0	0
7. Vasomotor Phenomena. (7)				
Flushed face	5	3	2	2
Feeling hot all over	1	1	0	0
Feeling feverish	0	0	3	2
Perspiration all over body	1	1	0	0
Swelling of hands	1	1	3	1
Stiffness of hands	1	1	1	1
Feeling as if wrist and finger were twice their size	1	1	0	0

Increase in the rapidity of the pulse usually accompanied a rise in temperature.

Some patients who showed no symptom on the day of the injection or on the day following, yet lost weight after the dose was increased beyond a certain point, which I regarded as an unfavorable reaction.

A number of symptoms of a tuberculin reaction, reported by other observers, differ in name from those I have enumerated but may, I believe, be included among them. Thus "heaviness," "dulness," and "lassitude" I would include with "malaise." "Feeling of heaviness in the limbs" probably corresponds to "tire" or "disinclination to exert." "Slight tendency to ache" and "severe headache" may be grouped with "pains all over." Symptoms resembling "La Grippe" may be classified with "indisposition" or "symptoms of coryza." "Constriction in the chest" is probably another way of describing what my patients call "oppression in the lower ribs." "Discomfort" is probably synonymous with "indisposition." "Exhaustion" could doubtless be placed under "tire," "weakness," or "faintness."

In addition to these there are twenty-eight symptoms of a reaction described by other writers, which I have not observed, or at least noted.

Symptoms of a tuberculin reaction observed by others but not by me (28). I. *General or Systemic Symptoms* (10): Rapid pulse; delirium; general hyperesthesia; rash, skin eruptions; herpes; herpes labialis; rigor; convulsions in epileptics; enlarged glands; increase in the amount of urine with a slight trace of albumin or diazo reaction.

II. *Pains* (3): Pain or tenderness in epigastrium; wandering pains; pain in throat.

III. *Local or Organ Symptoms* (6): Hoarseness; pain in throat; aphonia; swelling of tuberculous glands; increased frequency of micturition; increase of inflammatory redness in visible places, as in lupus.

IV. *Vasomotor Phenomena* (3): Skin cold and clammy; face cyanotic; face of ashen color.

V. *Skin Reaction at Site of Injection* (7): Definite and prolonged painfulness and inflammation, especially when the injection has been made in the trunk; pain at site of injection; discoloration at site of injection; swelling at site of injection; thickening of skin at site of injection; edema at site of injection.

2113 Chestnut Street.

THE WIDENING PELLAGRA ZONE.

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and

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The recent studies of pellagra, and exhaustive reports such as that of the Thompson-McFadden Pellagra Commission, have undoubtedly resulted in the discovery of many obscure cases of this disease which otherwise would have escaped detection. This statement probably applies to a greater extent in the regions that are supposed to be outside the focal pellagra zones than in places where the disease is of common occurrence. Nevertheless, the number of cases that have been reported at points remote from the focal centers, and the fact that many of the conditions attending these cases do not conform to the observations made in the South, force the conclusion that the disease is not only increasing its territory, but is invading classes that have hitherto remained practically immune.

It is possible, of course, that even in remote districts, where pellagra seems only recently to have

made its appearance, the disease is not really such a novelty, but simply that it has not been recognized heretofore. This is a reasonable supposition, particularly as regards the milder or abortive type of cases. But it can hardly be true of the virulent types. And the natural conclusion is, since well-marked cases are now making their appearance in districts that seem to have escaped hitherto, that the disease is actually extending its zone of operation.

The report of the Thompson-McFadden Commission indicates that the disease is usually the concomitant of malnutrition, poverty, and bad hygiene. "In our opinion," says this report, "the view that pellagra is an intestinal infection, transmitted by contaminated food, to which the individual is rendered more susceptible by malnutrition, poorly selected or poorly prepared food and by the common gastrointestinal disturbances resulting from errors in diet, is a conception worthy of further study."

In most of the cases of this disease that have come under our observation recently the conditions referred to in this report did not prevail, although all of them presented the typical picture of pellagra itself as shown by the two following cases:

Case I.—Mrs. H., a married woman, 37 years old, who has been living in or near Los Angeles for several years, was first seen on July 2, 1914. Has one healthy child seven years old, and has had two miscarriages since the birth of this child at two and three months respectively, the last one about five years ago. She was perfectly well up to two years ago. About that time, however, she began having severe pains in her muscles and joints, shifting in character, but focalizing in the feet, with some burning and swelling. The pains came on in February while the patient was living near Los Angeles, but disappeared in about two months, and she recovered completely. In October following she weighed from 165 to 175. About this time her menses ceased, and she began to have "queer" feelings in her arms, which seemed heavy and useless, with some burning. In December she began having shifting pains again, which continued for about two months; and during this time her child became ill and she nursed it night and day, with the result that she was in a state of nervous prostration. Meanwhile she had become much crippled with the pains which she called "rheumatism." There was no fever. On March first she began having peculiar feelings in her throat and abdomen, and her husband reports that two days later she became very much excited and disturbed mentally. The mental disturbance, with great excitement and at times confusion with definite delusions and hallucinations, persisted. But during the last few weeks she has lapsed into a state of mental delapidation with apparently progressive dementia. Seven weeks ago she developed an extremely sore mouth and diarrhea, said to have followed a dose of calomel. The diarrhea and the condition in the mucous membrane grew worse rapidly, apthous sores appeared all over the mouth, the tongue was swollen and beefy, and at the same time there developed great irritability of the bladder, inflammation and swelling about the vulva with a dull red appearance.

Two weeks after the onset of the gastro-intestinal trouble the patient began developing a symmetrical pigmentation over the knuckles of both hands and along the radial sides of the index fingers. This pigmentation was red like sunburn, the skin was much thickened, and between the thumb and forefinger on both hands some blebs appeared. The same pigmentation occurred over the nose, chin, and cheeks, and the skin became thick and encrusted. There was vomiting frequently. And during these weeks of gastrointestinal trouble the patient had great pain in both legs below the knees, requiring opium as a sedative. She complained constantly of great burning in the feet. The muscles were exquisitely sensitive in the legs and generally over the body, and she walked with a great deal of muscular ataxia. The pupils were small and reacted very slowly to light. The knee jerk, at the time we observed her, was practically abolished; and although the other reflexes were present, they were much diminished. The pulse was rapid, (110-116), but there was no elevation of temperature. This condition continued for about a week after our first observation, when the patient died, seeming to have gone to pieces from exhaustion.

It will be observed that in this case there was no neuropathic taint, although the nervous system was in a very low state of resistance from physical and mental strain at the time of the onset of the disease. In the following case, however, it is apparent that the soil for developing a psychosis was well prepared, both by autochthonous and environmental conditions:

Case II.—Miss S., unmarried, 26 years old, a teacher by occupation, was seen first June 6, 1914. Gives a history of neurotic temperament as a child. She was the sixth of eleven children, but has always been the favored one of the family, and has always been considered "a little queer." About nine years ago she had a nervous breakdown and passed through a period of depression. She recovered from this, however, and was in fairly good health for several years afterward, but with an occasional return of mild depression and nervousness.

In the spring of 1912 she suffered from a great deal of pain up and down her spine and in the great muscles of the back, and at about the same time she had an attack of diarrhea extending over ten days or two weeks without any apparent cause. Shortly after this she placed herself under the care of a chiropractic, but became very much worse. In the early part of her summer vacation she was exposed to considerable nervous irritation and excitement incident to a family reunion at her home, which left her in a very nervous state, the pain in the back having persisted. At this time the trouble seemed to be confined to the severe pains in her back muscles, with a developing tendency to insomnia. By Christmas time there was so much general prostration and depression that she was obliged to give up her work, and a little later went for a trip in the mountains. While on this trip she noticed a beginning pigmentation on her hands, face, and forehead.

A few weeks later under the influence of the sun exposure at the beach she became very much pigmented, at the same time her insomnia and depression became very pronounced, and she threatened suicide. Shortly after this she was placed in a sanatorium. Here she developed very shortly a severe cystitis, with frequent, painful urination, and pus in the urine; and about this time the pain which had been confined to her back for a year became general, with considerable muscular tenderness in the arms, thighs, and calves. Two weeks after the appearance of the bladder symptoms the patient developed an irritation of the lower lip, with marked swollen erythema, becoming dry, cracked, and crusted. A week later an extensive ulceration of the mouth began, with sores under the tongue and throughout the buccal cavity, a thick, beefy tongue, and swollen spongy gums. At this time there was great tenderness all through the abdomen, frequent and persistent diarrhea, loose watery evacuations, with occasionally a little blood-stained mucus. There was extensive inflammation of the genital mucus membranes which were red, swollen, and beefy looking.

The face presented a marked pigmentation extending over the forehead, following the hair line down into the temples, over the malar eminences and over the nose. The skin presented the appearance of a very severe sunburn, but was dry and thickened, with a tendency to the formation of a crust over the nose. And a similar condition appeared progressively over the knuckles of both hands and along the radial sides of the index fingers. These areas were sensitive to touch, and the patient complained that they felt as though seared. She complained also of general sensory disturbance throughout the chest, and a burning sensation in the back and arms.

At this time there was a slight elevation of temperature, from half a degree to a degree and a half, and her mental condition was that of a profound depression with a great deal of restlessness.

In some of the other cases seen personally, or reported in this vicinity, the order and time of appearance of symptoms have been somewhat differ-

ent, but in the main the clinical picture presented has been closely similar.

According to the Thompson-McFadden Commission observers the disease is peculiarly prevalent among women between the ages of nineteen and forty-five, whereas the rate of prevalence among males drops very appreciably at this time of life. The exact amount of this decline is shown by the fact that, although the rate of prevalence is practically equal in the two sexes among children under ten and among adults over forty-five years of age, in the intervening period the proportion of women afflicted is about four to one. The age incidence, and disproportion in number of women, are confirmed by observation of cases on the Coast, although the number of males has about equaled the number of females at the County Hospital recently, as reported by Dr. C. H. Whitman.

It appears, therefore, that the period of woman's greatest susceptibility to pellegra corresponds to the period of her active sexual life. Apparently this occurrence is purely coincidental, although there may be a deeper significance.

Nor is there any evidence to show that neuropathic or psychogenic taints play an important part in the etiology, course, or termination of the disease. Or that occupation can be regarded as a factor, unless we regard as such any occupation that requires physical and mental strain.

But perhaps the most interesting single feature presented by these two cases, as well as by most of those brought to our attention in this vicinity, is the fact that they occurred among a class of persons representing a very different economic status from the majority of the cases observed by the Thompson-McFadden Commission. And the reports of cases which have been supplied by Drs. C. H. Whitman, C. L. Allen, and J. L. Smith of Los Angeles seem to indicate that the patients were largely those from the better walks of life, or at least were persons accustomed to good food and hygienic surroundings of the middle classes.

Certainly the economic condition of these cases contrasts strikingly with those reported by the Thompson-McFadden Commission observers. For these observers report that 85 per cent. of cases occurred among people of insufficient means, who were eating poor, badly prepared food, and where general economic conditions were bad. Probably their findings are distinctly influenced by the relatively high percentage of poverty in the regions under investigation. But in any event it is interesting and significant that the cases seen in Southern California taken collectively refute the old idea that pellagra is largely a "filth disease." Or at least they show that, if the disease was formerly only the accompaniment of poverty, affecting the lower classes, it is now extending its attacks to the more favored strata of society.

The fact that the cases just cited, and the other we have observed, presented intestinal and nervous symptoms of great severity does not warrant the conclusion, of course, that all the cases in this vicinity have been of this virulent type. It is more reasonable to assume that many of the milder forms, in which only cutaneous symptoms were present, have not been recognized.

In considering the early symptoms of some of these cases, particularly those in which the mental symptoms appeared first, we have been impressed with the likelihood of mistaking these symptoms for those of neurasthenia. The differential diagnosis is made more difficult by the fact that the disease often develops slowly, cutaneous and gastrointestinal symptoms are frequently delayed, women are more frequently affected than men, and the age-incidence and economic status (in this region, at least) correspond to those of neurasthenia. With these facts in mind it is easy to understand that perfectly excusable mistakes in diagnosis might occur—mistakes that are far more likely to be condoned by physicians, unfortunately, than by the patient's friends.

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THE TREATMENT OF ORBITAL CELLULITIS.

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The treatment of orbital cellulitis, like the treatment of headache, depends upon the cause of the trouble. Orbital cellulitis probably rarely if ever is primary. Then we must look upon cellulitis in this region as a complication of diseases elsewhere. Hence our treatment should be directed to the source of the infection as well as to the orbital inflammation.

Orbital cellulitis may result from penetrating wounds, erysipelas, pustule of the lids or nose, dacryocystitis, lacrymal adenitis, or suppurating periostitis. It may be transmitted to the orbit through the vascular or lymphatic channels. Hence a metastatic process may develop from a general pyemia, or from some remote focus, as an alveolar abscess, or a suppurating inguinal gland. However, a large proportion of cases of orbital cellulitis are caused by extension from one or more diseased accessory sinuses of the nose.

The relative location of the primary cellulitis and these sinuses, or other contiguous anatomical structures, helps us much in discovering the original focus of the infection. A primary inflammation or edema of the upper lid (especially the outer portion), a ptosis palpebræ, or a paralysis of the superior rectus muscle or of the superior oblique muscle, points to an extension from the frontal sinus. In these cases, however, we should exclude other causes, such as lacrymal adenitis and suppurative periostitis. When the initial cellulitis is more marked at the inner portion of the orbit or when there is a paralysis of the internal rectus muscle, the anterior ethmoid cells are the most probable source of infection. But when these signs become manifest, the source of infection may be a diseased lacyrmal sac, a furuncle, or erysipelas. When the primary cellulitis is below the eye, or if the inferior rectus or the inferior oblique muscle is paralyzed, an extension from the antrum is to be suspected. It may be difficult to locate the primary cellulitis; as in any case, the edema or ecchymosis may extend by gravity to the lower lids. Should the infection gain entrance through the posterior ethmoid cells or the sphenoid sinus, there is more apt to be an exophthalmus; or there may be an optic neuritis, or an atrophy of the optic nerve; while the third, fourth, sixth, or all of the motor nerves may be paralyzed. We must take into consideration, however, that a diplopia or an apparent paralysis may be caused by pressure from the swollen tissues, edema, or an abscess, which inhibits the action of the ocular muscles.

The signs and symptoms of the original disease

should be noted, and our treatment should be directed to this condition, before serious orbital or intracranial complications develop. We receive much aid in locating the original focus by the history of the case, location and character of the pain and tenderness, evidence of nasal discharge, inspection of the nares, transillumination, irrigation of the antrum, catheterization of the frontal sinus, or by the *x*-ray.

Foreign bodies should be removed, and furuncles or penetrating wounds should receive treatment under general surgical principles. A periostitis, lacrymal adenitis, dacryocystitis, or other lesion should be treated according to the indications in each individual case. Thrombosis of the cavernous sinus, aneurysm, tenonitis, and constitutional dyscrasia should be confirmed or eliminated to guide us in the treatment of these cases.

An orbital cellulitis, from a disease of the accessory sinuses, is evidence of partial or complete obstruction to their nasal drainage, with retention and pressure from the accumulating secretion and debris. On account of the proximity of the accessory sinuses to the meninges, a vigilant search should be made to ascertain the particular focus to be treated.

Often the intranasal instillation of adrenalin and a cleansing spray, or nasal irrigation, is sufficient to reestablish drainage. However, many cases do not improve with this treatment, or the symptoms may be such that a delay would be dangerous. Then we must resort to such operative procedures as are necessary to procure drainage of the diseased sinuses. This fortunately can usually be accomplished by the intranasal route. Ample intranasal drainage of the ruptured sinuses should be procured and maintained.

Intraorbital complications from the cellulitis, or extension to the meninges or brain should be anticipated, and the method of treatment varied according to the exigencies of the case. An external operation rarely is indicated when there is a persistent empyema of the frontal sinuses or the ethmoid cells, or when there is a threatening meningitis. An enucleation may be necessary, when there is an impending meningitis, and by an enucleation and a large opening there is hope of saving the patient's life.

The cellulitis and edema may be moderated by cold compresses over the diseased orbit, and mild antiseptic applications will ease the conjunctivitis, while hot compresses will increase the local congestion and hasten a delayed recovery. If the chemosis is marked, multiple punctures of the conjunctiva permit the serum to escape and gives a relief which is very gratifying to the patient. Any accumulation of pus should be immediately incised, avoiding actively functionating structures. Liberal catharsis should be procured in all cases of orbital cellulitis.

Case I.—Mrs. M. B., Orange, N. J. This woman on June 6, 1913, had a hard indurated suppurative periostitis, which was firmly adherent to the orbital margin of the frontal bone. The patient gave a history of having had this for the last six months and that the swelling became worse at times, sometimes being so bad that she could not see well from the right eye. The patient was given antiluetic treatment, but when she was next seen by the writer, June 10, the swelling over the eye was more pronounced and there was a cellulitis and edema of the upper lid. To prevent a diffuse orbital cellulitis the abscess was opened and one cubic centimeter of pus was drained out. The probe passed 1½ inches under the frontal bone into the orbit but no dehiscence of the floor of the frontal sinus could be found. The case made an uneventful recovery, and was referred back to the general practitioner as a luetic condition was suspected.

Case II.—Baby R. K., age 27 months. This patient was first seen at the clinic of the New York Throat, Nose and Lung Hospital on June 20, 1913. A diagnosis of orbital cellulitis resulting from ethmoiditis was made. This case responded favorably to the intranasal instillation of adrenalin, nasal irrigation and orbital applications.

Case III.—Miss E. M., age 6 years. This patient was treated at the New York Throat, Nose and Lung Hospital. When she was first seen on December 1, 1913, she gave a history of having had a swelling around the left eye for five days, and around the right eye for two days. Both upper lids were red and swollen, the left side being swollen to a greater degree than the right. The swelling in the lower lids was less marked. The following treatment was instituted. The nasal instillation of a 1 to 2,000 adrenalin chloride solution, and an alkaline antiseptic spray were ordered; while frequent irrigations of the nares with hot normal salt solution were faithfully performed. However, in spite of the treatment the orbital cellulitis became worse. The patient's temperature also continued to rise; on December 3 it became 100° F., and on the 4th the temperature reached 101° F.

The patient was operated upon by the writer on December 4 at 8 P. M. Both antra were irrigated, the return flow containing a small quantity of muco-purulent material from each side. Both sphenoid sinuses were patulous. The anterior tip of the left middle turbinate was removed, and the anterior ethmoid cells were curetted, to make free drainage for the frontal sinus. Much polypoid mucous membrane was removed from the ethmoid cells. The postoperative treatment consisted of the instillation of adrenalin chloride solution, frequent hot saline irrigations of the nares, and the application of cold boric acid compresses to the swollen eyelids. The following day, December fifth, the cellulitis was less marked but the temperature remained 101°. On December 6, the patient's temperature went down to 99.6° and there was much less swelling of the lids. On December 7 the patient's temperature went up to 103.4°, and the lids became very red and swollen. The region of the infundibulum was lightly curetted, without an anesthetic, and much detritus was removed. The postoperative treatment was continued, and on the following day the temperature went down to 100.4°. On the 10th of December the temperature went down to 99.4°, and on the 12th it was normal. When the patient was discharged from the hospital, December 16, the cellulitis had entirely subsided.

Case IV.—Mr. W. A. Adult, South Orange, N. J. This patient was first seen in my office on Jan. 11, 1914. At this time he had an orbital cellulitis on the right side with extreme edema and chemosis. The patient gave a history of having had a rhinitis the previous week, but this had improved. He complained of orbital pain, and extreme supraorbital pain which extended over the brow to the vertex. Intense tenderness, especially on the outer superciliary ridge, was elicited. There was no dacryocystitis, no periostitis, and no evidence of infection from the superficial tissues. A frontal sinusitis was deemed to be the cause of the orbital infection. The anterior tip of the middle turbinate was removed, and the anterior ethmoid cells were curetted, to give free drainage to the frontal sinus. The instillation of adrenalin, and frequent intranasal irrigations were instituted; also cold compresses were applied to the eyelids. On January 12 the pain in the head was less, but the ocular chemosis and orbital pain was worse. The patient had also developed an orbital cellulitis of the left side. Multiple perforations were made in the conjunctiva to relieve the tension. The treatment was continued on the right side, and the same treatment was instituted on the left side. On January 13 the condition was improved. The treatment was continued, keeping the patient under observation. The nasal discharge was profuse at first, but this as well as the cellulitis gradually subsided. On January 25, when the patient was last seen, there was a moderate degree of conjunctivitis; but the lids of both eyes opened freely, and upon eversion only a slight edema of the superior fornices could be observed. There was no abscess formation within the orbit.

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THE CLINICAL VARIETIES OF UREMIA.

WHILE rapid strides have been made within recent years in the recognition of the pathological states accompanying or underlying uremia, and in the detection of chemical changes in the body fluids that point to a threatening uremia, there has been at the same time a sharper delineation of the different clinical types of uremia. Emil Reiss in the *Zeitschrift für klinische Medizin*, Vol. 80, Nos. 1 and 2, and 5 and 6, describes three distinct types of uremia and one mixed type. The former are denominated the asthenic, the convulsive or epileptiform, and the psychotic types of uremia.

Asthenic uremia is characterized clinically by somnolence and indifference, by bodily fatigue, by attacks of syncope, and by sudden death from failure of the heart. The elimination of sodium chloride, nitrogen, etc., by way of the urine is disturbed. In the blood there is an increase in the residual nitrogen and in the osmotic pressure. It is probable that the retention of nitrogenous derivatives ordinarily excreted is responsible for this type of uremia.

The epileptiform variety of uremia is recognized by the occurrence of more or less frequent eclamptic seizures which most strikingly resemble those of genuine epilepsy. The aphasias and paralyses of uremia probably belong to this category. The urinary secretion is adequate, and the results of examination of the blood show no departure from the normal. The substances that evoke this type of uremia are not the result of a retention caused by a deficient excretory capacity of the kidneys.

The psychotic type of uremia is distinguished by the predominance of psychic changes, particularly by pronounced mental confusion, by delusions and hallucinations, and finally by deep and not simply agonal coma. The above states are usually transient. In this variety of uremia there is no evidence of the retention of normal metabolic products, and the origin and nature of the toxic substances are still veiled in obscurity. The sclerosis of the cerebral arteries demonstrated at autopsy in many of these cases is to be regarded merely as an accessory factor that favors the occurrence of the above manifestations.

The mixed type of uremia comprises the majority of all the cases, including those which present symptoms belonging to two or more of the first three groups. In the genesis of these cases all the possible causative factors must be borne in mind. Cases belonging purely to the first three groups are relatively rare. Reiss suggests that his classification does not account for every so-called uremic manifestation, and that additional groups may yet be described.

In the majority of cases of uremia the albumin-content of the blood serum, as measured by the Kjeldahl process, equals or exceeds that normally present, even in cases in which efforts have been made to diminish the concentration of the blood by venesection or by an abundant administration of fluids. From this fact, together with the results of other experimental and clinical studies, there is drawn the conclusion that in uremia there is a disturbance in the normal relationship between the water and the dissolved substances of the blood. The uremic patient lacks the capacity to dilute properly his own body fluids. It is this deficiency that the author regards as the exciting factor in uremia.

RECENT INVESTIGATIONS ON THE SUPRARENAL GLANDS.

OF perennial interest is the subject of the physiology of the suprarenal glands, a subject which touches clinical medicine at many angles. In spite of the vast amount of knowledge which has accumulated regarding the relation of the suprarenal glands to the other organs of internal secretion and to the body in general, the conception of the actual rôle of the suprarenals is still veiled in obscurity. For this reason considerable importance must be attached to the researches undertaken by S. J. Crowe and G. B. Wislocki (*Bulletin of the Johns Hopkins Hospital*, October, 1914). They set out to determine the immediate and remote effects of a total removal of both suprarenal bodies in young and in old animals, and the effects of an adrenal insufficiency produced by the operative removal of portions of the gland at intervals of weeks or months.

It was found, first of all, in confirmation of the observations made by other workers, that in the dog the suprarenal glands are vital organs, and that it is probably the cortex rather than the medullary portion which is essential to life. Total removal of both glands causes symptoms similar to those produced by a total hypophysectomy. When a part of one gland is excised the remaining portion undergoes hypertrophy, through the multiplication and enlargement of the cortical cells, chiefly in the fascicular zone. An interstitial fibrosis and a destruction of the cells in the same zone is sometimes observed when there is a chronic infection in an animal suffering from suprarenal insufficiency. Following an "almost total" removal of both glands there frequently occur convulsions, a subnormal temperature, and other symptoms of acute suprarenal insufficiency. From these manifestations the animal may completely recover. Adrenal insufficiency causes no permanent change in the carbohydrate tolerance, although a transient glycosuria always follows operative manipulation of either

gland. No functional value has been perceived in an autoplastic transplantation of a suprarenal fragment when this operation has been successfully accomplished. If both cortex and medulla are present in the graft the cells of the former may survive, but the cells of the latter undergo absorption.

Of eminent significance are the experiments undertaken with the object of determining the relationship between the suprarenal glands and the lymphatic system. Autopsies on animals that had had a long-standing adrenal insufficiency showed an enlargement of the mesenteric and retroperitoneal lymph glands and the solitary lymph follicles of the intestine. In many instances there was observed in addition a hyperplasia of the thymus. These findings are in close agreement with the observations that have been made for a long time in cases of Addison's disease, in which a local or general hyperplasia of the lymphatic system has been noted. The close relationship between the suprarenals and the lymphatic system has been shown in cases of status thymicolymphaticus which have come to autopsy, in which a marked hypoplasia of the chromaffin system has been observed.

Narcolepsy.

The various seizures described under this term differ much among themselves, yet shade into one another by imperceptible gradations. At one extreme is a mere act of "nodding," a momentary absence, which affects children almost exclusively and suggests epileptic petit mal. In certain cases these seizures occur in almost incredible numbers. At the other extreme the subject behaves like one completely exhausted, falling asleep as soon as the attention is fixed by reading or listening, and waking automatically as a result of his constrained attitude which is not suitable for slumber. These subjects usually wake up fully conscious and with no unpleasant feelings. In certain cases sleep seems to be replaced by laughing attacks, which set in during reading or conversation. As a rule, the subjects sleep well at night. At a recent session of the Breslauer psychiatrisch-neurologische Vereinigung (*Berliner klinische Wochenschrift*, September 7), the President, C. S. Freund, presented a case of narcolepsy which appeared to show the close connection between the latter and ordinary sleep disorders. As a child the patient was a somniloquist and somnambulist. She could converse intelligently while asleep. As an adult she could read aloud while sleeping. The narcoleptic attacks supervened as a consequence of reading and listening, and under the same conditions she had laughing fits, even, for example, while expressing condolence. The only connection between falling asleep and laughter appeared to be the automatic element. Epilepsy, hysteria, neurasthenia, periodic paralysis, myasthenia, etc., could all be excluded. There were no evidences whatever of mental failure. The patient, whose age was 56, was much older than the average subject of narcolepsy when she first appeared for consultation.

Nephritis and Nephrosis.

Since it has been asserted that the so-called parenchymatous nephritis is not inflammatory but degenerative in character, various attempts have been made to take it out of the realm of the nephritides. It is admitted, however, that it still constitutes an important subdivision of Bright's disease. Müller proposed the term nephrosis as a substitute for parenchymatous nephritis, for the latter even when preceded by cloudy swelling is degenerative in nature from beginning to end. The blood vessels and glomeruli are hardly involved in the process and the heart does not undergo hypertrophy. There are several other nephroses, notably amyloid kidney. In a paper read at a session of the Aerztlicher Verein of Hamburg (*Deutsche medizinische Wochenschrift*, September 3) Fahr, after isolating the nephroses, as above, divides true nephritis into interstitial and arteriosclerotic, each of which is subdivided so that four types result: 1. Diffuse glomerulonephritis, which is the forerunner of secondary cirrhotic kidney. 2. Focal interstitial nephritis, which comprises several conditions of minor clinical import. 3. Primary arteriosclerotic kidney, which is very variable in degree and associated, as a rule, with arteriosclerosis in general. 4. The combined form, in which marked arteriosclerotic changes may complicate a nephrosis or nephritis. There is still much confusion as to what really constitutes primary or essential contracting kidney.

How to Proceed Against Unlicensed Practitioners.

It sometimes happens that the legal authorities fail to discover an unlicensed practitioner who pursues his calling quietly without attracting too much notice to himself by advertising, and unless their attention is directed to his illegitimate practices he may go on undisturbed for years. He is necessarily known, however, to the lawful medical practitioners of his town or neighborhood, and it devolves upon the latter to denounce him to those whose business it is to repress him. In calling the attention of the officers of the law to the activity of an unlicensed practitioner one should take the following steps: (1) Make sure that the practitioner is not registered in the county clerk's office; the law requires that all practitioners shall register their license with the county clerk. (2) Obtain evidence, sufficient as a basis for a complaint, that the practitioner is attempting to diagnose or to treat human disease, injuries, or physical conditions. (3) Send a written complaint to the district attorney along with a request that he prosecute the illegal practitioner under Section 174 of Article 8 of the Public Health Law. (4) If the district attorney refuses to investigate the complaint, notify the Governor, as he has the authority to remove from office district attorneys who refuse to do their duty.

The Bacteriology of Herpes in Pneumonia.

A short time ago Schottmüller of the Hamburg-Eppendorf Hospital reported a series of cases of herpetic fever in which he demonstrated the colon bacillus as the cause of the cutaneous lesions. In these cases there was a primary focus of infection in the pelvis. Of closely related interest is the investigation which has been carried out by Carlo Trevisanello (*Annali dell' Istituto Maragliano*, June 22, 1914) on the bacterial content of the herpetic vesicles that so commonly develop on and about the lips in cases of lobar pneumonia. He found that cultures made from the contents of these vesicles

contain diplococci in a pure state. These microorganisms are in a condition of attenuated virulence, but may be made to acquire their native virulence by successive passage through experimental animals. They respond to all the tests for the pneumococcus. Of practical significance is the fact that the herpetic lesions of pneumonia may be a potent means of transmitting the disease. This possibility is increased by the fact that the vesicles have delicate walls and, causing considerable itching, are prone to be ruptured by the nails of the patient.

Black Tongue and Its Causation.

The affection commonly known as black tongue is characterized by the presence of one or more blackish or brownish patches in the tongue, which are associated with an elongation of the lingual papillæ. This condition has been attributed to a parasitic cause. A large number of different parasites, chiefly moulds, have been held responsible by various observers. The glossophyton is the one most commonly described as causative of the peculiar pigmentation of the tongue and of the elongation of its papillæ. L. Jannin, in the *Journal de Médecine de Bordeaux*, refers to the theory, held by a number of observers, that this is a neurotrophic disorder, in which an excessive vascularization of the papillæ would cause their hypertrophy with a deposition of black pigment. The growth of the various moulds which have been isolated in these cases would thus be favored by the changed surface conditions of the tongue. Without subscribing to this view, Jannin holds that although the parasitic theory has not been definitely established by scientific proof, it is nevertheless most plausible.

The Protein Metabolism in Experimental Pancreas Diabetes.

A little over one year ago A. Galambos and B. Tausz reported their clinical observations showing that contrary to previous conceptions hyperaminosuria occurs not only in cases of impaired hepatic function, but also in disturbances of the internal secretory mechanism of the pancreas. In a second communication on this subject in the *Zeitschrift für klinische Medizin*, Vol. 80, Nos. 5 and 6, they show that the internal secretion of the pancreas takes a part in the transformation of protein into its normal end-products. An insufficiency of this internal secretion produces a hyperaminosuria analogous to the glycosuria resulting from the same cause. Diseases of the liver and various infections may be accompanied by a similar aminosuria, just as they may be accompanied by an alimentary hyperglycemia or glycosuria. The authors are of the opinion that both hyperaminosuria and glycosuria are based on the same metabolic causes, which may consist in a diminution in the amount of this substance or in the degree of its activity.

News of the Week.

American Surgeons in France.—The American Ambulance Hospital in Paris, under the charge of Dr. Joseph A. Blake of New York, is working up to its full capacity of 400 beds. There is room in the hospital, however, for 1,000 beds and every effort is being made to raise a fund sufficient to provide these. All the American physicians in Paris are assisting in caring for the wounded of all the warring nations who are brought there from the front. Five American surgeons sailed on the *Rochambeau* two weeks ago to enter the French Red Cross. One of them was a woman, Dr. Mary M. Crawford of Brooklyn; the others were Drs. M. J. Sheahan of Derby, Conn., A. S. Cooke of Brooklyn, Barton McC. Cookingham of Red Hook, N. Y., and Thomas Nisbet of this city. Dr. Alexis Carrel of the Rockefeller Institute, New York, is now in Lyons in charge of one of the hospitals there. The cable reports that he recently performed his first transfusion, in the case of a soldier weakened by profuse hemorrhage from a wounded axillary artery.

Mobilizing British Gold.—The daughter of Robert Koch, who is the wife of a German army surgeon, has given the Harben gold medal, presented to her father by the Royal Institute of Public Health of London, to the German Society for the Relief of the Families of those killed in war. The medals presented by English societies to Röntgen and several other German scientists have also gone into the melting pot for the benefit of the Red Cross or relief societies. Professor Max Verworn of Bonn has written to the *Berliner Tageblatt* protesting against the renunciation of British honors by his colleagues, an action which he characterizes as childish and unworthy of German men of science.

Casualties in the German Medical Corps.—The army surgeons of all the nations, but apparently especially of the Germans, have suffered very severely in the present war. Up to the middle of October 135 of the German medical staff were reported killed, wounded, or missing, 74 of these having been killed. In the entire Franco-German war of 1870-71 only 11 German surgeons died on the battlefield or from wounds there received.

Atlanta Medical College.—The sixtieth annual session of this college began on September 28 with an enrollment of 340 students.

Typhoid Fever Due to Bacillus Carrier.—Investigation by the Pennsylvania State Department of Health into a recent epidemic of typhoid fever at Lehigh University at South Bethlehem, Pa., involving forty of the students has disclosed the fact that a kitchen employee was a typhoid carrier and the probable source of infection.

Cerebrospinal Meningitis.—The weekly report of the Health Department states that there has been a sudden increase in the number of cases of cerebrospinal meningitis in this city, ten cases having been reported during the past week. "Reviewing the course of epidemic cerebrospinal meningitis in this city for the past thirty-five years," says the report, "it is noticeable that the intervals between the high points of mortality attributed to this cause are about eleven years. In 1881-82, in 1892-93, and in 1904 and 1905 tremendous high waves of mortality occurred. The increased mortality during the past week may be the forerunner of an approaching epidemic."

Philadelphia Medical Club.—Major-General Leonard Wood, U. S. A., was the guest of honor at a reception held October 16.

Dr. Ellwood R. Kirby has been appointed Chief and Consulting Surgeon to the Masonic Home at Elizabethtown, Pa.

Mental Defectives in New York State.—According to a census just completed by the State Commission to Investigate Provisions for the Mentally Defective, there are 8,399 mentally defective per-

sons in this State outside New York City. The county having the greatest number (784) is Monroe, and that having the largest percentage (0.0045) is Fulton. The census for this city is not yet complete.

A Missouri Health Society.—The Missouri State Board of Health has issued a call for a meeting of the Missouri Valley Health Association to be held in St. Joseph, November 27 to 28. The entire State is included in the call. All the commercial clubs, incorporated cities, and civic organizations will be asked to name delegates, the object being to launch a concentrated move for improving health conditions in all parts of the State and to secure general co-operation with this end in view.

Chicago Clinics.—The Committee on Medical Education of the Chicago Medical Society has requested all the hospitals of the city to hold stated free clinics open to medical and surgical practitioners of the United States, to publish a daily bulletin of such clinics under the auspices of the Chicago Medical Society, according to the plan followed for some time in New York, and to hold special medical and surgical courses outside of the free clinics.

Medical Society Elections.—South Texas District Medical Association.—At the annual meeting of this society, held in Galveston, October 10, the following officers were elected: *President*, Dr. M. F. Bledsoe of Port Arthur; *Vice-President*, Dr. A. E. Malsh of Victoria; *Secretary and Treasurer*, Dr. W. F. Thompson of Beaumont, re-elected. The next meeting will be held in Victoria.

Medical Society of Warren County, N. Y.—At the annual meeting of this society held October 14, the following officers were elected: *President*, Dr. LeRoy M. Haviland; *Vice-President*, Dr. Virgil D. Selleck; *Secretary and Treasurer*, Dr. C. R. Hoffman; *Board of Censors*, Dr. J. J. Montgomery of Luzerne, Dr. B. J. Singleton, Dr. Alex McKee; *Delegate to State Society*, Dr. H. E. Clarke; alternate, Dr. T. I. Henning; *Delegate to District Branch*, Dr. J. M. Griffin, alternate, Dr. Annetta E. Barber.

Fifth South Carolina District Medical Association.—An organization of this society was afforded on October 12, and it was decided to hold the initial meeting on November 3, in Rock Hill. The following officers were elected: *President*, Dr. E. W. Pressly of Clover; *First Vice-President*, Dr. Frank Ferguson of Gaffney; *Second Vice-President*, Dr. Samuel Lindsay of Winnsboro; *Secretary and Treasurer*, Dr. George A. Hennies of Chester.

Knox County (Ill.) Medical Society.—At the annual meeting of this society, held at Galesburg, October 16, the following officers were elected: *President*, Dr. G. A. Longbrake; *Vice-President*, Dr. R. J. Stewart; *Secretary*, Dr. G. S. Bower; *Censor*, Dr. G. S. Chalmers.

Obituary Notes.—Dr. Bukk G. Carleton of New York, a graduate of the New York Homeopathic Medical College and Hospital in 1876, genito-urinary surgeon to the Metropolitan, Hahnemann, and Flower Hospitals, and consulting surgeon to Grace Hospital, for several years professor of anatomy at the Homeopathic Medical College, and a member of the American Institute of Homeopathy, the Academy of Pathological Science, the Interstate Medical Society, and the New York State Homeopathic Medical Society, of which he was president in 1904, died at his home after a long illness, on October 20, aged 57 years.

Dr. Nicholas Z. Wagener of Sturgeon Bay, Wis., a graduate of the Northwestern University Medical School, Chicago, in 1904, a member of the State Medical Society of Wisconsin and the Door County Medical Society, and secretary of the latter, died suddenly on October 3, one week after an operation for appendicitis, aged forty-one years.

Dr. Joseph Singleton Shoemaker died at Philadelphia on October 7 at the age of fifty-one years. He was graduated from Hahnemann Medical College and Hospital in the class of 1888.

Dr. Arthur Scott Gilson of Portland, Me., a graduate of the Medical School of Maine, Portland, in 1894, and a member of the American Medical Association, the Maine Medical Association, and the Cumberland County Medical Society, died at his home, after a long illness, on October 9, aged fifty-nine years.

Dr. William James Lumsden of Elizabeth City, N. C., a graduate of the University of Maryland, School of Medicine, Baltimore, in 1869, a member of the American Medical Association, the Medical Society of the State of North Carolina, and the Pasquetauk-Camden-Dare Counties Medical Society, died at his home, from paralysis, on October 14, aged 68 years.

Dr. Daniel D. Neff of Syracuse, N. Y., a graduate of the Bellevue Hospital Medical College, New York, in 1894, died suddenly at his home on October 13, aged 45 years.

Dr. Eugene J. Hickey of Warren, Vt., a graduate of the University of Vermont, College of Medicine, Burlington, in 1907, and a member of the Vermont State and Washington County Medical Societies, died at his home on October 6, aged 32 years.

Dr. Claudius H. Morris of Galveston, Tex., a graduate of the Medical College of Indiana, Indianapolis, in 1881, died in San Antonio, after a long illness, on October 7, aged 61 years.

Dr. John W. Jones of Clinton, Wis., a graduate of the Eclectic Medical College of Cincinnati, Ohio, in 1868, died at the home of his daughter in Milton, Wis., on October 14, aged 80 years.

Dr. Frederick L. Davis of Biddeford, Me., a graduate of the Medical School of Maine, Portland, in 1888, a member of the Maine Medical Association and the York County Medical Society, and consulting physician to the Webber Hospital, of which he was one of the founders and a member of the board of directors, died suddenly at his home on October 10, aged 55 years.

Dr. Charles Jay Seltzer died of heart disease at Lebanon, Pa., on October 23 at the age of 58 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1881. Subsequently he served as resident physician in the Philadelphia Hospital and at a later date he was Laryngologist to the Hospital. He was for twenty years Assistant Surgeon to Wills Eye Hospital at Philadelphia.

Dr. William W. Johnson died at Chester, Pa., on October 21 at the age of 67 years as a result of heart disease. He was graduated from the medical department of the University of Pennsylvania in the class of 1865.

Dr. James Porter Brailler of Alexandria, Pa., a graduate of the Medico-Chirurgical College of Philadelphia in 1909, and a member of the American Medical Association, the Medical Society of the State of Pennsylvania, and the Huntingdon County Medical Society, was instantly killed in an automobile accident on October 18, aged 31 years.

Correspondence.

GONORRHEA, MARRIAGE, AND THE COMPLEMENT FIXATION TEST.

To the Editor of the Medical Record:

Sir:—Few responsibilities are greater than the one the physician is confronted with when he has to give a categorical answer to his once gonorrheal patient's question: "May I get married?" We know that in the terminal stages of all gonorrheas and all chronic cases which have no discharge, the microscopic examination gives us little of value. The field may be negative or it may contain cocci of doubtful morphological characteristics; and the answer given us by cultures is often just as unreliable, if not more so.

The venereal specialist therefore heaved a sigh of relief when the perfected complement fixation test became available. It is a very good and mostly reliable test—when positive, but when negative its value is much, very much slighter. We know that ten negative tests do not have the same value as one positive, and it is to emphasize the point and to warn the profession not to reach definite conclusions on the basis of laboratory tests *alone*, that these lines are penned. We have not a single laboratory test on whose findings alone, either positive or negative, but especially negative, I would be willing to make a diagnosis. In every disease we must consider the *tout ensemble;* it is only the history, the symptoms, the sequence of events, plus laboratory tests, that give us permission to make a definite diagnosis; and sometimes not even then.

A case was sent to me a month ago for final decision as to the permissibility or non-permissibility of getting married. A complement fixation test had been made and found negative, and his physician gave him permission to get married. The patient, however, himself noticing shreds in the urine, wanted to make doubly sure, and consulted me. No gonococci could be demonstrated, but as the shreds were numerous and could be found in the urine passed in as short a time as one hour after the previous urination, I said that I would advise caution and it would be preferable to delay the marriage for two or three months. Everything *might* be all right, I was not sure that any disastrous results would follow, but it would be taking a chance, I explained to him. With the first physician's positive permission and with my only tentative prohibition, the patient went and got married. And this morning, after three weeks of married life, he brought in his wife with a well developed gonorrheal cervicitis in which the gonococci are clearly demonstrable in great multitudes.

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OUR LONDON LETTER.

(From Our Regular Correspondent.)

THE NEW BRITISH PHARMACOPOEIA—THE ACCUMULATED FUND OF INSURED PERSONS—OPENING MEETINGS OF GENERAL MEDICAL SOCIETIES.

London, October 9, 1914.

The revised British Pharmacopeia for 1914 has been printed and copies may now be seen at the several offices of the General Medical Council (in London, Edinburgh and Dublin) and will remain there for inspection by those interested until the end of the year, when it will be officially published by statutory notices in the *Gazette* of December 31. Thus it will come into force on January 1, 1915, and be the only authorized codex until a further revision is made. It has been edited for the council by Professor Tirard of King's College and Professor Greenish of the Pharmaceutical Society, whose names inspire confidence and whose services are duly acknowledged in the preface.

Researches in pharmacy carried on since the last edition by the councils' committees and other authorities have been consulted as well as such criticisms as have been made upon them. The metric system of weights and measures has at length obtained resognition, but its triumph is not complete and its advocates will not be satisfied. It has been used for the analyses and pharmaceutical computations. But much more important is its extension to the doses of the remedies, though not absolutely. It is adopted as an alternative; the doses being stated in both systems in the expectation that the decimal will gradually come into use without too much inconvenience to prescribers who are further recommended to discard the common symbols for dram and ounce on the ground that they are too apt to be misread. These changes will affect dispensers as well as prescribers, more than general practitioners, though these also will have to consider them. The seniors in all classes will no doubt feel them most and indeed some grumblings are already heard about the nuisance inflicted by trivial alterations that for some time will intrude themselves into the fixing of every dose.

But there are alterations of dosage which are far from trivial, depending for the most part on changes in the strength of preparations. Tincture of opium is one-third stronger and considering the constancy of its use, extending to the public which will doubtless continue to buy and consume its laudanum, I think the danger of the alteration much greater than that of misreading the symbols for weights and measures. Another example is strophanthus, of which the tincture is quadrupled in strength, at any rate four times as much of the drug is to be used for the maceration. On the other hand, the proportion of nux vomica to be employed is reduced by half.

There are forty-three additional remedies in the revised British Pharmacopoeia. Among them I note acetone, aspirin, adrenalin, barbitone, cresol, guaiacol, hexamine, phenolphthalein, resorcin, trional, and several others and their compounds. The omissions are far more numerous, no less than 168 articles present in the last edition having been discarded. Some of these are in general use, such as scammony, gallic acid, sp. ætheris compositus, but their exclusion is not of much import as they can continue in use all the same and no doubt many will maintain their popularity for a longer time. Blisters will in future be made with cantharidin, which displaces the crude drug. In the same way coca, jaborandi, and physostigma make way for their active principles or salts of them.

The addendum of Indian and colonial medicaments disappears from the new edition, such articles as are retained taking their places in the body of the work.

Some alterations of patent compounds have been made to comply with recommendations of the International Conference (1902). Some, on the contrary, have not been so dealt with, the objection to

them being stated. The atomic weights adopted are those of the International Committee.

The word mil, which is officially recognized by the Board of Trade displaces cubic centimeter and so can be used in prescribing. It is a convenient abbreviation of millilitre, which is defined as the volume of 1 gram of water at 4° C. A decimil = 1.69 minims as nearly as may be and the centimil 0.169 minim.

The doses stated in the pharmocopeia are not authoritative and every practitioner is responsible for his employment of remedies. But dispensers are expected to satisfy themselves that a prescriber who orders an unusually large dose intends to do so. In such case many prescribers initial the line of the unusual amount and the pharmacopeia might very well have inserted a recommendation to make this precaution general.

The £90,000 accumulated in respect of insured persons who had not chosen or doctors for 1913 having been distributed among the practitioners on the panel settles the discussion that took place as to their right to this money. To many such an unexpected addition to their earnings was welcome enough. But to those not concerned in the matter the claim may seem a weak one and the consciousness that it is so may account for the heat with which it was sometimes urged. The money accumulated because the sick did not state what was to be done with fees which were to be paid as to cases which did not employ the panel doctor, these cases were very numerous. Those on the panel, or most of them, held that it should be distributed among them in accordance with the numbers on their lists. As there were no other claimants the objetcors were only some economists and persons who were shocked at the idea of men asking for fees they had not earned. The panel committee invited the recipients to subscribe towards a motor ambulance for the Red Cross Society as a thankoffering for their good fortune.

On Monday evening next the Medical Society of London will begin its 142d session with the annual general meeting at which Sir John Bland-Sutton, the incoming president, will deliver his address.

On the following Friday the demonstrations at the Royal College of Surgeons for practitioners and advanced students will be begun by Professor Arthur Keith, who will show specimens illustrating gunshot injuries of the head.

The excellent library of this society was founded by Dr. Lettsom in memory of whom is the course of Lettsomian lectures delivered annually. It contains a full collection of modern medical literature as well as numerous early works attractive to bibliophiles. There is a reprint of Seroetus on the Trinity from the one copy which escaped being burnt. Also the manuscript diary of Dr. John Ward of Stratford-on-Avon, a clergyman who practised medicine.

Nerve Deafness Associated with Anemia.—D. McKenzie reports the case of a woman aged 41 who complained of deafness and tinnitus of three months' duration. The hearing tests showed slight nerve deafness. The caloric test in both ears showed violent nystagmus in twenty seconds with extensive vertigo. The patient's evident anemia led to a blood examination, which resulted as follows: red cells, 4,000,000; white cells, 3,500. Differential count: leucocytes, 60 per cent.; lymphocytes, 40 per cent.; oxyphiles, 2.5 per cent.; red cells: poikilocytosis; no erythroblasts—*i.e.* anemia; leucopenia. The urine showed a trace of sugar but no albumin.—*Proceedings of the Royal Society of Medicine.*

OUR LETTER FROM THE PHILIPPINES.

(From Our Special Correspondent.)

FLOOD IN MANILA—PRECAUTIONS AGAINST EPIDEMIC DISEASE—SANITARY ADVANTAGES OF THE FLOOD.

MANILA, September 12, 1914.

DURING the past two weeks the matter of most medical interest has been the great flood which submerged Manila, the greatest in the memory of living man. It came as a climax of weeks of steady downpour resulting from a succession of typhoons with tremendous precipitation in Manila and the lake basin behind it. Only the walled city, a small part of the business district across the river, and a strip along the beach in Ermita escaped. In all other districts the water stood from one to four feet deep, and in certain parts of Santa Ana and Paco it was more. It was three feet deep around the Governor-General's palace at Malacanan.

Fortunately the currents were not swift and only a few lives were lost by drowning, but a rise of another foot would have resulted in many casualties. The police also worked very energetically, and, taking possession of canoes, boats, rafts, etc., they moved some twenty thousand people to places of safety. Schools, churches and other buildings were opened as temporary refuges. The Government also distributed free rations of rice, fish, salt, and condensed milk to needy persons, every police station and health station in the city serving as a distributing center. Fortunately at the end of two days the waters receded from most of the city and acute difficulties were thereby removed.

As flood anywhere is apt to be followed by epidemic, the health authorities promptly took precautionary measures, especially in view of the fact that a cholera infection was present in the city. Dr. E. L. Munson, lately appointed Acting Director of Health, on being interviewed by the papers, called attention to the fact that a certain increase in the sickness was to be expected. He asked that householders promptly clean their premises of the slime and refuse left by the receding waters, while the city authorities were taking similar action in the streets and parks. He called attention to the fact that the flood waters had risen so high as to submerge for days not only the sewer system water closets, but those equipped with pails, their filth mingling with the flood waters. The toilets in many private houses were also put out of use. The result was that for days a large part of the population necessarily disposed of its excreta by throwing it into the flood waters under and about their houses. A large part of the public hydrants were also submerged, cutting off all possibility in the poorer districts of procuring a pure water supply. Great numbers of people were thus forced to dip their water supply from the flood waters, fouled as they were with the filth and scourings of a great city. Nor could many of them render this water safe by boiling, from lack of fuel.

Food was short, as the poorer classes carry little if any supply in their homes, and many stores and booths were put out of business. Many had insufficient food, and that imperfectly prepared. A large part of the population was repeatedly drenched in the chilly flood waters and the incessant downpour, lack of fires, and insufficient change of clothing among the poor practically kept that class in wet garments for several days at a time. People also crowded into each others' houses or formed new large groups, with resulting increased

danger of transmitting infection from the many cholera carriers present. Persons sick or dead from infectious diseases were not promptly discovered by the sanitary inspectors, who with the disinfectors did much of their work in boats. All this disturbance, said Dr. Munson, would result in a rise in the intestinal and respiratory diseases and the infant and other general mortality. As a partial offset the city was receiving such a thorough cleansing as it had never before experienced. All surface filth and refuse were being washed away and the esteros were being thoroughly flushed and scoured out. Thousands of rats, especially litters of young, and the fleas infesting underground burrows and rat runs, would be drowned. The burrows would be silted up and adult rats escaping to upper floors would have to remain for some time with difficulties as to food supply and few places of refuge against their destruction. There would probably be a very great diminution in the rat population accordingly, though the plague of rats as a whole, from their becoming more conspicuous, would seem to increase.

Since the flood there has been quite a little rise in mortality along the lines just mentioned. The cholera cases were doubled for some days, though nothing amounting to the nature of an epidemic has been reached. The later cases have occurred particularly on the outskirts of the city, where public closets and water hydrants are less ready of access. There is much reason to suspect that many of these cases are due to the use of flood waters which have been retained in surface pools and depressions.

Progress of Medical Science.

Boston Medical and Surgical Journal.

October 15, 1914.

1. A Roentgenological Consideration of the Relation of Individual Type to Intestinal Stasis. P. Brown.
2. A Further Study of Cancer. S. W. Little.
3. Gunshot and Bayonet Wounds of the Stomach. C. G. Cumston.
4. Several Practical Features Associated with the Management and Treatment of Obscure Arthritis. H. W. Marshall.
5. Thyroid Operations under Local Anesthesia. F. H. Lahey.

2. A Theory of Cancer.—S. W. Little presents a theory the important points of which are as follows: Cancer is a disease of disordered nutrition. The probable origin of the growth is in highly specialized cells, which for some reason or other (possibly always trauma) have undergone a retrograde metamorphosis to the point where the power of reproduction, common originally to all cells but lost in these highly specialized cells, has reappeared. This reproduction of such reverted cells is caused by a relative hypofunction of certain ductless glands. To produce cancer such hypofunction must be primarily in a ductless gland derived from the same blastodermic layer as are the cells from which the cancer originates. For example, cancer of the breast implies hypofunction of some ductless gland or glands derived from the ectoderm—the breast epithelium being ectodermic in origin. In some vital manner sugar metabolism and calcium metabolism are involved in the disordered nutrition resulting in cancer. The ductless glands at fault in each case have some vital relation to sugar metabolism or calcium metabolism or both. As bearing on the last two points it has been shown that cancer patients in general have a hyperglycemia, though rarely a glycosuria. Diabetes and cancer are rarely present together. Cancer patients, like tuberculosis patients, have in general also a poor calcium metabolism, the "precancerous" condition resembling in many respects the "pretuberculous" condition.

3. Gunshot and Bayonet Wounds of the Stomach.—C. G. Cumston states that the usual damage done by the projectile within the abdomen is so extensive that death results at once. Logically it may well be argued that a laparotomy is indicated to control the dangers of intra-abdominal hemorrhage, and above all the effusion of the gastric and intestinal contents. This is what the majority of surgeons thought who were called into action in the South African war, and everything had been prepared for the treatment of abdominal wounds by immediate laparotomy. But the results of this practice quickly showed that the mortality of the operated cases was greater than of those patients treated by temporization, and the conclusion of all the great amount of matter that has been written on the subject is that a great number of those thus wounded die before they are removed from the field, that among those removed a number die from peritonitis, but that quite a large proportion recover without operation, and that almost all submitted to laparotomy die. Consequently, at the present time, opinion is unanimous that abstention is proper, and this is undoubtedly the correct view in the vast majority of cases, since the time required in carrying out these operations is pure loss and could be far more usefully employed in other injuries. There are cases which will die from internal hemorrhage if not immediately operated on, and this is the only indication for surgical interference in abdominal wounds on the battlefield. But since a laparotomy is undertaken for the control of the loss of blood, after this has been accomplished it is better perhaps to do a complete piece of work, since the abdomen is opened, and close gastric or intestinal perforations when present.

4. Practical Features Associated with the Treatment of Obscure Arthritis.—H. W. Marshall notes that the search for and discovery of new therapeutic agents undoubtedly will continue in the future as in the past, and out of many possibilities there will be found a few remedies probably that will be better than some we now have. Single specific measures, however, will never fill satisfactorily the need for comprehensive understanding of joint diseases. Increased success presumably will come to an important degree from closer cooperation between practitioners and specialists and plans that benefit all concerned, namely, the patients, family physicians, and the special workers. One important line of advance presumably will be through improving the possibilities of home treatments. Lack of appreciation of quantitative defects in therapeutic methods is a very important stumbling block in the path of progress that is overlooked because of its uninteresting and commonplace nature.

5. Thyroid Operations under Local Anesthesia.—F. H. Lahey describes his method of operating as follows: A freshly prepared 2 per cent. solution of novocain containing fifteen minims of adrenalin to the ounce is used. The first infiltration is made across the neck in the line of the proposed collar incision, and is more satisfactory in the writer's experience if made into the skin rather than in a large infiltration into the alveolar tissue beneath the skin. Through the plainly visible line of infiltration the skin incision is carried down to the platysma muscle. Care must now be taken in going through this muscle, as it contains a number of large and small veins, the clamping of which often produces a sharp twinge of pain. This is overcome for the most part by the injection of novocain around the larger veins before they are clamped. The incision across the neck now having reached the sternohyoid, sternothyroid, and mastoid muscles, an infiltration of the flap of

skin and platysma made by the curve of the horseshoe incision is effected by inserting the needle and injecting deeply between the platysma and the two underlying muscles. A little of the solution is now injected along the anterior borders of the two sternomastoids, which are then dissected free from their attachment to the sternohyoid. With no further infiltration a longitudinal incision may now be made in the median line through the sternohyoid and thyroid down to the anterior surface of the gland. This is enlarged upward to the upper attachment of the sternothyroid and downward to the sternal notch. By careful and gentle manipulation the sternothyroid on either side may now be freed from the anterior surface of the gland by sweeping the index finger beneath the muscles upward and downward, gradually farther and farther outward, until both sides are entirely clear. A few injections are necessary now across the sternohyoid and thyroid to overcome the very slight pain produced by closing the double set of clamps transversely on either side. Cutting between the clamps is productive of no pain whatever if done with a sharp knife and not with the scissors. The superior thyroids may next be caught between two clamps, and it has been the author's experience that, contrary to experiences with blood vessels in other regions, clamping of the vessels leading to the thyroid gland itself is productive of little or no pain. The removal of one lobe and its isthmus, and, if deemed wise, part of the other lobe, may then be proceeded with as with a general anesthetic. The thyroid itself has little sensitiveness, and the patient complains of no pain from manipulations of it except when it is dragged upon or crushed either with clamps or in locking double hooks, and then but slight pain. The portion of the thyroid to be removed having been taken out and the vessels tied, a little novocain is injected in the skin beneath the center of the collar incision and a pair of snaps is worked through a small incision until a drain can be caught in their jaws and withdrawn through the drain hole. The muscles—sternohyoid, thyroid, and plastysma—may now be sutured with no further infiltration, and likewise the skin sutured painlessly, even if the operation has consumed an hour in time.

New York Medical Journal.

October 17, 1914.

1. Implantation of the Generative Glands and its Therapeutic Possibilities. G. F. Lydston.
2. Heteroplastic Grafting of Testicle. R. T. Morris.
3. Gunshot Wounds of the Spine. C. G. Cumston.
4. Median Bar Obstruction in Prostatic Disease. J. D. Whitall.
5. Was the Engineer's Mind Impaired by Alcohol? T. D. Crothers.
6. Localization of Brain Lesions. H. Crenshaw.
7. The Nasopharyngoscope in Treatment. T. J. Harris.
8. Alleged Tuberculosis Cures upon the Market. F. P. Morgan.
9. Tropeolin as an Indicator for Gastric Acidity. F. W. Rolph.
10. Purpura Hemorrhagica Treated with Horse Serum. J. M. Bodenheimer.

4. Median Bar Obstruction in Prostatic Disease.—J. D. Whitall divides the treatment of this condition into: (1) medical—(a) local, (b) general; and (2) surgical. The medical treatment consists in the administration of an abundance of pure water and urinary antiseptics. If cystitis is marked, irrigation of the bladder must be practised twice daily till the condition is controlled. Constipation must be corrected. If the patient leads a catheter life, irritation and inflammation of the bladder can be kept down only by the most rigid surgical cleanliness and regard to instruments and solutions. The skin must be kept active. The diet must be modified; nothing like rich or highly seasoned foods or alcohol being permitted. A patient must be made comfortable for a number of months along these lines, or the condition may grow worse, the average man growing tired of the rigid routine laid down. The borderline between medical and surgical cases is not rigid, but one merges into the other gradually. If after several months' treatment, there is not much, if any improvement, and if the patient fails to live the catheter life properly, and provided, all things considered, he seems to present a fair risk, then surgical removal of the obstruction must be considered. Suprapubic prostatectomy provides the clearest and most rapid operative measure, and convalescence should be speedy. The entire gland with the obstructing isthmus is enucleated by blunt dissection with the index finger of the right hand, while the index finger of the left hand acts as a guide in the rectum. The entire prostatic urethra is removed with the isthmus. No retention catheter is used. A drainage tube of large caliber is passed through the incision and allowed to drain the urine for thirty-six to forty-eight hours. The bladder is irrigated twice daily with saline solution, and dressings are changed frequently. No urethral instrumentation is done. The patient is allowed to sit up out of bed by the seventh day.

5. Engineer and Alcohol.—T. D. Crothers states that a man on a locomotive or in charge of some machinery that requires constant care and judgment, may seem to be perfectly normal as long as everything goes on without a break or change, but let some unusual condition happen, some obstruction or breakdown, or some emergency which requires rapid and prompt judgment, and the defect will be seen. This is evident in men who are in positions where color signals are depended upon for guidance, as men in the pilot-house of a ship or on a locomotive on a dark night. After a glass or more of spirits, the color sense is impaired and cannot be depended upon, hence such men are very dangerous. The so-called moderate drinker is unfit for any such situation. Hearing is disturbed. The moderate drinker is unable to distinguish sounds with the same acuteness as before, and when they are heard it is after a longer lapse of time. Thus a whistle, the ticking of a clock, the sound of a bell is heard from a half second to three seconds later than by one who has had no alcohol.

9. Tropeolin as an Indicator for Gastric Acidity.—F. W. Rolph concludes that in the gastric contents of a normal individual, removed one hour after a test breakfast, there is no free hydrochloric acid. Toepfer's reagent is not solely a reagent for free hydrochloric acid, but will also react to certain highly ionized combinations of acid and protein and acid and aminoacid or peptide. As a measure of hyperacidity it is practically valueless. The acid which is sufficiently ionized to react to tropeolin is the acid which produces in some manner the symptoms of hyperacidity, and tropeolin can be used to measure that hyperacidity. The hydrochloric acid deficit to tropeolin is greatly raised in cancerous, compared to benign achylia.

Journal of the American Medical Association.

October 17, 1914.

1. Anoci-Association in Relation to Operations on the Gall-Bladder and Stomach. G. W. Crile.
2. Experimental Surgery of the Heart, Lung and Trachea. A. Werelius.
3. Nervous and Mental Disturbances Following Castration in Women. A. Gordon.
4. Tuberous Sclerosis and Other Unusual Features of Epilepsy. N. S. Yawger.
5. A New Method of Treatment of Lupus Vulgaris. M. L. Heidingsfeld.
6. Generalized Neurofibromatosis (Von Recklinghausen's Disease). Report of a Case Showing a Superficial Resemblance to Hodgkin's Disease. C. A. Elliott and A. F. Beifeld.
7. Spontaneous Subarachnoid Hemorrhage. A Contribution to the Subject of Meningeal Hemorrhage. Samuel Leopold.

8. Primary Carcinoma of the Lung. Second Communication. B. M. Edlavitch.
9. The Use and Abuse of the Tonsils. J. H. Comroe.
10. The Relation of Heat to the Morbidity and Mortality of Infants from Gastrointestinal Diseases. H. F. Helmholz.
11. The Influence of Starch on Infant Digestion. T. S. Southworth.
12. Percussion of the Lungs. Part 1. An Effort to Standardize the Degrees of Dulness. Part 2. The Advantages Over the Opposite Method of Percussion from Base to Apex. N. K. Wood.
13. Progressive Lenticular Degeneration. W. B. Cadwalader.
14. The Present Status of Organic Iodin Preparations. F. C. McLean.
15. Injurious Effects of Forcible Passive Motion in Diseased and Traumatic Joints. A. J. Gillette.
16. The Determination of the Next Dose in Tuberculin Therapy. M. Solis-Cohen.
17. Collargol in Pyelography, with Report of an Interesting Case. A. J. Crowell.
18. Thrombophlebitis of the Sigmoid Sinus of Otitic Origin Without Local Manifestations. E. L. Meierhof.
19. A Case of Spasmodic Ileus in an Infant Simulating Intussusception. J. D. Butzner.

1. Anoci-Association in Relation to Operations on the Gall-Bladder and Stomach.—By G. W. Crile. (See MEDICAL RECORD, July 11, 1914, page 85.)

2. Experimental Surgery of the Heart, Lung, and Trachea.—By A. Werelius. (See MEDICAL RECORD, June 27, 1914, page 1194).

3. Nervous and Mental Disturbances Following Castration in Women.—A. Gordon draws the following conclusions: Removal of the reproductive organs in women causes disturbances in the domain of the nervous system. These disturbances are of a purely functional nature. The disturbances are somatic and psychic. The psychic manifestations, while individually they belong to any of the varieties of psychoneuroses, nevertheless in their ensemble do not constitute any of the well-established classical forms of psychasthenia. True insanities are not observed. The generally observed symptoms are: restlessness with a tendency to move from place to place; difficulty of self-control; dissatisfaction with all and everything; difficulty in finding contentment in one's own efforts; want of interest in all absorbing subjects and objects; indifference, indolence, and pessimism. Sometimes there are outbreaks of anger with a tendency to attack. Among other symptoms may be mentioned: insomnia, gastrointestinal disturbances of a functional nature, headache, vague pains or paresthesias, also occasionally glycosuria; tendency to obesity is also observed in some patients. Individuals who presented various manifestations of psychoneuroses before they fell into the hands of surgeons, had their psychic phenomena decidedly aggravated after the uterus and ovaries or only ovaries were removed. As in the removed organs healthy portions of tissue were invariably found, it is to be supposed that the removal of the latter is in some relation to the morbid phenomena observed after the operations. The logical conclusion seems to be that one must be very cautious in advising operative procedures on the generative organs and the tendency should be to preserve as much as possible of any amount of normal tissues to be found in the uterus or ovaries. No operation, Gordon says, should be advised on healthy organs if a woman complains only of vague nervous disturbances.

4. Tuberous Sclerosis and Epilepsy.—N. S. Yawger points out the important rôle of heredity in the development of many cases of epilepsy. In some instances the cause is encephalitis dependent on the infectious diseases and sometimes it is traumatism, syphilis, or brain tumor. Occasionally epilepsy is observed to follow fright or other mental shock, but the manner of such influence one cannot understand except as it acts on an individual who is a potential epileptic. Another interesting group of cases are those reported as exhibiting a variety of attacks, at times even said to be major, minor, and psychic, which can in no wise be distinguished from those of epilepsy, but in which the attacks lessen or cease after the correction of some abnormal body condition as in intestinal intoxication. Tuberous sclerosis is the pathological basis of a few cases of epilepsy. The appearance presented by the unhardened tissue is that of markedly indurated areas of sclerosis which are slightly elevated beyond the surrounding brain substance; in addition there are sometimes found small tumors protruding into the ventricles. Tuberous sclerosis in connection with glial formation, Yawger says, may present the common picture of brain tumor.

5. A New Method of Treatment of Lupus Vulgaris.—M. L. Heidingsfeld details this method of treatment as follows: A saturated solution of trichloracetic acid is obtained by adding 10 drops of distilled water to an ounce of pure crystals. A tiny pledget of cotton is carefully wrapped around the end of a small rounded wooden toothpick, by means of which the remedy is applied as far as practicable to each congested nodule. The remedy apparently exerts a selective action, attacking the nodules with greater promptness and sparing somewhat the intervening more normal or cicatrized areas. This selective action is also noted if the remedy is applied more or less diffusely to a generally congested surface, although better results are usually obtained if it is carefully applied to the individual nodules for a few seconds at a time. The application produces a momentary sense of discomfort and stinging, which can be promptly allayed by the application of the following: Sulphurated potassa, zinc sulphate, of each, 1 part; zinc oxide, 10 parts; lime water, 15 parts; distilled water, enough to make, 40 parts; and powdered carmine, enough to color pink. This application serves, in addition to its protective and healing properties, as a cosmetic to hide the glaring whiteness produced for the time being by the trichloracetic acid. The trichloracetic acid should be applied to areas not much larger than a silver quarter, at a time, and repeated at seven to fourteen day intervals. Under the treatment the nodules become the seat of superficial crusts which exfoliate within from five to ten days. The general congestion diminishes, and the nodules lose in intensity of redness, and rapidly diminish in size, until they gradually become no larger than pin-heads and ultimately disappear. Mucous membrane lesions on the lips and within the nose have yielded with equal promptness and success.

8. Primary Carcinoma of the Lung.—B. M. Edlavitch emphasizes the fact that primary carcinoma of the lung as a distinct pathological and clinical entity is by no means as rare as it is generally thought to be. The group of symptoms that should be regarded with suspicion are progressive dyspnea, persistent cough, hemoptysis, pain, weakness and loss of weight, and pressure of metastatic effects. Signs of solidification of the lung, the presence of hemorrhagic pleural effusion, tachycardia without fever, and the absence of tubercle bacilli in the sputum are the significant objective findings. A diagnosis based on these clinical phenomena may be established by the use of the Röntgen rays, the bronchoscope or thoracotomy. Resection of the affected parts by radical operation should be attempted in every operable case. Radioactive emanations may prove to be of therapeutic value and, if possible, can be given a thorough trial whether surgery is resorted to or not.

9. The Use and Abuse of the Tonsils.—By J. H. Comroe. (See MEDICAL RECORD, July 4, 1914, page 42.)

11. The Influence of Starch on Infant Digestion.—By T. S. Southworth. (See MEDICAL RECORD, July 4, 1914, page 40.)

The Lancet.

October 10, 1914.

1 The Pathology of Heart Function. T. Lewis.
2 Observations upon 31,000 Consecutive Medical Examinations, Conducted chiefly for the Public Service. Sir John Collie.
3 On a Method of Making Cultivation Media without Prepared Peptones and on a Peptone-free Medium for Growing Tubercle Bacilli. S. R. Douglas.
4 The Transport of the Wounded in War. E. Kondoleon.
5 A Case of Acute Exophthalmic Goiter Simulating Acute Obstruction. G. M. Smith.
6 Observations on the Improvisation of Apparatus in the Treatment of Certain Fractures in Modern Warfare. J. H. Watson and T. Snowball.
7 A Note upon the Wounds of the Present Campaign. C. H. Makins.

1. **Pathology of Heart Function.**—T. Lewis discusses those disorders of the heart's action which are disturbances of the regular sequence of chamber contraction. The existence of auriculoventricular heart-block in man the subject of disease, has been abundantly proved; it has been proved in its many grades. The sequence of the contractions of auricle and ventricle is normally and wholly maintained through the medium of the auriculoventricular bundle; and structural damage which completely breaks this slender tract is responsible for a number of instances of complete dissociation. Experimental heart-block may be obtained in one of three chief ways: (1) by direct interference with the conducting tracts; (2) by stimulation of the vagus nerve, directly or indirectly; and (3) by the introduction of poisons into or by altering the metabolites of the circulating blood. Temporary heart-block in man, on the other hand, is to be explained on the grounds of nervous influence or chemical change in some instances. There are several disorders of the heart's action which are very closely related, namely, premature contractions (or extrasystoles) paroxysmal tachycardia, auricular flutter, and fibrillation. All these disturbances of the heart's action have the same essential pathology, whose simplest expression is the solitary premature contraction. The most remarkable character of the extrasystole is its prematurity. It occurs as a rule long before such time as a heart-beat is expected. The second distinctive character is the absence of rhythmic tendency. Those influences which promote spontaneous rhythms do not necessarily promote premature contractions. The reaction to the heart nerves is different in the two cases, and this has been noticed particularly in the case of the vagus. Stimulation of the vagus slows the physiological rhythm, be it of auricular or auriculoventricular origin; and with graded stimulation the slowing is gradual and is followed by an equally characteristic and gradual acceleration until the original rate is reached or surpassed. The action of the vagus upon extrasystolic beats, occurring successively, is essentially different. There is either no reaction or an abrupt and complete termination of these beats. The naturally rhythmic centers are not the centers from which extrasystoles commonly arise. The physiological rhythm is fastest which is propagated from tissues lying nearest to the superior cava, and as one passes to other centers the rhythmic properties are found to be less highly developed. These arguments support the proposition that certain of the preparatory processes which precede the normal contraction on the one hand, and the extrasystolic contraction on the other are essentially different, and that those which precede the latter are of a kind foreign to the physiological heart.

2. **Observations upon 31,000 Consecutive Medical Examinations.**—Sir John Collie presents a number of observations based upon 31,000 consecutive medical examinations made on behalf of two large public bodies and various insurance companies and solicitors during the past nine years. The proportion of candidates for the public service the author has had to reject has considerably increased. Up to 1911 the percentage of rejections was 9.9 per cent., but in the past three years the author has found it necessary to refuse 14.4 per cent. A large part of this increase is due to the number rejected on the ground of dental caries. It seems incredible that such a large number of people are ready to forfeit their chance of employment rather than undergo the treatment necessary to put their mouths into a proper condition. The following is a list of the causes of rejection of 1,423 cases: defective visual acuity, 479; dental caries, 254; heart disease, 110; albumin, 109; color blind, 103; hernia, 82; varicose veins, 54; disease of lungs, 25; poor physique, 22; syphilis, 18; various skin diseases, 16; diabetes, 13; varicocele, 11; debility, 10; deafness, 8; hydrocele, 8; refused physical examination, 7; obesity, 6; goiter, 6; hemorrhoids, 5; anemia, 5; alcohol, 4; gonorrhea, 4; mentally defective, 4; tuberculous spine, 3; deformity, 3; urethritis, 3; fainted at vaccination, 3; and various conditions of infrequent incidence, 48. The author urges the desirability of instituting a system of medical examination prior to employment. But he does not advocate the employment of only those who are physically perfect (the army of unemployed would be of enormous dimensions if that standard came into operation), and feels that in dealing with subsequent injuries or illnesses the advantage to be derived from a knowledge of pre-existing defects would be enormous. Furthermore, he says, if such medical examinations were made many men would not be permitted to undertake work the performance of which would be inviting disaster to themselves and others in their particular physical condition.

4. **The Transport of the Wounded in War.**—E. Kondoleon details the results of his experiences in the second Balkan war. He notes that for the transport of wounded men from the temporary stations to the central hospitals traveling by railway is often possible, in addition to which there are available bearers, motor-cars, ordinary carts, bullock carts, horses and mules, and the sanitary service wagons. A certain number of patients will be able to walk. Transport by bearers recruited locally would undoubtedly be the best of all, if it could be carried out everywhere and on a large scale. It is very comfortable for the wounded, who can rest quietly, even when being conveyed a long way, but unfortunately only a small number of wounded can be transported in this manner. It is therefore good to reserve this transport for the severest cases, in which an unsteady movement of any kind may prove fatal. Next come the motor-cars which are the best means of transport where there are carriage roads, because they secure both a quick and safe transport, although with some of them the occupants have to endure severe jolting. One of the ordinary transport motor-cars can easily hold ten wounded persons, so that if twenty or thirty such motor-cars are available 200 or 300 wounded can be conveyed every day to a great distance. These transport motor-cars were made use of from Cresna to Salonica and proved quite a success. For purposes of transport ordinary horse-carts and bullock carts must be replaced by motor-cars where possible. Transport by mules is useful in mountainous regions and when the immediate evacuation of a station becomes urgent. The ordinary transport carriages of the sanitary service are as a rule uncomfortable and the jolting of the wounded in them may be a cause of shock. It would be desirable if they could be replaced by transport motor-cars.

Berliner klinische Wochenschrift.

September 14, 1914.

Rôle of Contact Infection in the Spread of Cholera.—Wolter alludes to recently expressed beliefs in connection with cholera incidence in the Balkan war, that sudden explosions of the disease can only be explained by contact infection; but while one author assigns relatively small importance to this factor another regards it as of paramount significance. The fact that one body of troops may fall victim to the disease, while another close at hand may show no morbidity whatever from the same, naturally suggests contagion rather than local factors of time and space. But sharp local demarcation has always characterized the incidence of the cholera epidemics. Focal outbreaks appear to stand in relation to certain river valleys, and it has often been noted that after removal from certain localities the visitation ceases. The author cites many accounts of the recent epidemic appearance of cholera, and carefully avoids any reference to bacteriology. While drinking water epidemics are mentioned, there is hardly any consideration of the exact transmission of the disease. The latter, however, is grouped rather with typhoid and dysentery, than with typhus in which contact infection is the sole channel of transmission. Dealt with along old epidemiological lines the question of propagation lies between contact infection, fomites, and purely local conditions. The latter include soil, water, drainage, the weather, and other purely external factors. In the epidemic transmission of diseases the simple elements which explain sporadic transmission naturally fall short in accounting for the facts, just as they fail to explain the severity and mildness, and the self-limitation of epidemics.

Hypernephroma of the Base of the Tongue.—Coenen refers to the origin of Grawitz tumors—as he prefers to call them—from aberrant germs of adrenal tissue. A localization in the base of the tongue is extremely rare. The patient, a woman of 62, had noticed a swelling on the tongue for about a year which caused difficulty in swallowing. On inspection a mass as large as an English walnut was seen at the right side of the base of the tongue. No positive diagnosis was made, but cancer and gumma were excluded. The tumor was extirpated through the lower jaw, which was submitted to temporary resection. The entire operation was done under local anesthesia and patient was not even put to bed afterwards. She escaped pneumonia and made a good recovery. There was no evidence of hypernephroma of the kidneys or adrenals.

Treatment of Vesical Tumors with High-Frequency Currents.—Renner traces the evolution of this resource. Beginning with the use of the cold and hot snare—a method requiring the utmost dexterity—the results of which were by no means encouraging, the next step was made possible by the introduction into general surgery of fulguration and the sparkless electric knife. Beer of New York then applied to vesical tumors the method of high frequency desiccation, employing an Oudin apparatus for the purpose. The method is erroneously termed fulguration in some quarters. Beer's procedure came into extensive use in certain medical centers. The author, in common with other German colleagues substituted for Oudin's outfit a diathermy apparatus, applied with a definite intensity, the tumors being coagulated together with the site of origin. The author has now treated six cases. Beer recommends the method only for clinical papillomata and particularly in heading off relapses after primary resections, in which there can be no doubt as to the malignant nature of the growths. The three cases first mentioned were of this character. The other three had never been subjected to operation, and in fact were almost inoperable. Coagulation was used apparently as palliative and in the hope that the growths might be controlled, despite the assertion that no indication for its use is apparent from the results of others. Compared with the use of the snare the operation is easy of execution, and is also not very painful. The urethra should be anesthetized and rectal suppositories of codein employed.

Simultaneous Interruption of Pregnancy and Sterilization in Tuberculosis.—Kunreuther describes twelve cases in which this procedure was carried out in the Landau Gynecological Clinic at Berlin. Pregnancy is terminated by abdominal supravaginal high amputation of the uterus, leaving the adnexa, all ligated, behind. By means of a wedge-shaped excision, sufficient to include the intact ovum, as much as possible of the corpus is spared. The patients were all multiparæ from 26 to 40, pregnant two to five months. Most of them were lost to view after the operation but in four who were traced the average gain in weight was fifteen pounds, while the tuberculous process had become stationary.

Münchener medizinische Wochenschrift.

September 8, 1914.

Experimental Proof of the Occurrence of Defensive Ferments.—Abderhalden recalls that but two years have elapsed since he first announced his discovery of the possibility of a serodiagnosis of pregnancy. The activity in this direction has in the meantime become tremendous. To understand the intimate nature of the seroreactions involved, we must bear in mind that the nutriment stands in no direct relationship with cellular activities, because of its complete disintegration in the intestinal tract. The substances which are borne by the blood stream to the cells are formed by synthesis in the intestinal wall and the blood itself is thereby constantly renewed by products native to the human body. More than a thousand experiments have shown that when alien substances do reach the blood the latter possesses the power—which is cognate with that of the intestine—to humanize or individualize. But while the intestine produces its results with preformed ferments, the blood is compelled to generate ferments for the occasion, which disintegrate the alien protein, etc., in the same manner as the said native enzymes of the digestive fluids. It is the presence of certain clearage products in the blood which proves the presence of the extemporized ferments. A subject of great interest, involving apparently some contradiction, refers to certain products of individual origin which are at the same time alien to the individual blood. Since such substances do exist, must they be pathological? This is hardly possible. The placenta is a normal structure which should be homologous to the maternal individual yet it contains albumin which behaves in the blood as alien matter, causing the genesis of ferments for its digestion. What is true of a temporary organ like the placenta could also be true of some of the stable organs, provided that the functions of the latter had become perverted. The ferments which spring into existence in the blood are themselves alien to the latter, and the period during which they may be studied is of uncertain duration. One of the incidental discoveries is the alien character of tumor protein which causes ferments to appear in the blood for its destruction. Aside from the question of tumor diagnosis which has been extensively studied we note here therapeutic posibilities. We already know that the blood serum of humor patients can exert a positive influence on tumor growth. At present the evidence

of the existence of defensive ferments is multiplied; we have the optical or polarization method, the dialysis procedure, the ultramicroscope, the interferometer, the biological tests, etc. However despite the eminently specific character of the reactions we are not yet clear as to the specificity of the ferments, for we know little of the specificity of its so-called substratum, or substance to which the ferment adheres.

Causes of Death in Aneurysm of the Aorta.—Pohrt takes up this subject where Baer left off in 1912. The latter studied the causes of death in 26 cases, in which there was no attempt to transcend this small number of results. Baer found that the majority of deaths had been due to perforation. The author now investigated the records of fifty cases of aortic aneurysm at the Hamburg-Eppendorf Hospital during 1908-1913, and of this number 47 were carefully analyzed. Rupture or perforation occurred in 24 per cent., which was also the figure for aortic insufficiency as a cause of death. In 18 per cent. the fatal result was due to compression of vital organs in the thorax (trachea 6, esophagus 2, pulmonary artery 1). In the same percentage do we find the deaths due to intercurrent diseases. The percentage of death from rupture, while agreeing closely with Baer's figure, is far lower than in some published reports, which place it as high as 60. It is evident that the aneurysm in itself is not a prolific cause of death, *i.e.* it does not as a rule so damage the circulation that failure of the latter results. Only in the case of cylindrical dilatation does the aneurysm act as a functional cause of death from insufficiency of the aorta.

Roasted Sawdust as a Wound Dressing.—Hammer states that he has used this substance as a wound dressing for several years and that it should be of great value in military surgery for the dressing of wounds with wide openings of entrance or exit. The roasting to which the sawdust is submitted is of sufficient degree to char it to some extent. The result is a dry, sterile, fine, hygroscopic, disinfectant powder of nominal cost, which does not crust upon the wound surfaces. It is packed firmly into the wounds, with gauze outside, and renewed every one or two days. The author recommends it chiefly for discharging and suppurating wounds as it possesses no advantages on dry or granulating surfaces. Even as simple a resource, however, is not to be absolutely free for the troops for the author, preserving silence as to the process of preparing his sawdust, announces that it will be marketed under a trademark name.

Rubber Sponge Compression as a Hemostatic.—Werner, in admitting that this resource is by no means new believes that it ought to be of great value in military surgery, especially for the production of hemostasis in shot wounds, and especially those made by shrapnel. The sponges having absorbed the blood are left as a dressing and their presence acts as a preventive of secondary hemorrhage. It may be of advantage to roll several sponges up tightly and tie them together. This resource should be of great value in the prevention of traumatic hematoma. The sponges are readily sterilized by wringing out in antiseptic solutions and good specimens will stand repeated boiling without injury.

Deutsche medizinische Wochenschrift.

September 10, 1914.

Rare Case of von Bechterew's Disease.—Hoene's patient was a man twenty-four years of age with good family and personal history. He was postponed for one year in his military service as not strong enough. After having been accepted he had served six months without sick report. He then took cold after a swim and began to complain of rheumatoid pains in the loins and left hip. After some weeks of treatment in the hospital for muscular rheumatism he resumed his duties. Aside from pallor, which evidently did not depend on anemia, he was free from finds. It is certain that at this period he had no rigidity, spinal or elsewhere. As his pallor persisted, despite normal blood count and 90 per cent. hemoglobin, he was excused from the maneuvers and given employment at his trade of joiner. He next developed a second attack of "rheumatism" and later a third, both requiring hospital treatment. He now underwent an examination by the author. The chest expansion was good, and there were no *x*-ray shadows. The only find was as before the striking pallor. Diagnosis of muscular rheumatism. Received hot baths, aspirin, and Blaud's pills. In about one month's time a distinct typhosis and fixation of the upper-middle dorsal vertebræ was manifested, which was sensitive to pressure, and not visible in a radiogram. Patient next began to show variable temperature rises and to lose weight and muscle tone. These symptoms along with his pallor constituted a cachectic state. Von Pirquet negative, chest sounds normal. He continued to waste until he was a mere skeleton. The physiological lumbar lordosis had gradually disappeared as the vertebral column underwent immobilization. Some movement was still possible in the cervical spine. The thorax had also become completely immobilized and all breathing was done with the diaphragm. Despite his plight the patient felt well. The entire condition had been evolved in six months time. All possible plans of treatment not absolutely contraindicated were tested with negative results. The prognosis is hopeless.

The Error in the Salvarsan Treatment of Syphilis.—Kromayer first gives the admitted facts in relation to mercury as an antisyphilitic: In the great majority of cases it removes the clinical symptoms of the disease with surprising promptness. When given intensively it cures 90 per cent. of syphilitics. Its administration is chronic—it must be given in doses so small that the organism is not damaged. He next appends the admitted facts about salvarsan: it removes the clinical symptoms of the disease just as does mercury, *i.e.* with surprising promptness and certainty. After one high dose and after several high doses in succession there may appear severe syphilitic relapses of a kind previously unobserved, and especially the so-called neurorecidive. Numerous deaths have followed its use, both immediately and after an interval. In order that the action of the two substances may be contrasted so as to bring out the best virtues of salvarsan and protect patients from its ill action, it is necessary, first, to give a treatment lasting for from 4 to 6 weeks and consisting of a total dose of old salvarsan of 2 to 3 gms. broken up into 10 or 15 single doses. The results of such a cure are at least as good as those of an intensive mercury cure of the same duration. The latter moreover is very apt to depress the organism and cause loss of weight, while the corresponding salvarsan treatment increases the weight, and the dreaded neurorecidive is seldom encountered. Salvarsan is positively contraindicated in diseases of the heart, bloodvessels, kidneys, liver, and brain, save in very minute initial dosage cautiously increased. By pursuing this plan, giving but two centigrams to begin with, the author has successfully treated syphilitic diseases of the heart, etc. The two medicaments may be alternated but not given as synergists. Two great and irremediable drawbacks will still remain as handicaps to the use of salvarsan, to wit: the need of intravenous exhibition and the high price.

Insurance Medicine.

Accident and Disease.—In the investigation of the injuries caused by accident, Dr. G. Grahamsley Howitt, Medical Officer to the Metropolitan Railway and Consulting Medical Officer Colonial Mutual Life Assurance Society, London, points out that quite frequently a combination of disease with accident is found. The question then arises as to what has happened, and the difficulties which occur are extremely troublesome. The history is often meagre or exaggerated, while material facts are suppressed. The majority of cases are unsatisfactory from a medical point of view, because it is almost impossible to obtain any after-history. Moreover, the circumstances under which examinations are made are not always of the best, and a solicitor's office, or the patient's one room, with little or no light, is not the place most suitable for a careful examination. These circumstances often make it difficult to arrive at a clear diagnosis, to separate the disease from the injury, to say whether there is any relationship between the two or not. Is the disease the cause of the accident, or the accident the cause of the disease? Is there any relationship at all? Sometimes also there are cases where it is doubtful whether there has been any injury. In others it is certain there has been none. Howitt considers that it is decidedly necessary to have a well-educated medical man to deal with these cases.

Among the cases which give most trouble are those affecting the nervous system, and of these the most difficult to deal with are those following head injuries, as often there are no objective signs of injury, only subjective symptoms, and one has to depend entirely on observation as to whether the complaints made are consistent with actual damage. The neuroses, the functional disorders of the nervous system, including neurasthenia and hysteria, present more difficulties than all the others put together. Occasionally traumatic pneumonia and pleurisy are found after accident, but Howitt considers these conditions are rare with the exception of the pleurisy which is sometimes found following fractured ribs. At times there is trouble with cases of kidney disease; the kidneys are said to have been injured, and are found to be diseased; a common occurrence being injury to the legs, where edema is present as the result of kidney trouble; or there is trouble from stone, which, as an instance cited, was said to have been displaced by accident. Cases do occur of heart disease complicating accident, but they are not common. There is a well-known case of sudden death which was found to be due to ruptured aneurysm, and in which it was held that the employers were liable, that death had arisen out of and in the course of the man's employment. The special senses may be affected by accident, blindness and deafness being produced as the result. Howitt suggests that eventually workers will be examined and graded according to their capabilities, and such complications of disease with accident will be largely prevented. This is done in large business concerns and in the Government services, and especial care should be taken on railways, where sudden illness of an employee or death might have very serious consequences to the passengers.—Life Assurance Medical Officers' Association, May 6, 1914.

The Effects of Alcohol and Tobacco on Life Expectancy.—Dr. T. D. Crothers says that there is no question about the evil effects of alcohol in large doses, used continuously or at intervals. The laboratory work has shown beyond doubt its paralyzing effects in doses from a half to an ounce; also that it has a special action on the vasomotor centers, deranging the circulation, and that it dehydrates cells and tissue. Cells exposed to one-tenth of one per cent. of alcohol become shrunken and changed in appearance. The granular matter, the dendrites, and the nerve terminals are eroded, and after a time become the seat of inflammation. New toxins are formed which still further complicate the protoplasmic growth and activities of the body. Tobacco does the same thing, only in a lesser degree. These facts are amply confirmed by comparative studies of alcohol and tobacco on cell growth in plants and animals, showing deterrent and degenerative physiological effects that are unmistakable. There can be only one conclusion from this, and that is that alcohol is the most subtle and dangerous of all drugs, impairing health and lessening longevity. Examinations to determine these facts cannot be made satisfactory if limited to physical conditions. They must extend to the mental activities as well. Policyholders today are subjected to strains unknown a half a century ago. There are certain occupations, certain environments, that strongly predispose to the use of narcotics like alcohol and tobacco. There are certain causes, some of them psychical, that should be the subject of distinct and exhaustive examinations. Medical examiners should be laboratory and clinical judges for the deductive and inductive studies of the entire phenomena of living. They should have the largest liberty and greatest encouragement to include in these studies every possible physiological, psychological, and sociological question that enters into everyday life. If the companies are unable to limit their business to total abstainers there are already data sufficient to indicate the possibility of insuring moderate drinkers on a practical commercial basis; thus a man at forty who claims to be drinking alcohol in moderation should be rated with the same expectancy as a man of fifty or fifty-five, and pay premiums accordingly. A periodic drinker of thirty should be charged the same as one of forty-five or fifty. This is on the supposition that they are free from the ordinary symptoms of physical disability. The central fact is that the drink and drug taker has discounted the future and is prematurely aged, and the company can estimate this premature aging and issue policies accordingly. Persons acknowledging the moderate or occasional use of spirits should pay the same premium as persons from ten to twenty years older, depending on circumstances and conditions. The present system of making all classes pay the same rates is an injustice to the abstainer, who must pay for the increased risks which the company assumes by insuring the moderate drinker. Life insurance is a commercial business, without sentiment, and should recognize the changing conditions and discoveries in science as well as in business. The insurance companies must consider these facts on the same basis that railroad companies and large corporations do, who employ thousands of men, and demand the most exact work and highest efficiency which can come only from total abstainers. The medical examiner is the authority to protect the interests and prevent the inevitable losses which follow from neglect to recognize the teachings of science in this field of work.—American Life Convention, March, 1914.

Book Reviews.

DISEASES OF THE RECTUM AND COLON AND THEIR SURGICAL TREATMENT. By JEROME M. LYNCH, M.D., Professor of Rectal and Intestinal Surgery, New York Polyclinic; Attending Surgeon, Cornell Dispensary; Attending Proctologist, St. Mary's Hospital, Hoboken, N. J.; Attending Surgeon, Red Cross Hospital, New York; Consulting Proctologist, Nassau Hospital, Mineola, L. I.; Consulting Surgeon, New Jersey State Hospital; Assistant Surgeon, Medical Reserve, United States Navy; Fellow American Proctological Society, New York Gastroenterological Society, Northwestern Medical and Surgical Society, etc. Illustrated with 228 engravings and 9 colored plates. Philadelphia and New York: Lea & Febiger, 1914.

THIS is one of the best of the many recent textbooks on the diseases of the rectum and colon, a subject that has practically outlived the stepmotherly care of the general surgeon and has been raised to a dignified and useful specialty. This book has been written not only for those whose work is confined to rectal diseases, but also for the general practitioner. It is comprehensive in its scope and minute in the description of details that are often taken for granted and neglected. An idea of the thoroughness with which the subject is handled may be gained by a review of the chapter headings which are as follows: Examination and diagnosis, preparation of the patient for operation, anesthesia, embryology and malformations of the rectum and colon, hemorrhoids, fissure of the anus, ulceration of the rectum and anus, abscesses of the rectum and anus, fistula, pruritus ani, cryptitis and papillitis, stricture of the rectum and colon, prolapse of the rectum, venereal diseases of the anus and rectum, rupture, injuries, and wounds of the rectum, the colon, maldevelopment of the colon, dysentery, colitis, diverticula and diverticulitis, pigmentation of the bowel, intussusception, constipation, autointoxication, colostomy and ileostomy, appendicostomy, benign tumors, malignant tumors, short circuiting, foreign bodies in the rectum and colon, serums and vaccines, and *x*-ray examination of the intestine. The up-to-date character of this work is indicated in the chapter on cryptitis and papillitis, conditions which are responsible for a large number of cases of pruritus ani. The wide possibilities of the use of serums and vaccines in rectal therapy are carefully detailed. The book is well written and illustrated, and will be of service to the student, general practitioner, and rectal specialist.

COMPENDIUM DER ARZNEIMITTELLEHRE MIT BESONDERER BERÜCKSICHTIGUNG DER NEUEN ARZNEIMITTEL, DER ORGANOTHERAPIE, SEROLOGIE UND NÄHRPRAPARATE. Von DR. LIPOWSKI, Chefarzt der inneren Abteilung der Städtischen Diakonissenanstalt in Bromberg. Price, 5 marks. Berlin and Wien: Urban and Schwarzenberg; New York, Rebman Company, 1914.

THIS book is a compendium of materia medica, particularly of the newer remedies, organotherapy, serology, and nutrient preparations. It is compact but comprehensive and should prove valuable to the physician who would be guided through the mazes of the vast number of therapeutic agents that have been introduced within recent years.

A TEXT-BOOK OF MEDICAL DIAGNOSIS. By JAMES M. ANDERS, M.D., Ph.D., LL.D.; Professor of the Theory and Practice of Medicine and of Clinical Medicine, Medico-Chirurgical College of Philadelphia; Officier de l'Instruction Publique, etc., etc., and L. NAPOLEON BOSTON, A.M., M.D., Professor of Physical Diagnosis, Medico-Chirurgical College; Physician to the Philadelphia General Hospital; Pathologist to the Frankford Hospital. Second Edition. Thoroughly Revised, with 500 Illustrations, some of them in colors. Price $7.50 net. Philadelphia and London: W. B. Saunders Company, 1914.

THE present edition of this work maintains the high standard of the former edition in its thoroughness and practical value. It contains, besides, the following new matter: Movements of the two halves of the chest; electrocardiograms; extrasystole; auricular fibrillation; sinus irregularity; succussion sounds audible over the abdomen; abdominal tension with original methods of determination; albuminous sputum; cobra-venom reaction in syphilis; the tick in transmitting relapsing fever; the Rumpell-Leede phenomenon in scarlet fever (not the "Rumpell Leed phenomena" as given in the preface though correctly referred to in the text); inclusion bodies of Döhle in scarlet fever; sweating and its significance; *Trichinella spiralis* in the blood; MacEwen's sign and Brudzinski's sign (not "Brudzendski's sign" as given in the text and preface) of epidemic meningitis; Prendergast's reaction for typhoid fever; fatty emboli; pupillary reaction; drug eruptions; nitrogen content of the blood; respiratory movements in hiccough; colloidal nitrogen of the urine, and initial eruptions in measles. Clinical tables have been added on the following subjects: Bloody sputum; dyspnea; hemorrhage from the mouth; abdominal enlargement; vomiting; ascites; splenic enlargement; hematuria, and bacteriuria. Among the subjects that have been rewritten are Stokes-Adams disease; blood-pressure; ulceration of the duodenum; Addison's disease, and anterior poliomyelitis. The book is eminently practical and well written, with remarkably few errors, considering its size and comprehensiveness. It is profusely illustrated.

TEXTBOOK OF LOCAL ANESTHESIA FOR STUDENTS AND PRACTITIONERS. By Prof. Dr. GEORG HIRSCHEL, Heidelberg, 1. Assistant in the Surgical Clinic. With an introductory preface by Prof. Dr. WILMS. Translated by RONALD E. S. KROHN, M.D., London. 181 pages, with 103 illustrations in the text. Price, cloth, $2.75 net. New York: William Wood & Company, 1914.

LOCAL and regional anesthesia, considered of such limited application even a decade ago that most of the larger surgeries of that period dismissed the subject, as far as general surgery was concerned, with a few lines or paragraphs, has been developed to such an extent in recent years that almost a new era in the practice of surgery may be said to have arisen. German and American surgeons have been foremost in the development of this method, and many important books on this subject have recently appeared. Among these, that of Hirschel deserves a place in the front rank.

Beginning with a brief survey of the history of local anesthesia, the indications and contraindications for its use, the drugs, solutions, and armamentarium required, the author rapidly passes to the discussion of its application to the special regions of the body. The technique of injection in the various regions is very clearly described and most effectively illustrated. To apply conduction anesthesia, a thorough knowledge of the course and relations of the various nerve trunks and their principal branches is absolutely essential. To this end many illustrations from truly remarkable dissections have been employed, some apparently original and many borrowed from Spalteholz's Atlas, Corning, and other authors. Other illustrations show surface form with tracings of the subjacent nerves, while the points of injection and the directions in which the needle is to be pushed are marked by dots and arrows, and the resulting anesthetic area often indicated.

While much further research will be necessary before a final accounting can be made of the value and limitations of local anesthesia in all its various phases, Hirschel's work cannot fail to impress one with the fact that the method already has a very large field of application, and encourage the hope of still greater future development, while it is an eminently practical guide for those desiring to employ local anesthesia in what seem, at the present time, to be suitable cases.

BEITRÄGE ZUR KLINIK DER INFEKTIONSKRANKHEITEN UND ZUR IMMUNITÄTSFORSCHUNG (MIT AUSSCHLUSS DER TUBERKULOSE) KLINISCHE BEITRÄGE. Herausgegeben von Prof. Dr. L. BRAUER, ärztlichem Direktor des Allgemeinen Krankenhauses Hamburg-Eppendorf. Redaktion: für die Originale; Dr. H. SCHOTTMÜLLER (klinischer und bakteriologischer Teil) und Dr. H. MUCH (Immunitätsweissenschaftlicher Teil), beide am Allgemeinen-Krankenhaus Hamburg-Eppendorf; für die Ergebnisse: Prof. Dr. H. LÜDKE, in Würzburg. 11 Band, 3. Heft. Price 6 marks. Würzburg: Curt Kabitzsch, 1914.

THE articles in this number comprise the following: A Contribution to the Clinical Study of Asiatic Cholera, by O. Hesse; The Significance of Bacteriological Controls, Before, During, and After Gynecological Operations, by A. Bauereisen; The Question of the Repeated Injections of a Curative Serum in Human Beings, by W. N. Klimenko; Diphtheria Bacillus Carriers, by H. Deist; the Foundation of Serodiagnosis and Chemotherapy in Syphilis, by P. von Szily, and Infection and Diabetes, by C. Funck. There can be no question as to the important field which this publication occupies in the presentation of the scientific and practical aspects of the infectious diseases.

Society Reports.

MEDICAL SOCIETY OF THE STATE OF NEW YORK, FIRST DISTRICT BRANCH.

Eighth Annual Meeting, Held in New York City, October 8, 1914.

THE PRESIDENT, DR. HENRY LYLE WINTER OF CORNWALL, IN THE CHAIR.

(Special Report to the MEDICAL RECORD.)

President's Address.—Dr. HENRY LYLE WINTER of Cornwall said that instead of delivering the usual address he proposed to present briefly a few clinical facts which he had collected bearing on the "Late Cerebrospinal Manifestations of Inherited Syphilis." His reason for making this presentation was a failure to find in the literature any reference to the class of patients to which he wished to call attention. The finding of this group of cases was entirely accidental. Whenever possible he made it a routine practice to have the Wassermann test or Noguchi's modification of it made in all cerebrospinal cases. The first patient to which the speaker referred was a woman, sixty-one years of age, who had suffered from epileptoid seizures for three years. In this instance the Wassermann reaction was positive. At about the same time a sister, sixty-six years of age, presented herself, giving a history of recent slight hemiplegia. Because of the findings in the first case the Wassermann test was made and a positive result obtained. These cases were examined in July and August, 1911. In neither instance was it possible to obtain a history of acquired syphilis. This, together with the relationship of the patients, made the diagnosis of inherited syphilis reasonably certain. The interesting feature was that neither of these patients had given any clinical evidence of the existing disease until about sixty years of age. This suggested that other patients of advanced age and varying neurological conditions might give similar findings, and in following this line of inquiry twenty-four other patients had come under his observation, ranging from fifty-two to sixty-six years of age. They belonged to the general class of arteriosclerotics, with high blood pressures. The blood pressures varied from 152 to 280 mm. Some of the urines showed evidences of contracted kidneys. Of this series of patients six were hemiplegics; two had epileptoid seizures; five complained of vertigo with headache, of which two showed wild mental disturbances; one had facial neuralgia with rheumatism; one medial nerve neuritis; one multiple neuritis, and three were difficult to classify, but presented symptoms of gait, posture, etc., incident to senility. There was one case each of epileptic seizures of the Jacksonian type, aphasia, senile dementia, and paralysis agitans. The Wassermann reaction was positive in ten of the twenty-four cases. There were no symptoms by which one could differentiate between the syphilitic and the non-syphilitic groups, but positive reactions had been found where they were least expected. It would be impossible to say after a detailed study which of these patients suffered from hereditary syphilis and which did not. There was, however, a difference in the results obtained from treatment. The iodides were given in all the cases. Some of the results were startling, the syphilitic group showing greater and more prompt improvement than the others. The results of active mercurial treatment of the syphilitic group were *nil*. Salvarsan was used in only one instance and the marked prostration and bladder irritation made him timid about trying it in other cases. There was no apparent improvement from this single injection. The facts of interest in connection with this series of cases was that a person might go through life carrying inherited syphilis and never give any evidence of it until fifty-seven years of age, and that there were a certain number of cases of this type. They made it imperative that the possibilities should not be overlooked in any examination. Advanced age with an apparently clean history was no reason for omitting an examination of the blood. A second point of interest was that for years they had been meeting a class of cases more or less loosely designated arteriosclerosis and for these they had been taught that the iodides were the only medication needed. Some had improved under this treatment, but the majority of their cases had not turned out well. With the Wassermann examination as a routine the reason for the positive or negative results of the iodide treatment was very evident. The syphilities improved; the others did not, or at least comparatively slightly. The question as to why there were no results from the mercurial treatment Dr. Winter said he could not answer. It might have been because the lesions were of such a chronic character or that the courses of treatment were too short.

Obscure Causes of Disease.—Dr. W. STANTON GLEASON of Newburgh presented this paper, in which he considered the effects of the intestinal poisons and the by-products of defective metabolism. He stated that our present day knowledge of the toxic products, their influence on the cell, and the general disturbance of the proper correlation of organs was due to the effective conjoined work of the clinician and the laboratory worker. The understanding of one of the most prominent obscure causes of disease was based on the knowledge of protein digestion. Dr. Gleason reviewed the results of the investigations of Kutscher, Abderhalden, Mendel, Vaughn, Eastman, Mellanby and Eppinger, Runneford and Heyde, and Armstrong in relation to protein digestion and the part played by the large intestine. The general practitioner and the surgeon were alike impressed that a survey of the systemic consequences from infection originating in the large intestine forced on one a new viewpoint in medicine and surgery. Any defect in the large intestine, be it either mechanical or a fault in its function, resulted in a varied flora of bacteria within its walls. These microorganisms were of the anaerobic putrefactive type and acting on protein bodies produced toxic substances such as indol, skatol, and paracresol. These poisons being reabsorbed in the blood caused serious disturbance in the digestive, circulatory and nervous systems, and also a general irritation of the harmony of action of all the organs of the body. Armstrong held that within the past one hundred years the flesh intake of man had increased four times, and it was distinctly pointed out that the proximal end of the large intestine was only favorable to digesting vegetable substances. Therefore it was only a fair supposition that meat substances would naturally provoke indigestion with toxic products if conditions were not absolutely normal in the colon. Experimental studies from the Pasteur Institute showed premature senile changes induced in animals by the daily feeding of some of the indol, phenol, or paracresol compounds. These changes were strikingly similar to the pathological changes common to the aged. Focal infection was closely allied with local and general disease and frequently bore an important influence to the general well being of the individual from the difficulty of locating the source of its activity. Focal infection was essentially an obscure cause of disease. Usually its origin was in the head in the form of an alveolar abscess, tonsillar abscess, poor teeth, and various chronic sinus conditions. It might also come from appendicitis, salpingitis, prostatitis, etc. Acute rheumatic fever was considered by Rosenow of focal origin. Billings considered focal infection as largely responsible for arthritis, cholecystitis, pancreatitis, etc., and also held that when the defenses of the body were depressed by overwork or exposure, the individual was especially susceptible to focal infection. In investigating for obscure causes of disease the importance of the recognition of the focus of infection must be prominent in the physician's mind. Dr. Charles G. Kerley in an article as yet unpublished on "Disorders in Children Arising from Derangement of Function" brought out very clearly an obscure incipient cause of disease in children. He pointed out that during the period of rapid growth the metabolic processes were most active and that this was the time when they were apt to have metabolic defects in the utilization of complex foods. Faulty deposition of salts probably produced rachitis in children. Protein was rarely a disturbing factor in the diseases of childhood, but milk, butter, and especially sugar, might cause trouble. It was well assured that nearly every healthy child of well-to-do parents received two or three times as much energy food as was required. In case of defective metabolism of hydrocarbon, toxic products were formed which produced periodic disorders of function such as recurrent colds, recurrent noninfectious bronchitis, with or without asthma, recurrent vomiting, recurrent fever, and eczema, and so-called bilious attacks with or without vomiting. The treatment for this class of cases was to cut off sugar, and, if the case promised to be difficult, cow's milk was omitted from the diet. The carbo-

hydrates and fats found in vegetables, cereals, breadstuffs, and meats supplied all the heat and energy required. As to the lithemic type, they were given internal treatment of soda alone or combined with the salicylates. Another obscure cause of disease was found in uric acid. Investigators were still far from unanimous as to the origin of uric acid in the system, but it was known that a moderate amount of uric acid was essential to health; an overproduction was abnormal, and a menace to the human body. This excess was found in those individuals who had abnormally small lungs. In these cases it was difficult to reduce the overproduction by the usual methods of diet and régime. A second class of cases were those who persistently overindulged in foods rich in starches, sugars, and fats, and possibly proteins. Uric acid excess from any source was important, and its persistence if unchecked could not help but be an ever increasing menace to the integrity of the organs and an irritant to the nervous system. It was a reasonable argument to consider that the basic factors in arteriosclerosis and gradually rising blood pressure were due to systemic toxins probably from the colon and also from defective metabolism. Appreciating their limitations they strove to eliminate these toxins and often with pleasing results, especially when the increased blood pressure was not associated wtih kidney lesion. Such conditions as excess of uric acid and intestinal poisoning should be placed under the same general plan of treatment as had been suggested for the treatment of focal causes of disease and metabolic disturbances in children. Drawing our deductions from our present light of knowledge in the behavior of proteins as being a fertile source of systemic infection, and as L. F. Bishop stated, "We must not disregard the teachings of the chemistry of our bodies," therefore, the protein intake should be limited absolutely to body requirements or even less, for it was known that living protein tissue could be built up by both protein and carbohydrate elements. It was immaterial to the body growth whether the seroalbumin proteins came from plant or animal life. The carbohydrates were freely permissible except limiting the use of sugar and sugar combinations. Cheese was a safe substitute for the more potent proteins. Fruit acids were generally advantageous. The too free use of water was often a detriment as the surplus might cause overdistention of the colon. In arteriosclerosis an overabsorption of water threw an extra burden on the already embarrassed circulation. Little medicine should be used in these cases, but a proper regulation of diet, rest, and exercise should be suited to the individual patient.

Dr. Charles Gilmore Kerley of New York said that this type of paper was most timely. He referred to the work that was being done in physiological chemistry in the effort to elucidate some of these problems of metabolism. The clinician must work out the practical side of these problems as well as possible and tell what could be demonstrated clinically and then the laboratory worker should attempt to furnish the explanation. What had been said in regard to focal infection was true. The importance of focal infection, especially in the ears of children suffering from malnutrition, was not sufficiently appreciated. In the Babies' Hospital, during the summer, in certain cases a sudden cessation of growth had been noted attended by no evidence of illness or fever and in nearly every one of these cases some reason was found outside the intestinal tract. Attention had been centered too much on the digestive tract to the exclusion of other things, and it was well to bear in mind the possibility of a bacteriemia from some other source in children suffering from malnutrition. Much of the work that the physician was called upon to do did not relate to disease but to disorder of function. Frequently there was no pathology and yet the child was sick and after treating many such cases, studying them, and consulting with the mothers one came to group them. There might be no lesion, no pathology, and no dietetic error sufficient to account for them, yet it would be found that there was an excess of carbohydrate, especially in the form of sugar or a poor carbohydrate metabolism. In such instances toxins were produced about which the laboratory told them but little. Dr. Kerley reviewed the conditions, such as cyclic vomiting, recurrent bronchitis, with or without asthma, recurrent colds, and attacks simulating grip, biliousness, etc., that were due to an excessive carbohydrate intake, especially sugar, or to defective carbohydrate metabolism, and that could in many instances be controlled by a proper regulation of the diet and attention to hygiene. Lithemic children, the offspring of the well-to-do sedentary classes were particularly susceptible to this class of affections. In connection with the work of Mendel on fat oxidation, the speaker called attention to the observation that rabbits fed on butter fat grew and thrived, while those fed on lard did not, as they were unable to metabolize the fat in the form of lard. It was on such problems as this that the work of the laboratory men was needed and thus far they knew very little from the laboratory standpoint.

Dr. Floyd M. Crandall of New York remarked that years ago it was taught that the colon was simply a storage reservoir and that it did not make much difference if it was filled, but that now the part played by the colon in toxemia was well recognized. It was now well understood that these toxemias were due to infection from the colon, especially from fecal impaction in the cecal end. Surgeons felt that Lane had taken a rather extreme position on this subject when he held that the colon could as well be entirely dispensed with; most of them believed that operation if necessary was sufficient if limited to the cecum. A paper which he had listened to the previous evening had emphasized the importance of the cecum as the point of entrance of infection, not only in children but in adults. Another point of interest was that one source of nervousness, restlessness, and discomfort in children was uric acid. There was a type of children with a hereditary tendency to uric acid in which correcting the digestive function did not seem to give relief. In such cases, in addition to the dietetic treatment, salicylates of soda in small amounts might be given, as was sometimes done with cod liver oil, for a few days at the beginning of each month.

Dr. S. W. S. Toms of Nyack, N. Y., said that there was one point of interest that he had been observing for many years and that was that with colds and pyrexia that could not be accounted for an examination of the ears often showed an acute otitis, lasting for a few days and then clearing up after spontaneous rupture of the drum or paracentesis. In children under one or two years of age the stools might become offensive and green, due, in his opinion, directly to the otitis, the pus going down the throat. An infection of the tonsils might cause the same condition. Since his own child, some ten years ago, had nearly lost his life through failure on the part of his attendants to recognize an otitis, he had made it a routine practice to examine every child's ears.

Dr. Thomas F. Goodwin of Mount Vernon said that William H. Porter, in 1889, had written a series of articles on the suboxidation diseases and intestinal indigestion, and it agreed in general with the things they were now hearing, but physicians were just waking up to it. It was of interest that many of the so-called rheumatic conditions were due to intestinal toxemia. He referred to the significance of indican in the urine in this connection. One kind of focal infection sometimes overlooked was infection of the kidney due to the colon bacilli. If one could not find indican in the urine it was advisable in cases of this class to make a blood culture and one might find a streptococcus infection.

Address by President of the State Society.—Dr. George W. Wende of Buffalo spoke of the importance of the work of the State society, and pointed out the ways in which the society had worked for the welfare of the medical profession and of the public at large. He reviewed the part that it had taken in public health legislation, in codifying the rules of medical ethics and shaping medical practice laws, in suppressing irregular practitioners, and in protecting its own members in medical malpractice suits. He called to mind the work that the society had done in preventing the passage of antivivisection laws and of bills licensing osteopaths, mental healers, and chiropractics. He then urged physicians to assume the aggressive and to elect assemblymen who would protect the interests of physicians and of the public in the legislature. He urged upon all eligible physicians the duty of affiliating themselves with their county and State society. In Norway 95 per cent. of physicians belonged to the national organization while in New York County only 46 per cent. were affiliated with their county society. This was difficult to explain in a great medical center such as New York. Dr. Wende announced that the State Society had formed a new section, the Section on Syphilis, and explained that this had been done not only to give an opportunity for the study of a disease which was of such vital importance, but also for the purpose of impress-

ing on the profession and the public that this was a disease not necessarily of the low and the vile but one which might affect the most innocent, the most normal, and the most intelligent in the community.

Toxic Diseases of the Nervous System.—Dr. EDWARD D. FISHER of New York read this paper, stating that his object in introducing this subject was to bring into consideration the large number of cases which came under the observation of every physician of diseases of the nervous system, which, both in diagnosis and treatment, were indefinite and unsatisfactory. He said he referred to those cases which did not fall under the recognized forms of cerebral and spinal disease such as cerebrospinal meningitis, poliomyelitis, diphtheria, or tetanus, but which were serious in their manifestations, and which he believed belonged to the same class as the above mentioned diseases and were also of bacteriological origin, though of an unknown nature. Toxins were given off which affected the cells of the nervous system causing impairment or destruction of the nerves. Dr. Fisher believed that they had to deal with many germ diseases and their accompanying toxins which as yet remained unclassified, but which resembled the better known infectious diseases in every respect. After pointing out the difference between bacterial and toxic agents, Dr. Fisher called attention to the fact that the toxic action of bacterial or other toxins was dependent on the chemical union of the toxin with the cells of the body, and that the nervous system was especially susceptible to this assimilation. They knew that it was the toxin rather than the microbe itself which caused the clinical manifestations. This was well demonstrated in diphtheria and tetanus. The dead bacilli introduced into the system produced all the symptoms of the disease, showing that it was the end product, the sterile chemical solution, which caused the cellular changes. Syphilis was an excellent illustration of this view. The spirochetes remained active and were demonstrable only in the early stages of the disease, but in the later manifestations, as in tabes and general paresis, it was not the direct action of the living organism which caused the symptomatology, but the chemical poison thrown out by the syphilitic germ. In the present treatment of this disease they probably did not succeed in killing the active agent, they simply controlled its multiplication, leaving it ever ready when the controlling influence was removed to take on an active increase. The same was true in malaria. Quinine did not kill the plasmodium, it only controlled its development. The influenza infection demonstrated the effect of a toxin on the nervous system. Its manifold symptoms were in disease of the meninges, the brain, and the cord. Involvement of the anterior horns, a form of poliomyelitis not dependent on the specific organism, had been discovered by Flexner. Influenza seemed to represent the indefinite class of toxic diseases. They had now a rather complete knowledge of the specific germs in cerebrospinal meningitis and in poliomyelitis. It was still unknown for myelitis and Landry's paralysis. They both presented clinical pictures which suggested a distinct poison, microbic or toxic in character. They had all observed cases which did not fall completely into any of the classes clinically and a few such cases had come under his observation.

The first case was one of Landry's paralysis which was observed from its beginning and followed to its fatal termination. An autopsy was fortunately obtained. In the literature of this subject various lesions of the nervous system had been recorded, affecting the peripheral nerves, the spinal cord, the medulla, and the brain. In this case there was an ascending paralysis, with attending neuritis, which followed the usual course of extension, later involving the upper extremities and the bulbar nerves, resulting in respiratory failure. The pathological findings were definite, involving both the peripheral and central nervous system. The course of the disease was longer than that usually described, extending over six weeks, but otherwise the case was typical in its manifestations. The second case was that of a female, 28 years of age, whose previous history was negative. She complained of pain in the left side of the chest, high temperature, severe headache, vomiting, rigidity of the neck, a few days later of paralysis of the lower extremities, loss of reflexes, and tenderness on pressure over nerves or muscles. Anesthesia to the umbilicus followed, but there was no Kernig's sign. A lumbar puncture was made and the findings were most remarkable. The fluid was clear, pressure moderate, 151 cells to the c.c. with deeply stained nuclei, looking like endothelial cells, few lymphocytes, and polymorphonuclears. Cultures in broth and agar were negative. The patient died after having been under observation eleven days from cardiac failure. The eye grounds had shown a beginning choked disc. No post mortem was obtained. Here there was evidently a distinct infection of an unknown character involving the meninges. Here also was suggested a condition in the nature of Landry's paralysis. A third case which from the symptoms suggested either some infection, involving the membranes at the base of the brain, or basal syphilitic meningitis, was of interest as the post-mortem revealed something entirely different than was expected. The principal symptoms were paralysis of the sixth cranial nerve, with internal strabismus and diplopia, and a staggering gait. The examination of the blood and spinal fluid showed a negative Wassermann reaction. The patient died in coma. A diagnosis was made of basilar meningitis of unknown origin. Without a post-mortem it seemed that this might well have been classed as an infectious disease of unknown character. The autopsy showed a sarcomatous basilar meningitis. Small bodies resembling tubercles were found scattered over the meninges and two small tumors in the frontal lobes were found. There was a secondary involvement of the liver and spleen. The fourth case referred to had a specific history with a positive Wassermann reaction. The symptoms suggested acute ascending paralysis or poliomyelitis, and there was a gradual but incomplete recovery. There was no response to antisyphilitic treatment. The speaker stated that he had at present under observation two cases of subacute or chronic myelitis and he questioned whether these might not be due to some toxin. Possibly in the future many of these cases of myelitis, especially when there was no evidence of syphilis, might be put down to such agents. These cases had been brought together to suggest the idea of infection or toxic poison as probably a more frequent etiological factor than had generally been supposed in various diseases of the nervous system. The question of treatment so long as they were ignorant of the infective agent was naturally only that of the symptoms, meeting each emergency as it arose. The importance of the work of our research laboratories was here further emphasized.

Dr. NEUSTAEDTER of New York said that in the matter of the analogy of the pathology of poliomyelitis and Landry's paralysis, it was true that many cases of Landry's paralysis did not present the characteristic picture of the pathology of poliomyelitis, as we accepted it to-day, namely, a degeneration of the ganglion cells accompanied by a perivascular and pericellular infiltration of mononuclear and endothelial cells. On the other hand, the Swedish investigators in the field of experimental poliomyelitis had reported cases in which there were the clinical manifestations and yet there was no perivascular or pericellular infiltration, but only a marked degeneration of the ganglion cells in the anterior horns. This was reported by Pettersson, Kling, and Josefson at the last Congress of Hygiene and Demography, and they accepted these facts as a basis upon which they might still retain Landry's paralysis as a possible form of poliomyelitis. And in the first case reported by Dr. Fisher we have a degeneration of the ganglion cells and the clinical picture was typical. As to the question of the toxin or the germ doing the work, he was inclined to differ with Dr. Fisher. The coccus of poliomyelitis as described by Flexner possessed hardly any exotoxin and that was the reason why they had no fulminant types even in cerebral affections. The children were somnolent, but there was no coma or delirium. The intellect was always intact, the child was easily aroused, and the temperature as a rule was low and of short duration. In diseases of microbic origin where the exotoxin plays the rôle we had the reverse picture. As to the endotoxin he stated that he was able to produce it from the virus and found this to possess a relatively small amount of toxic power. A suspension of a virus of which 0.1 c.c. was enough to bring down a monkey with typical symptoms of poliomyelitis would yield an endotoxin of which 10 c.c. did not kill a guinea-pig. On the other hand, the enormous perivascular and pericellular infiltration of lymphocytes showed that the microbe was doing the damage in that it multiplied enormously and destroyed the cell. One other factor in the destruction of the ganglion cells was, it seems to him, a purely mechanical one. The exudate around the blood vessels and in its interstitial spaces deprived the adjacent cell of nutrition and a consequent degeneration and ultimate autolysis ensued. He also called attention to

chorea which, while yet accepted as of rheumatic origin, might be put into the category of toxic diseases of the nervous system. Richardson had found in six cases the *Streptococcus viridans* in the blood of these patients and was able to obtain pure cultures after ten days' incubation. Other investigators also found cocci in the blood of these patients and, if he remembered correctly, chorea was experimentally produced with this coccus. So that the so-called imitation chorea might after all prove to be an infection.

Dr. FISHER, in closing the discussion, said that as to toxins without the microbes, they always produced a great effect on the nervous system. One often saw this in diphtheria where they were really dealing with the toxin rather than the bacilli. There were other elements in the pathology to be considered where one got infiltration into the walls of the blood vessels, into the cord, and into the nerve cells, themselves not necessarily toxic in origin. He was very glad that the fact that chorea might be caused by infection had been brought out.

Practical Clinical Demonstration of the Early Diagnosis of Pulmonary Tuberculosis.—Dr. ADOLPHUS S. KNOPF gave this demonstration. He emphasized the importanee of taking a eareful history in every case suspected of having tubereulosis and presented a sample blank which he used for this purpose. He cared not so much about heredity, but more about environment, more about personal than about family history. He always inquired of the patient how many children there were in the family, and he usually found that the tuberculous patient was the sixth, seventh, eighth, or ninth child. There was both a physiological and an economical reason for this. The rectal temperature should be taken more than once. The patient should always be asked about sanguinous expectoration. Hemorrhage need not be an active hemoptysis. He referred to amenorrhea as a frequent accompaniment of tuberculosis in young women. Dr. Knopf said that in making the physical examination the first thing was inspection, not only of the chest but of the whole body, even the hair, for brittle hair might mean undernourishment. One should look for obstruction in the nose or upper respiratory tract and should inspect the teeth, gums, and throat. An anemic appearance of the mucous membranes of these parts was suggestive of tuberculosis. One should look for enlarged glands, and note whether there was pectoral tension or tachycardia. By watching the movements of the scapulæ one could often tell which side was affected. The next step was palpation, by which one could verify what was seen in regard to respiratory movements. Fremitus was then observed, both subjective and objective. One could sometimes elicit fremitus by placing the palmar surface of the hand on the chest and the forehead to the dorsal surface of the hand. One should feel for the tension of the muscles over the inflamed pulmonary tissue. The next step was percussion. Dr. Knopf said he had used many varieties of percussors, but the best percussor was the finger. However, if one was obliged to percuss a great deal it might become necessary to use some instrument. One could feel elasticity with the finger, but not with an instrument. In percussing the clavicular region one should divide it into three parts: the sternal, the median, and the acrimial. After this was done one should percuss the posterior region, determining the width of the apices; this could be done by taking a pencil and marking the limits. If one was found to be narrower than the other it indicated a shrinkage of that apex and this was one of the early manifestations of tuberculosis. The speaker also reviewed the advantages of percussing the clavicular region by percussing in the fan way. One should be careful to overlook nothing and should not forget to make an examination of the axillary region. One should percuss to determine the respiratory excursion. One might find dulness not necessarily due to tuberculosis, but which might be due to a defect in the pleural mechanism. After this one might proceed with auscultation and here one should depend mainly on the ear. When he used a stethoscope it was one of the mono-variety. In listening with the ear it was advisable, especially in dispensary practice, to interpose a towel or napkin between the patient's chest and the ear, to avoid infection. He listened for a change in the inspiration which was due to internal thickening of the bronchi. This bronchial breathing might not be typical in inspiration, but later in expiration would be prolonged and roughened, and when localized in one apex it furnished definite evidence of the presence of tuberculosis. Later one got pronounced respiratory murmur localized in the apex, and the concomitant symptoms made one reasonably certain of the presence of an early tubereulosis. The warning could not be too frequently repeated that one should not wait to find bacilli in the sputum before making a diagnosis of tuberculosis, because the case must be moderately advanced if one was able to find the germs. If after this thorough examination one was still in douht as to the diagnosis the tuberculin test might be tried.

Dr. GEORGE MANNHEIMER said that there were a few standard questions which he always asked, such as "How many brothers and sisters have you?" "Are you a good eater?" "Have you been sick much during your past life?" This latter question because persons suffering with tuberculosis had a lowered resistance and easily "caught" any form of infection. As to the local examination, in making the inspection he noted the conformation of the chest and of the clavicle and sternum in relation to the ribs. He palpated a little differently from Dr. Knopf, but that did not make any difference as each one was apt to have his own way. He was also guided by certain measurements. For instance, expansion should not be below five centimeters. He had given up speaking of physical signs as the nomenclature in this respect was confusing; they did not agree as to what were called physical signs. One should not be in a hurry in pronouncing a diagnosis and should not make one on the first examination. The patient should be asked to take his rectal temperature every three hours and to bring that to the physician.

Dr. ADOLPHUS S. KNOPF said that it was a mistake to consider every flat chest a tubereulous one. One should not only watch the conformation of the chest, but should take the measurements transversely and anteroposteriorly. One should not neglect to take the weight of the patient and to find what his weight was at times in the past. One should warn the patient not to be alarmed if at any time hemoptysis occurred, but to be prepared for it and not to get excited, but to keep quiet and to send for his physician.

The Treatment of Malignancy by Physical Methods with and without Surgery.—Dr. ARTHUR F. HOLDING of New York presented this communication, which consisted of a report on the investigations made in the Physiological Laboratory of the Huntington Cancer Commission at the General Memorial Hospital and a demonstration of the methods used. He stated that the methods employed consisted of deep Roentgen therapy, fulguration (DeKeating-Hart), desiccation (Clark), and diathermia (Nagelschmidt). These were combined with surgery, radium, toxins, and vaccines, when such adjutants were indicated. The results obtained were not so much due to original methods as to the correlation of exeellent methods already deseribed but little understood and seldom used by the profession at large. These cases had been treated during the past eighteen months, so sufficient time had not yet elapsed to enable them to make a final statement as to the ultimate success. For convenience they had divided malignant disease into three classes: First, second, and third degree of malignancy. To the first class belonged the superficial lesions tending to extend out from the skin rather than into the underlying structures, and those which did not extend more than one cm. beneath the skin, and were characterized by slow growth and a tendency not to metastisize. This class of growths showed the histological formation of papillary epithelioma, basal celled epithelioma, mycosis, fungoides, and pre-epithelial keratoses. The prognosis of such cases by the methods used was 100 per cent. good. They could be cured by physical methods without surgery, pain, hemorrhage, opening up of the lymph channels, danger of infection, implantation of malignant cells, or hospital confinement, and with the best cosmetic results. They should not be treated by a cutting operation. The physical methods in the order of preference were: massive doses of Roentgen rays, desiccation, radium, destructive causties provided the more expensive equipment was not available. Cases belonging to the second degree of malignancy were the operable tumors which tended to extend rapidly into the deeper structures and were characterized by rapid growth and tendency to metastasize. Carcinomata of the breast and sarcomata were examples of this class of cases. They showed the histological formation of basal celled epitheliomata, and alveolar and medullary cancer. The methods employed were preoperative massive doses of Roentgen rays, thorough operation, and post-operative Roentgen therapy or radium

therapy. By the use of these adjuvants to the surgical treatment the percentage of recoveries was materially increased. Cases belonging to the third class were inoperable superficial and deep malignant conditions. These patients could not as a rule be cured by any method of treatment and were undesirable subjects as the ultimate prognosis was 100 per cent. bad. The symptoms, however, could usually be improved by electrical methods and radium. Cases of the second degree were sometimes treated solely by these physical methods and this gave a false sense of security and resulted in therapeutic procrastination. Of 13 cases of the first degree, nine were symptomatically cured by massive doses of *x*-ray; four by radium, and one by a combination of the two. Of ten cases of the second degree, four epithelioma of the skin and six carcinoma of the breast, all were treated by the method outlined above for this class of cases. Three were still under treatment, five were discharged symptomatically cured, and two had discontinued treatment against advice. Of 116 cases of the third degree 5.8 per cent. were symptomatically cured; 20 per cent. were improved, and 32.2 were unimproved, while 32 per cent. were dead. The problem of handling malignancy resolved itself into the proper treatment of cases of the first degree lest they develop to the second or third degree, and in increasing the palliative effects possible for external tumors of the second and third degrees so that they might be regarded as actually remedial.

Dr. George M. MacKee of New York said that the society should be congratulated on having this excellent demonstration the strongest point of which was its conservatism. While they had made no great headway in truly malignant neoplasms by either radium or Roentgen therapy alone, they had had some remarkable results from the combination of these two agents. The fact that they occasionally got a complete cure indicated that they were on the right track and that possibly with improved methods they could do still more, just as at the present time they were able to do much more than could have been done years ago. The use of these measures seemed to be warranted as a post-operative treatment in malignant disease. They had been handicapped by the difficulty in guaging the proper quantity of radium, but with the Coolidge tube this difficulty was being overcome. Dr. MacKee related his success with radium in recurrent tumors of the breast, but he did not consider these malignant but rather the old-fashioned cicatricizing cancer. With true squamous-celled epithelioma the majority of cases had failed under the *x*-ray, but Pusey of Chicago, claimed to have had 20 or 25 cases of carcinoma of the lip which he had cured; his own experience had not been so favorable. Possibly these growths were superficial, and in many of the superficial growths if one removed the scab one application of the *x*-ray effected a cure. In deep seated cancer the *x*-ray had no effect. By a combination of surgery and the *x*-ray and radium they were certainly getting good results.

Dr. Adolphus S. Knopf of New York said he had been called in consultation in a case of a malignant type of neoplasm of the pleura and would like to know if anything could be done for such a case.

Dr. Holding, in closing the discussion, said that surgery had done much for the relief of cancer and they were just trying to give it the little additional help where it had seemed to fail. As to the neoplasm of the pleura, it was probably a case of the third degree, and the most that one could do was to relieve the patient by massive doses of *x*-ray by the cross-fire method through the chest, but this was only palliative.

Dr. Gillette of New York said that two years ago he had operated on a patient in the hospital where Dr. Holding was working and removed a breast, but not long after there was a recurrence. Instead of a second operation he had turned the patient over to the *x*-ray department and there had been a marked improvement, but similar cases had not been so fortunate.

Presentation of Dermatological and Syphilitic Cases of Unusual Interest.—Dr. Mihran B. Parounagian of New York made this presentation. The first two cases were typical cases of argyria, which, from the histories, indicated that the condition was due to the application of silver nitrate in throat affections. Another patient who had received an abrasion of the thumb by striking a man in the mouth, developed all the symptoms of syphilis, a typical chancre appearing at the site of the abrasion on the thumb. Among other conditions illustrated by the patients presented were nævus vascularis, lupus vulgaris, keratosis, alopecia areata, psoriasis, and pityriasis rosae.

Dr. Arthur F. Holding of New York said that the only suggestion that he had to make was in relation to the nevus case. He had had a large number of these cases which with the carbondioxide snow treatment had obliterated these vessels. It could also be done with radium.

Dr. George M. MacKee said that these cases of argyria presented brought out an interesting point and that was that they demonstrated what he had frequently observed, namely, that argyria could be produced by the external application of silver nitrate and that it was not always necessary to administer it internally to produce this condition. The case of chancre of the thumb suggested that every lesion, like a boil, not showing pus, and that would not heal, should be treated as syphilitic. By following this plan one might abort the disease in the early stage. This was better than waiting until the *spirochete* could be demonstrated before instituting antisyphilitic treatment.

Puerperal Pyemia: Report of a Case.—Dr. Edward C. Thompson of Newburgh made this report. He stated that the patient was delivered normally on January 15, 1914. She sustained a slight median laceration of the perineum which was not sutured. On January 17 the patient began to have headache and fever, and the following day an inflammatory lesion resembling erysipelas appeared over the left side of the neck. On January 21 the physician in attendance removed from the uterus a piece of the after-birth which had a foul odor. The next day on seeing the patient in consultation the speaker found the uterus clean, but comparatively large and tender. By February 10 when Dr. Thompson was again called into consultation the erysipelas had run its course so far as local appearances were concerned but the temperature remained up, being 102°. On February 18 there appeared over the scalp a large boggy mass which was incised and pus evacuated. An autogenous vaccine of this pus was made and a pure culture of pneumococcus obtained. The patient's temperature was of a fluctuating type with marked remissions. The leucocytes were 24,000. During the following month there appeared on the scalp, neck, arms, axilla, and breast, twelve pyemic abscesses and infections of the veins in the subcutaneous tissues. These abscesses were all associated with chills, redness, or pain. The autogenous pneumococcus vaccine was injected beginning with one hundred and fifty million every three days. Local treatment consisting of hot vaginal douches with a view to facilitating the absorption of the exudate was also administered. The patient, although for a long time on the extremist list, was finally dismissed from the hospital on May 6, the local pathological condition having undergone complete resolution. It had long been known that erysipelas was occasionally associated with a puerperium, but erysipelas was usually due to streptococcus infection with a local point of entry of the invading organism. Between the streptococcus and the pneumococcus there was a long line of intermediate forms. In view of the fact that in these pyemic abscesses there was a pure culture of pneumococcus was it not fair to assume that the erysipelas was due to hematogenous infection with a pneumococcus? In respect to treatment this case was illustrative of the general rule, that, in the treatment of puerperal infections, if the infection was localized, surgery was indicated; but, if the infection was general, the vaccine treatment was indicated. Such a conservative course of treatment was indicated in a large class of cases of puerperal sepsis which came to a hospital of general mixed service when the critical condition of the patient was already a general bacteriemia.

Philadelphia County Medical Society.

A stated meeting, held October 14 at the Hall of the Academy of Natural Sciences, was devoted to a demonstration of the use of the cinematograph in medical teaching and investigation. Dr. Theodore H. Weisenburg presented pictures illustrative of "Jacksonian and Idiopathic Epilepsy." Attention was directed to the brevity and the insignificant character of the so-called tonic phase of the convulsive movements. The local origin and the circumscription of the movements in cases of focal epilepsy were well illustrated. Dr. W. M. Late Coplin demonstrated "The Circulation of the Blood in the Tail of the Tadpole." It was seen how blood-corpuscles passed through capillaries, even when adjacent to or communicating with one another, at

varying rates of speed, and how, apparently, in some regions the circulation subsided at times. Dr. ALLEN J. SMITH demonstrated for Dr. Joseph McFarland "The Spirochete (Obermeier) of Relapsing Fever in the Blood of the Mouse." The active movements of this corkscrew-like organism, the first of its kind described in the circulating blood, were clearly seen. Dr. W. M. LATE CORLIN demonstrated "The *Trypanosoma brucei*, the Etiological Agent of Nagana, African Horse Sickness, and also the Tsetse Fly and the Blood of a Mouse Inoculated with Nagana." Drs. CHARLES K. MILLS and THEODORE H. WEISENBURG presented a communication entitled "Cerebellar Localization and Cerebellar Symptomatology," illustrated by slides and films. Dr. Mills recited some of the newer developments in the study of the functions of the cerebellum and the symptomatology resulting from disease based in considerable measure upon original observations. He pointed out that the main function of the organ was motor, and in the direction of regulating or coordinating more or less extensive and complicated movements of individual parts or groups of parts. This was designated synergy. Derangements of function resulted in asynergy. The asthenia, the atony, and the astasia so often observed were merely manifestations of this fundamental disorder. Dr. Weisenburg showed in the pictures that the movements of cerebellar disease were not like those of a drunken person, but were due to the fact that the movements of the extremities followed those of the shoulder girdle and the pelvic girdle respectively. Dr. Isaac H. Jones exhibited pictures illustrative of "The Demonstration of the Vestibular Symptoms and Pointing Reactions of Baranyi in Association with Cerebellar Disease." He pointed out how rotation of a person in a revolving chair in a given direction resulted in horizontal nystagmus in the opposite direction, as did also injection of cold water into the external auditory canal on one side induce nystagmus to the opposite, while injection of warm water brought about nystagmus in the reverse direction. On the other hand, these same procedures caused deflections of the pointing finger to the opposite side of a given fixed object. These induced phenomena were employed as a basis for the study of vestibular involvement attending cerebellar disease. Dr. ALLEN J. SMITH demonstrated "The Spirochete of Syphilis." The film disclosed the method of inoculating the cornea of a rabbit with infective material, together with the resulting lesion, and finally showed the parasite in material obtained from this lesion. Also was shown the method of treating experimentally inoculated animals with arsenobenzol and the curative result. Dr. W. M. LATE CORLIN demonstrated for Dr. Joseph McFarland "Intestinal Microbes." The pictures showed the more important bacteria infesting the intestinal canal.

PHILADELPHIA PEDIATRIC SOCIETY.

AT a stated meeting, held October 13, Dr. THEODORE LE BOUTILLIER presented "A Girl with Unusual Rachitic Deformities." The patient was a colored child, ten years old, much undersized, with a vertically elongated head, a high, receding forehead, open mouth, protruding tongue, and great distortion of the long bones. Intelligence was of a low grade. It was proposed to perform a series of operations on the distorted bones in the hope of increasing the usefulness of the child.

Dr. FRANK CROZER KNOWLES presented "A Child Suffering from Molluscum Contagiosum." There were present the characteristic small, hemispherical elevations, of pearly appearances, with a central orifice, arising from a hair-follicle.

Dr. HARRY LOWENBURG presented "A Case of Infantile Syphilis Having an Unusual Family History." The patient was three months old and when it was found to present, in addition to anemia, enlarged spleen and leucocytosis, a characteristic ham-colored exanthem on the lower extremities, a Wassermann test was made and found positive. On examination the patient's mother was found also to yield a Wassermann reaction, while the father did not, as also three older children did not. No primary lesion was discovered in mother or child. Under active antisyphilitic treatment corneal ulceration developed in one eye.

Dr. SAMUEL MCC. HAMILL exhibited a child, about two months old, presenting a deficiency in the hard palate and also in the bones forming the lower jaw. From time to time attacks of cyanosis occurred. The condition was considered of developmental origin.

Dr. JOSEPH T. FLEITAS presented "A Child with Cretinism." The patient was a boy, eight years old, with impaired intelligence, soft, dry hair, rough, dry skin, and thickening of the soft tissues in various situations. *X*-ray examination disclosed enlargement of the sella turcica, leading to the belief that the hypophysis cerebri also was enlarged, and also of the thymus gland. Marked improvement, especially of the intelligence, ensued on treatment with thyroid extract.

Dr. WILLIAM N. BRADLEY exhibited "An Infant with Malformation of Hands and Feet." All four members presented either deficiency of fusion of the digits in varying degree.

Dr. JOHN H. W. RHEIN presented "A Family with Spastic Diplegia." Of five offspring of apparently healthy parents one had died of some unknown disorder. Of the remaining four children, between the ages of fifteen and five, three presented a state of spasticity involving upper as well as lower extremities with exaggerated reflexes and impaired intelligence, without eyeground changes, and beginning in all about the third year and progressing, while the fourth, now five years old, exhibited up to the present only increased knee-jerks with Babinski reflex, but with preserved intelligence and no disorder of gait. There was no evidence of syphilis, and the Wassermann reaction was negative.

Dr. J. TORRANCE RUGH exhibited "A Girl Operated on for Dislocation of the Coccyx." The patient was a girl, about fourteen years, who fell while roller-skating, injuring the lower portion of the spinal column. Thereafter she suffered greatly from pain in the situation of the coccyx, especially when arising from the sitting posture. On examination, the coccyx was found directed forward and upward toward the pelvis, and relief was afforded by a wedge-shaped resection of the bone, restoring it to its normal position.

Dr. EDWIN E. GRAHAM exhibited *x*-ray pictures from "A Case of Osteosarcoma of the Femur." The patient was a boy, twelve years old, who, following an injury, developed a swelling of the femur above the knee-joint, in association with anemia. *X*-ray examination disclosed involvement of the bone, with destruction. A diagnosis of periosteal sarcoma was made and treatment with *x*-rays and mixed cultures of streptococcus and prodigiosus was proposed.

Dr. JOHN H. JOPSON exhibited *x*-ray plates and pictures and also photographs from a case of so-called Sprengel's deformity of the scapula. There was the characteristic elevation of the shoulder and displacement of the scapula. An adventitious bone was found attached to the lower cervical spine on the one hand and the vertebral border of the scapula on the other. This was resected piecemeal and the scapula restored to its normal position. The result was satisfactory, although the patient returned to her home before corrective orthopedic exercises could be instituted.

Dr. CLARENCE ESTILL LEE reported a case of similar character and he exhibited the patient. In this instance also an adventitious bone united the spine and the scapula, and this was removed in its entirety. The specimen also was exhibited.

Dr. JAMES K. YOUNG presented "A Child with Congenital Clubfoot Cured by Operation." The little patient was born with congenital talipes equinovarus, for the relief of which, at the age of one year, the tendo Achillis and the tendons of the anterior and posterior tibial muscles were divided, and the member placed in a splint for awhile. Later, vigorous massage was practised and the affected lower extremity was brought up to a good state of nutrition and functional use, while the preexisting deformity was overcome.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

ILLINOIS STATE BOARD OF HEALTH.

January, 1914.

(*Concluded from page* 697.)

OBSTETRICS.

1. Name and give location of female organs of generation.
2. Describe and give function of ovaries.
3. What is the composition of liquor amnii, and what is its function?
4. From what structure does hydatidiform mole develop?

5. What are the anomalies of the placenta?
6. Describe congenital umbilical hernia, and outline treatment.
7. Name the objective signs of pregnancy at the fifth month.
8. Give treatment for edema of the vulva during pregnancy.
9. Name the positions and presentations in order of their occurrence.
10. Give etiology and treatment of mastitis.

GYNECOLOGY.

1. Give the etiology of metrorrhagia.
2. Give the differential diagnosis between appendicitis and ovaritis.
3. How would you diagnose extrauterine pregnancy, and what are the indications for operation?
4. What are the principal causes of incontinence of urine in women, and the indications for treatment in each case?
5. What are the causes of procidentia uteri?
6. Give the differential diagnosis of uterine fibroids.

LARYNGOLOGY AND RHINOLOGY.

1. Give the diagnosis and treatment of abscess of antrum of Highmore.
2. Give the indications for laryngotracheotomy and describe operation.

MEDICAL JURISPRUDENCE.

1. At post-mortem, how would you determine a child was born alive?
2. Give the symptoms of poisoning by mercuric chloride, and state how it can be demonstrated in a fatal case.

ANSWERS.

OBSTETRICS.

1 and 2. FEMALE ORGANS OF GENERATION: *Uterus.* The rectum lies behind and the bladder in front; it is below the abdominal cavity and above the vagina. Its position is one of slight anteflexion, with its long axis at right angles to the long axis of the vagina. The anterior surface of its body rests on the bladder, and the cervix points backward toward the coccyx.

The *Fallopian tubes* are about 4½ inches long, situated in the broad ligament, and extending from the upper corner of the fundus of the uterus outward to the pelvic wall. Their caliber is larger at the outer fimbriated end than at the inner end.

The *ovaries* are almond-shaped bodies situated below the outer end of the Fallopian tube, and between the layers of the broad ligaments.

The *vagina* is a muscular tube extending from the uterus to the external surface. The anterior and posterior surfaces are in apposition. The anterior wall is about 3½ inches long, the posterior about 4½ inches.

Function of ovaries: To develop ova, and an internal secretion.

3. LIQUOR AMNII. *Functions:* (*a*) *During pregnancy:* (1) As a protection to the fetus against pressure and shocks from without. (2) As a protection to the uterus from excessive fetal movements. (3) It distends the uterus and thus allows for the growth and movements of the fetus. (4) It receives the excretions of the fetus. (5) It surrounds the fetus with a medium of equable temperature, and serves to prevent loss of heat. (6) It prevents the formation of adhesions between the fetus and the walls of the amniotic sac. (7) It has been supposed, by some, to afford some slight nutrition to the fetus. (*b*) *During labor:* It acts as a fluid wedge, and dilates the os uteri and the cervix; it also slightly lubricates the parts.

Composition: Chiefly water, but it contains also small amounts of albumin, epithelial cells, urea, phosphates, chlorides, etc.

4. Hydatidiform mole is derived from the chorionic villi.

5. *Anomalies of placenta:* Low insertion, placenta prævia, hypertrophy, abnormally thick, abnormally small, horseshoe or crescentic shaped, lobed; degeneration, edema, infarction, calcification, or disease of the placenta.

6. *Umbilical hernia.*—"There are two varieties of this deformity. In one, a knuckle of intestine covered by skin projects from the navel. This degree of deformity is common, occurring in two per cent. of infants. It is treated by a convex button, cork, or hard rubber compress on a strip of adhesive plaster, which encircles two-thirds of the child's body. This improvised truss is renewed from time to time, and should be worn six months. In the second variety there is an exomphalic condition, due to defective development, the intestines protruding from the umbilicus covered only by amnion. An immediate plastic operation is indicated even if the mass of protruding intestines is as large as an apple. The results of this operation have been excellent."—(Hirst's *Obstetrics.*)

7. *The objective signs of pregnancy at the fifth month* are: Hearing the fetal heart sounds, ballottement, uterine souffle, and the breast signs.

8. *Treatment of edema of the vulva during pregnancy:* "If the cause can be removed, the edema disappears. The treatment of kidney insufficiency removes the dropsy of the labia associated with that condition, as it does the other dropsies of the body. If the edema is due to pressure, rest in bed, with the occasional assumption of the knee-chest posture, often gives relief. If the edema does not yield to general treatment and to hot fomentations locally, the labia may be punctured. It should be remembered, however, that even this slight operation may terminate pregnancy. The vitality of the part, moreover, is so lowered that infection and even gangrene may follow the puncture."—(Hirst's *Obstetrics.*)

9. *Presentations and position:* Vertex presentations are most frequent; of these L.O.A., R.O.P., R.O.A., and L.O.P. are the positions in order of frequency. Breech presentations are second in order of frequency; of these the L.S.A., R.S.P., and then R.S.A. and L.S.P. indicate the order of frequency. Face and shoulder presentations are next; of the face, the order is: R.M.P., L.M.A., R.M.P., and L.M.P.; of the shoulder, L.D.A. is the most common. Brow presentation is the most rare.

10. MASTITIS. *Etiology:* Infection, generally due to handling; cracked or sore nipples and overactivity of the gland with retained secretion are predisposing causes. *Treatment:* This consists in resting the part; supporting it, applying a hot boracic acid fomentation; nursing from the affected breast should be stopped at once.

Prophylactic measures consist in not touching the breasts (by doctor or nurse or patient) without thoroughly clean hands; by washing and drying the nipple hygienic conditions before labor, and the nipple and before and after nursing, and by proper attention to breasts being preserved from pressure.

GYNECOLOGY.

1. *Metrorrhagia* is a hemorrhage from the uterus at other than the menstrual periods.

Local causes: Uterine displacements, malignant disease, inflammation of uterus or appendages, fibroids, cystic degeneration of the cervix, subinvolution, ectopic gestation, abdominal tumors.

General causes: Hemophilia, scurvy, purpura, malaria, anemia, mitral disease, diseases of kidneys, or liver, acute infectious fevers.

2. In *appendicitis* the pain is of sudden onset and is localized in the right iliac fossa; there is abdominal rigidity, chiefly of the right rectus muscle, and tenderness at McBurney's point; there are usually fever, nausea, vomiting, and constipation.

In *inflammation of the right ovary* the pain is not localized, but may be bilateral, and spreads to the vagina and rectum; there is no tenderness at McBurney's point; it is usually worse just before the menstrual period, which sometimes affords relief; on vaginal examination the ovary is found to be tender.

3. "When extrauterine pregnancy exists there are: (1) The general and reflex symptoms of pregnancy; they have often come on after an uncertain period of sterility; nausea and vomiting appear aggravated. (2) Then comes a disordered menstruation, especially metrorrhagia, accompanied with gushes of blood, and with pelvic pain coincident with the above symptoms of pregnancy; pains are often very severe, with marked tenderness within the pelvis; such symptoms are highly suggestive. (3) There is the presence of a pelvic tumor characterized as a tense cyst, sensitive to the touch, actively pulsating; this tumor has a steady and progressive growth. In the first two months it has the size of a pigeon's egg; in the third month it has the size of a hen's egg; in the fourth month it has the size of two fists. (4) The os uteri is patulous; the uterus is displaced, but is slightly enlarged and empty. (5)

Symptoms No. 2 may be absent until the end of the third month, when suddenly they become severe, with spasmodic pains, followed by the general symptoms of collapse. (6) Expulsion of the decidua, in part or whole. Nos. 1 and 2 are *presumptive signs;* Nos. 3 and 4 are *probable signs;* Nos. 5 and 6 are *positive signs.*"—(*American Textbook of Obstetrics.*)

Treatment consists in removal of the product of conception, by a laparotomy, as soon as the diagnosis is made.

4. INCONTINENCE OF URINE, IN WOMEN. *Causes:* "This condition may be found in hysteria; in various injuries or diseases of the brain and spinal cord where the sphincter power of the neck of the bladder and urethra is lost, *e.g.* in certain stages of locomotor ataxia, epilepsy; in advanced tuberculosis impairing the sphincter action; in vesicovaginal fistula; dilatation of the urethra; intoxication; in various forms of stupor, *e.g.* typhoid state; it may be due to strong stimuli acting on the bladder, urethra, or neighboring parts, *e.g.* applications to neck of bladder or inner end of urethra; acute cystitis, calculus, sudden submucous hemorrhages, caruncle, fissures, inflammation in tubes, ovaries, uterus, rectum; it may be found in early pregnancy. In childhood there may be a true incontinence due to sphincter paralysis, hyperesthesia of the vesical mucosa, some localized trouble, or a nervous condition; but in the majority of cases the irritation is reflex, from such conditions as oxaluria, lithemia, worms in the bowel or vagina, polypi of rectum, eczema of vulva or perineum, etc., and is in most cases only found at night. Once the habit is formed, it may remain long after the cause is removed."—(Webster's *Diseases of Women.*) *Treatment:* Remove the cause; attend to general health; medication is of but little value; an operation may be necessary.

5. CAUSES OF DOWNWARD DISPLACEMENTS OF THE UTERUS: (1) *Pressure from above* (pelvic or abdominal tumors, ascites, tight or heavy clothing, straining at stool, muscular exertion, fecal accumulations, habitual overdistention of the bladder); (2) *weakening and relaxation of the uterine supports* (subinvolution, senile atrophy of pelvic floor, abnormally large pelvis, increased weight of uterus, puerperal traumatisms, pressure from above, traction from below); (3) *increased weight of uterus* (congestion, subinvolution, metritis, pregnancy, fluid in the endometrium, uterine tumors); (4) *traction from below* (vaginal cicatrices, falling and pelvic floor, contraction and congenital shortening of vagina, tumors of cervix or vagina.)—(From Dudley's *Gynecology.*)

6. *Symptoms of fibroids:* Hemorrhage, leucorrhea, pain, pressure symptoms (disturbances and displacements of bladder, rectum, urethra, and uterus), backache, bearing-down sensation, dysmenorrhea.

The *differential diagnosis* is as follows:

"(1) *Parauterine cellulitic deposits* show a history of a febrile condition, a sudden onset, and the fixation and sensitiveness of the uterus.

"(2) *Hematocele* shows itself in a sudden appearance, the tumor being immovable and sensitive. The tumor is at first semifluid; later it may be tympanitic.

"(3) *Ovarian tumors.*—Vaginal touch and the use of the sound will show that the tumor is not attached to the uterus. Percussion of the abdomen will give fluctuation. There is generally more deterioration of health. Solid ovarian tumors adherent to the uterus are almost impossible to differentiate.

"(4) *Pregnancy.*—There is amenorrhea. The tumor is symmetric, softer, and of more regular growth. In doubtful cases the development of fetal heart-sounds and movements will settle the diagnosis.

"(5) *Tubal diseases* can be excluded by the shape of the tumor, the great tenderness, and lessened mobility of the uterus.

"(6) The area of displacement of a *floating kidney* will appear above the pelvic brim, while that of a fibroid is below the inlet."—(Wells' *Compend of Gynecology.*)

LARYNGOLOGY AND RHINOLOGY.

1. ABSCESS OF ANTRUM OF HIGHMORE. *Symptoms:* "There is pain, tenderness on pressing over the canine fossa or on tapping the teeth of the upper jaw, and sometimes swelling of the cheek. The complaint of a bad odor or taste, the reappearance of pus in the middle meatus after mopping it away and directing the patient to bend his head well forward, and opacity on transillumination of the suspected cavity are signs which strongly suggest an affection of the maxillary sinus. The withdrawal of pus by a puncture through the thin outer wall of the inferior meatus of the n with a fine trocar and canula will establish the diagn sis. The *treatment* consists in opening and drainin the antrum. If the infection is due to a carious tooth this should be extracted, the socket opened up and drainage established through it. If the teeth are sound the antrum is opened through the canine fossa and its walls curetted, after which the cavity is packed with iodoform worsted. To avoid the risk of reinfecting the cavity from the mouth, an opening may be made into the nose, by removing the anterior portion of the nasal wall of the antrum and part of the inferior turbinated bone, after which the incision in the buccal mucous membrane is closed with sutures."—(Thomson and Miles' *Surgery.*)

2. "Laryngotomy is rarely undertaken except for the relief of dyspnea arising from some sudden obstruction to the respiration, and is thus to be looked on as an operation of urgency. It is required in cases where the entrance to the larynx is obstructed by a foreign body, for spasm of the glottis, or for accumulations of blood in the neighborhood of the larynx during an operation. It is readily performed by making a vertical incision over the situation of the cricothyroid membrane, which is then divided transversely along the upper border of the cricoid cartilage, the sternohyoid muscles being, if necessary, drawn aside, and a tube inserted. Possibly the small cricothyroid artery arising from the superior thyroid may require a ligature. In cases of great urgency, a simple transverse incision may be made with a penknife, and the larynx opened, the margins of the wound being held aside by a hairpin, or by the handle of a scalpel turned edgeways, while a toothpick will serve temporarily as a cannula. Whenever there is time to operate deliberately, a high tracheotomy is the better practice, since a tube inserted through the cricothyroid space gives rise to considerable irritation, and the voice may be subsequently impaired by the contraction of the cicatrix. A special laryngotomy tube is required, the lumen of which is not circular, but oval and flattened from above downward."—(Rose and Carless' *Surgery.*)

MEDICAL JURISPRUDENCE.

1. If respiration has taken place, its lungs will float on being put into water. Further, the lungs before respiration are situated at the back of the thorax and do not fill the cavity; whereas, after respiration they fill the whole cavity.

Application of hydrostatic test.—Having opened chest, note *position* of lungs (*before* respiration they occupy a small space at upper and posterior parts of thorax); their *volume* (of course increased after breathing); their *shape* (before respiration, borders sharp or pointed; after it, rounded); their *color* (before breathing, brownish-red; after it, pale red or pink); their appearance as regards disease and putrefaction; and whether they *crepitate* on pressure (as they will *after* respiration).

"Take out lungs, with heart attached, and place them in pure water having temperature of surrounding air. Note whether they float (high or low), or sink (slowly or rapidly). Separate them from the heart; weigh them accurately, and then place them in water again, and note sinking or floating as before. Subject each lung to pressure with the hand, and note sinking or floating again. Cut each lung in pieces and test floating again. Take out each piece, wrap it in a cloth, and compress with fingers as hard as possible, and test floating, etc., as before. The crucial test of *perfect respiration* is each piece floating after the most vigorous compression."—(King's *Manual of Obstetrics.*)

2. *Symptoms of acute poisoning by mercuric chloride:* The nauseous metallic taste is experienced during the act of swallowing. Within a few moments this is followed by an intense, burning pain in the mouth, throat, and stomach. The mouth and tongue are whitened and shriveled. There are vomitings of a white material, containing shreds of mucous membrane, and tinged with blood, and bloody stools. Salivation occurs if life be sufficiently prolonged."—(Witthaus.)

Mercury may be detected in the urine or vomited material by the Reinisch test. To the suspected fluid add a little pure HCl; suspend in the fluid a small strip of bright copper foil, and boil. If a deposit forms on the copper, remove the copper, wash it with pure water, dry on filter paper, but be careful not to rub off the deposit. Put the copper into a clean, dry glass tube, open at both ends, and apply heat where the copper is. If mercury is present it will be deposited in the cold part of the tube, forming a mirror.

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Original Articles.

ALBUMIN IN SPUTUM AND ITS RELATION TO PULMONARY DISEASE.*

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IN the past few years articles based on the chemical examination of the sputum have been numerous, but few of them have dealt with the work of foreign investigators, and those few only incompletely. For this reason the writer has attempted to cover all the more important articles and to give in the appended list either all the references or the places where the valuable material from all may be found.

The first mention of the chemical examination of the sputum in pulmonary disease is by Coventou, as quoted by Kauffmann. Coventou in 1843 treated the sputum with chlorine water and found that in ten days there appeared a bluish opalescence in the sputa of the phthisical, while that from patients afflicted with acute and chronic bronchitis became a reddish or brownish color.

Von Biermer in 1855 analyzed the sputa from various respiratory diseases and found as constituents decomposed albumin, paralbumin, mucin, salts, etc. His findings tabulated are as follows:

1. Chronic bronchitis = Mucin, many salts, no albumin.
2. Acute pneumonia = Mucin and albumin;
3. Active pneumonia = Mucin and much albumin;
4. Edema of lungs = Little mucin, much albumin.

Renk (1875) found no albumin in chronic bronchitis but did find it in acute bronchitis, phthisis, and pneumonia. In this same year Kössel reported the finding of peptone in purulent sputum.

From this time until 1908 the bacteriological examination, claimed the interest of investigators to the exclusion of the chemical methods. After many observers had found that the tubercle bacillus was not constantly present in the sputum of the phthisical, investigators began to try other methods to determine the presence or absence of the disease.

About 1903 Müller and Wanner, closely followed by Roger, took up the albumin reaction in sputum. Müller and Wanner found either no albumin or a negligible quantity in chronic bronchitis and asthma, but found it abundant in pulmonary edema and congestive catarrh secondary to heart and kidney disease, and constant in phthisis. A distinct precipitate they consider is to be referred to phthisis.

Roger, who at the present time has collected data from over 1600 cases, concludes that albumin is not present in either acute or chronic bronchitis, and that its continued absence usually excludes tuberculosis. He further states that this reaction may serve to differentiate early cases; the disappearance indicates healing and cures, while a reappearance indicates a recrudesence. Both types of pneumonia, lobar and lobular, as well as the congestive conditions, were found to give rise to the presence of albumin in the sputum.

V. Raymond considers that the albumin in the sputum is a sign of inflammation of the parenchyma of the lung, which is often but not always of tuberculous nature. He considers the reaction, while valuable when taken in connection with other signs, is not at all diagnostic in itself.

F. Schmey believes the reaction important in the early diagnosis and says that it is present in all but the uncomplicated fibrous conditions. More than 2 per cent. he considers diagnostic of phthisis, if pneumonia and congestive conditions are excluded.

Ljubarsky found an average of 2.7 per cent. in 25 known tuberculous cases, with no negatives. The more widespread and active the disease the more albumin was found. In acute bronchitis 11.1 per cent. and in chronic bronchitis 39.1 per cent. of cases contained albumin in the sputum. In the last named disease the author suggested that the cases might have been tuberculous though the albumin reaction was the only indication. He agreed with Roger as to the value of a negative reaction.

Busnikowa finds that in diseases of the parenchyma the reaction is positive, but negative in disease of the air passages. This author reports a case of pleuritis sicca, negative for bacilli but positive for albumin. Later there developed an apical lesion with positive bacillary findings.

Levy-Valensi found that albumin was generally present in tuberculous sputum, but not all positive reactions indicated tuberculous disease. He considers that cases of bronchitis, negative for bacilli but positive for albumin, are tuberculous.

Peskow in a series of 67 cases emphasizes the importance of the reaction in differentiating between simple bronchitis and tuberculosis. He maintains that a negative reaction excludes disease of the lung parenchyma including tuberculosis.

Luczinin in 15 cases of diseases of the lung, heart, gastrointestinal tract and nervous system found albumin in all. Quantitatively the albumin reached 3 per cent. (Esbach) in most cases of tuberculosis while in other diseases it was decidely less. In the initial stage of phthisis he considers that an albumin content of over 1 per cent. justifies a positive diagnosis. In severe acute and chronic bronchitis, pneumonia and emphysema the albumin content did not exceed 0.5-0.6 per cent.

Gelderblom reports 75 cases in which albumin was always found coincident with fresh tuberculous processes in the lung and believes that the rise and fall of the albumin content indicates the course of the disease and the prognosis.

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Foullerton in 100 cases used four tests for albumin and only considered those positive that reached to all four. He concluded that in most cases of tuberculosis there is considerable albumin, that it is also present in bronchitis and pneumonia, and that the reaction is unreliable.

Works after examinations in 100 cases concludes that a negative reaction excludes tuberculosis.

B. G. Williams in 37 cases of tuberculosis found albumin constantly present.

Scott in 85 cases of tuberculosis positive for bacilli found in 32 early cases, albumin positive in 15, doubtful in 11, negative in 6; in 53 advanced cases, albumin positive in 39, doubtful in 12, negative in 2; in 85 in all, albumin positive in 54, doubtful in 23, negative in 8. In this series we see nearly 10 per cent. negative and nearly 20 per cent. of the early cases failed to show the reaction. If we exclude doubtful reactions which are certainly of little value in differential diagnosis, there are over 30 per cent. negative.

Hempel-Jorgenson obtained results differing rather markedly from those of the majority of investigators. He found that the albumin content varied with the portion of the sputum taken for the reaction, the thicker purulent portions containing a larger amount than the thinner and more mucoid. Other authors including the writer have found that while this is usually so, often we find sputa with little or no pus but abundant albumin and others with much pus and very little or no albumin. The latter condition indicates that the pus cells had not become autolyzed and therefore were filtered out.

The amount of shaking necessary to obtain the maximum of albumin from a given sputum he found to depend on the consistency, and other authors, including the writer, concur in this finding.

Hempel-Jorgenson reported 2 cases, one with abundant tubercle bacilli in the sputum and the other an advanced case as proved by subsequent autopsy, in both of which the albumin reaction showed the presence of only very small traces. In 16 other cases, undoubtedly tuberculous, the amount varied from that indeterminable quantitatively to 12 per cent. In 10 cases of bronchitis and asthma, this author found from traces to 1.8 per cent. In one case where the heart condition was abnormal the amount was 3 per cent. In a case of gangrene of the lung 3.5 per cent. was present. Hempel-Jorgenson concludes that the reaction is of no value in the diagnosis of the early stages of pulmonary tuberculosis.

Goodman found 15 negatives in 38 cases of known pulmonary tuberculosis.

Biernachi holds that over 2 per cent. of albumin, if other diseases, as congestion and pneumonia, are ruled out, indicates tuberculosis.

Pindborg in 265 cases found only 37 per cent. contained over 2 per cent. of albumin. In this series 61 cases were in the first stage and of these only 2 or 3.5 per cent. contained over 2 per cent. of albumin.

Corning believes the reaction to be of undoubted value in some of the cases difficult to diagnose.

Lewis found albumin in all sputa examined but failed to classify the reaction.

Gantz and Hertz found 57 positives in 60 cases of phthisis. The negatives were two fibrous cases and one with widespread and active tuberculous disease as proved by subsequent autopsy.

Melikjanz found varying amounts of albumin in the sputa of the phthisical, but in general the amount corresponded to the activity. In the nontuberculous the amounts were always less. His results in this respect do not agree with many other investigators, though they did not use the same method in determining the quantity of albumin (Brandenberg-Stolnikoff). He found only minimal quantities in conditions of passive congestion while others have found 2 per cent. and over. In differential diagnosis this author states that whereas there is albumin present in other diseases and therefore the qualitative determination is of no value, the quantitative estimation will exclude emphysema, acute and chronic bronchitis, bronchial asthma, and conditions secondary to heart and kidney disease, while the diseases, such as abscess of the lung, which in his experience give rise to the larger amounts, are easily excluded clinically. Let us glance at a few of his results. In seven cases of tuberculosis involving from apices with 0.36 per cent. albumin to two lobes with 0.86 per cent. we see rather small amounts, while in cases of nephritis with congestive conditions in the lung his percentages were 0.36 per cent., one case; 0.53 per cent., two cases. To be sure the diagnosis was probably easy clinically but wherein did the quantitative estimation of albumin aid? He found little albumin in pneumonia crouposa while others (Wanner 3 per cent.) have found the largest quantities in some stage of this disease.

As to the value of the albumin determination as compared with the bacteriological examination the following table was quoted from the clinic of Dr. Rollier in Leysin, by Melikjanz:

Stage of Disease	No.	Alb. Pos.	Alb. Neg.	Tbc. Pos.	Tbc. Neg.
I	28	26	2	3	25
II	50	50	0	44	6
III	40	40	0	40	0
Totals	118	116	2	87	31

The value of this table is seriously impaired by the fact that the author makes no note as to the activity of the cases recorded. If it is presumed that all cases were active the search for tubercle bacilli was surely not fruitful in the cases in the first stage, only a little over 10 per cent. being found positive.

Hempel-Jorgenson found that the albumin content decreases with an improvement and increases with an advance of the disease, thus in a way indicating the prognosis.

Dr. Blümel in a review of the work on this subject divides the investigators into three groups. The extreme advocates of the method headed by Roger and the French school, the intermediates of which Kauffmann is the most prominent exponent, and the dissentors in which class belong Pindborg, Hempel-Jorgenson, and others. Blümel's own observations in over 100 cases emphasize the importance of using a 24-hour amount of sputum and that the sputum must come from the parenchyma of the lung. Secretions of the nose and nasopharynx in atrophic rhinitis, ozena, and inflammations of the accessory sinuses mixed with the sputum give rise to a positive reaction. This author concludes that a percentage of albumin of over 2 is suggestive of turberculosis if such diseases of the parenchyma as pneumonia and congestive conditions are excluded. The reaction fails in fibrous phthisis as often as in early cases of tuberculosis. Blümel has very appropriately placed

Kauffmann in the intermediate group, as this author evidently approached the question with an open mind in an endeavor to sift out the causes for the widely dissenting views or to support one view or the other. For this reason Kauffmann's views will be considered here at length.

There were 108 cases in Kauffmann's series, over half of which were detailed. The negative cases were from the group of chronic bronchitides while the positive were tuberculosis, pneumonia, and bronchiectasis. There was not a single case of established tuberculosis of the lungs in which albumin was not demonstrated.

From his results with tuberculosis he concludes that while the albumin reaction is interesting it is not of value until the second and third stages of the disease when the diagnosis is already established by other methods; though he considers the reaction confirmatory in a similar though not as emphatic a manner as the finding of bacilli.

An interesting and valuable observation made on several cases was that the reaction may be stimulated by the use of tuberculin, in one miligram doses. Only two cases had been previously reported, one by Roger and the other by Gaeerard. The latter formulated a schema in relation to the two reactions.

I—Cutaneous reaction Neg., Alb. Pos. = Lung disease, non-tuberculous.

II—Cutaneous reaction Pos., Alb. Neg. = Latent tuberculosis.

III—Cutaneous reaction Pos., Alb. Pos. = Active pulmonary tuberculosis.

From this Kauffmann concludes: "The reaction of the organism to the subcutaneous injection of 'old tuberculin' demonstrates that there is a tuberculous focus somewhere in the body, but as to where it lies and whether it is progressive or not we have no clue. This reaction with the demonstration of albumin proves that a reacting focus does not lie in a lymph gland or any other place but in the lung."

Kauffmann found that early cases may have much, late cases little albumin, and vice versa, and Roger had similar experiences.

Smolizanski alone seems to think that the amount of albumin and the extent of the process correspond. Kauffmann says that even if Smolizanski is right, which he doubts, the cost and complexity of the apparatus as well as the time consumed make the quantitative determination impracticable.

As to prognosis he thinks that a continued decrease in albumin indicates a favorable outcome at least for that attack or exacerbation. In one of his cases and in seven similar ones reported by Ferrera, the albumin became less and less and finally disappeared during a favorable course of the disease and reappeared when exacerbations occurred. He considers that a quite accurate prognosis may be made by determining the relation between the albumin and globulin contents as both Smolizanski and Roger have demonstrated. They contend that the preponderance of serum albumin goes with a rapid course of the disease while a preponderance of globulin accompanies the favorable cases and those showing tendencies to heal. He reports a case of phthisis formerly diagnosed bacteriologically which on admission showed only a bronchitis such as he says is frequently found about old healed lesions, in whose sputum globulin only was found. Dieudonné reported four similar cases.

In bronchiectasis albumin was found. In one case of this disease with positive albumin an artificial pneumothorax was produced, thus compressing and obliterating the cavities where the autolysis of tissue and exudate was taking place. Following this operation the albumin disappeared from the sputum only to reappear when the nitrogen introduced became absorbed.

In pneumonia the albumin content of the sputum was found to be greatest at the crisis when the most active autolysis of tissue is taking place in the exudate and gradually disappears. Kauffmann reports two and Roger fourteen cases of this character. On the other hand, if a second process, as a new pneumonia or an empyema occurs, the albumin will continue or reappear. Waurmann reports one case of a new pneumonic focus and another of empyema in which this occurred.

In tuberculous pleurisy with effusion albumin is found in the sputum. Kauffmann reports three cases of this character. His conclusions are: (1) The test for albumin is an easy bedside manipulation. (2) Albumin is found in the sputum in tuberculosis, pneumonia, congestive catarrh secondary to heart and kidney lesions, fetid bronchitis and bronchiectasis, not in chronic bronchitis. (3) The albumin with the tuberculin reaction will substantiate the diagnosis of an active tuberculous focus and whether that focus is in the lung. (4) In cases of healed tuberculosis the albumin reaction disappears. (5) In pneumonia the albumin disappears gradually after the crisis and its continued presence or reappearance indicates a new pneumonia, an empyema, or a tuberculosis of the lung.

Sputum as considered in diseases of the respiratory tract is material raised to a large extent by coughing and expectorated. It contains the products of the disease in the air passages and parenchyma of the respiratory tract as well as the normal secretions increased in amount to some degree by the inflammatory processes. With these secretions saliva is mixed. Saliva contains in addition to enzymes and various salts, varying amounts of globulin, though in quantities too small to give more than an opalescence in the fluid sputum with reagents causing its precipitation. Mucin in demonstrable quantities by acetic acid precipitation is a constant finding in saliva and in the secretions of all mucous membranes. In conditions of passive congestion there is added a transudate. Transudates as in the pleural and peritoneal cavities contain from 0.5 per cent. to 2 per cent. of albumin. In inflammatory processes there is added an exudate. Exudates contain from 2 per cent. to 6 per cent. or more of albumin. Now the purulent material of an exudate is composed of leucocytes, fibrin, and cell detritus, all of which contain albumin, but in order for it to be detected in the filtrate from the original material the cells containing it must be broken up by autolysis. This autolysis of the cells and lysis of the fibrin is accomplished by the ferments of the leucocytes. Thus leucocytes, cells, and fibrin may be filtered out and consequently give no reaction, while if the material has remained some time in the bronchi or their dilatations, cavities, or alveoli, as in pneumonia, or in the sputum cup, lysis of these albumin-containing elements takes place and the soluble albumin is then detected.

Wanner considers the origin of the albumin to be the glands of the mucosa, the blood vessels of the bronchi and alveoli, and ulcerations. Any albumin content over an opalescence is to be attributed to inflammation and a content of over 9 per cent. to a vascular lesion.

Schmoll says that the larger part of the caseous material formed in tuberculosis is coagulated albumin.

As Melikjanz says, no disease of the varieties considered in this work produces such widespread destruction of tissue as tuberculosis; even the relatively resistant elastic tissue yielding readily to its attack. Also in tuberculosis we have a process noted for the formation of new cells in excess of those normally present. Thus Melikjanz draws the conclusion that from this maximum of destructive ability combined with the increased amount of destroyable material arises the albumin content in the sputa of the tuberculous.

Similarly in any disease of the destructive variety in the lung, material is thrown off as the result of its destruction. If it has not become autolyzed no albumin content will be found after a filtration except from exudation of soluble albumin; while if autolysis has taken place the reaction will be positive. The inflammatory exudate about new tubercles is largely serous in character, and contains little or no fibrin, is immediately filterable, and gives a positive reaction for albumin.

Technique.—There are many reactions for albumin. The qualitative are simple and practical while the quantitative are difficult and complicated. The most simple of the latter (Esbach's) is notoriously inaccurate and the more exact as Claudius' or the colorimetric and Brandberg-Stolnikoff's (involving the dilution of the material until a ring is formed by Heller's nitric acid test in three minutes), as well as the most accurate or weighing method are far too complicated.

If this reaction is of any value the method must be practical, applicable by those without special equipment and abundant time at their disposal. Again, complications in technique foster inaccuracy and are therefore to be avoided. In a review of the results of various authors it does not appear that the quantitative determination has added to the value of the results of the simple qualitative test, though it must be admitted that considering an opalescence as negative borders on the quantitative without annexing its undesirable complexity.

Various precipitants are applicable as heat and acetic acid, picric acid, nitric acid, and 10 per cent. potassium ferrocyanide.

Nitric acid is inaccurate for this work as the element of time enters too strongly and the reading is difficult. Ten per cent. potassium ferrocyanide in acid solution is the most simple and uniform in its results, as well as the most rapid.

The following is the technique used by the writer after trials of all other recorded methods, and it is recommended for those who desire to continue work with this procedure.

1. Twenty-four-hour amounts of sputum are collected and examined fresh. This is necessary as any portion may contain all mucus or all material from the disease process. It is even reasonable to suppose that differences in day and night specimens as recorded by Lieut. Priest, formerly of the staff of this hospital, may be explained in this way. Many cases though constantly expectorating may only at times raise material representative of the pulmonary process.

2. The material is placed in a glass-stoppered flask, an equal quantity of 3 per cent. acetic acid added, and the mass rendered homogeneous by shaking. No definite time can be allowed because of the varying consistency of the sputum.

3. Allow to stand for 5 minutes and filter. An interval of 5 minutes before filtering allows the mucin to collect in larger masses and filtration is more rapid and satisfactory. Add one drop of glacial acetic acid to the filtrate to be sure of complete precipitation of mucin and repeat filtration if necessary.

4. Take a convenient quantity, as 4 c.c., and add an equal volume of supersaturated magnesium sulphate solution, about 80 per cent. (This solution may be made at 60° C. and kept in the 37.5° C. incubator.) This precipitates globulin.

5. To another similar portion add 5 drops of 10 per cent. potassium ferrocyanide to precipitate albumin. If much globulin is found to be present by the first determination it will be necessary to filter it out before proceeding with the test as the ferrocyanide precipitates both. Except in work involving an estimation of the prognosis and where globulin is more than an opalescence this is rarely necessary.

The following symbols are used in recording results in the tables. ++ denotes a distinct heavy precipitate appearing immediately on addition of the reagent; + a precipitate of less amount and forming more slowly. In the case of globulin precipitates form slowly and tend to remain in suspension. It was found that the heavy clouds formed in the reaction will form precipitates if given a little time. The negatives then are reactions showing no change in the clarity of the material or an opalescence or cloudiness that does not settle as a precipitate and such as may be obtained from the sputum of persons with no respiratory disease; *Tbc* is used to indicate tubercle bacilli; *Muc. Pur.* to indicate mucopurulent.

One hundred and eight cases are tabulated below. Following the tables are cases in addition illustrative of special conditions.

Quantitatively we have been unable to find more than 2.5 per cent. of albumin in any of the sputa examined and many of the third stage cases were active in the extreme, clinically, and a few have proved the amount of activity on the autopsy table.

The classification of cases is according to the modified Turban classification.

GENERAL TABLE

Class	Activity	No.	Tbc.		Albumin			Globulin			Sputum	
			Pos.	Neg.	++	+	0	++	+	0	Muc. Pur.	Mucoid
Incip	Slight	5	4	1	3	2	0	1	2	2	3	2
Mod. Adv	None	3	0	3	0	1	2	0	1	2	2	1
Mod. Adv	Slight.	18	17	1	10	3	5	6	6	6	15	3
Mod. Adv	Moderate.	16	16	0	12	3	1	8	3	5	14	2
Mod. Adv	Severe	3	3	0	2	1	0	1	2	0	3	0
Total		40	36	4	24	8	8	15	12	13	34	6
Far Adv	None	1	0	1	0	0	1	0	0	1	1	0
Far Adv	Slight	6	5	1	3	2	1	4	2	0	5	1
Far Adv	Moderate.	14	14	0	12	1	1	4	8	2	12	2
Far Adv	Severe	42	42	0	34	4	4	19	20	3	42	0
Total		63	61	2	49	7	7	27	30	6	60	3
Grand total		108	101	7	76	17	15	43	44	21	97	11

TABLE OF ACTIVITY

Activity	No.	Albumin			Per Cent		Globulin		
		++	+	0	Pos.	Neg.	++	+	0
None	4	0	1	3	25.0	75.0	0	1	3
Slight	29	16	7	6	79.3	20.7	11	10	8
Moderate	30	24	4	2	93.3	6.7	12	11	7
Severe	45	36	5	4	91.1	8.9	20	22	3

TABLE BY CONDITION OF SPUTUM

Condition	No.	Albumin			Per Cent Pos.	Globulin		
		++	+	0		++	+	0
Mucoid	11	5	3	3	72.7	0	8	3
Mucopurulent	97	71	14	12	87.6	43	36	18

A glance at the table recording results in regard to the character of the sputum shows that the albumin content is relatively independent of this factor. Further work with different portions of the same sputum shows that frequently the nonpurulent portions contain as much and sometimes more albumin than the purulent.

In our work we will first consider the table made from known tuberculous cases, primarily diagnosed by the finding of tubercle bacilli. Of these 103 were active yet, 15 of the 103 were negative by repeated examinations for albumin, or 14.5 per cent.

Incipient active cases all showed a positive reaction. Of the moderately advanced cases 40 or 80 per cent. were positive and of the far advanced 90.3 per cent. contained albumin. One of the negative cases in the far advanced series was clinically *in extremis*, but repeated trials failed to show the reaction. The incipient cases show a result rather favorable to the diagnostic significance of the reaction but too few cases were available as most of the cases of this class in this institution are inactive. On the other hand there is a large percentage negative in the moderately and far advanced cases. It must be considered that the activity in at least some of these may have been diagnosed by moisture due to other causes than tuberculous activity, though every one of the doubtful cases showed bacilli in the sputum if not at the time of the examination, at least at the last examination, within one month previous.

Of fibrous cases, 10 cases were examined in a separate group. Of these 2, or 20 per cent., were positive for both albumin and globulin; the rest being negative for both. Both of the positive cases showed periodically tubercle bacilli in the sputum and it is therefore possible that there was some activity present. In this class of cases there is usually the question whether signs present are due to activity of the tuberculous process or moisture surrounding healed foci and the albumin reaction if positive, seems to indicate activity.

W., a cardiac case, showed during partial compensation a plus (+) reaction. Two months later, when compensation was complete, though raising some sputum, the reaction was negative.

R. and P. both showed considerable trouble and there was a question whether the signs present were those of tuberculous activity or bronchitis. Double plus (++) reactions in both cases indicated activity and their subsequent history has substantiated the findings.

Y. and B. G. W., cases of bronchial asthma with negative bacillary findings, were repeatedly negative.

N., a case of pulmonary syphilis, showed abundant precipitates of both albumin and globulin. In this connection observations by Waurrmann and Melikjanz are interesting. The former reports two cases of pleural disease in which the albumin reaction in the sputum was negative but the pleural fluid gave a positive Wassermann reaction.

This finding, as Kauffmann says, does not prove that the process was syphilitic but only that the patient was. Melikjanz reports a case of pulmonary syphilis in which no evidence of tuberculosis could be found, whose sputum contained 1.35 per cent. of albumin. The case cleared up and the sputum became negative for albumin under anti-luetic treatment.

R., a case of fibrinous bronchitis, showed at all times a small amount of albumin not estimable quantitatively.

B., a case of subacute bronchitis, and X., a case of bronchiectasis, similarly showed small amounts of albumin.

Two cases of subacute rhinitis and nasopharyngitis showed constantly in the purulent sputum a small amount of serum albumin thus coinciding with the report of Dr. Blümel. The amounts were sufficient to cause a confusing reaction and the secretion of the nasopharynx and nares must be looked on as a source of error.

Three cases in which artificial pneumothorax had been produced showed on first examination a trace of globulin and a heavy albumin precipitate. Two months later all three cases clinically showed a marked improvement and in all three the globulin had increased to a double plus (++) reaction while the albumin was present only in traces.

From the experience of the writer in all cases in which the globulin was tested for it was found that one examination did not in any way indicate the prognosis. Repeated examinations at sufficient intervals were necessary. Considerable globulin may be present and frequently is in sputa containing abundant albumin and in cases showing no tendency to heal, but in these the albumin preponderates and continues to do so.

Miliary tuberculosis is apparently an exception to the rule that albumin is found in all destructive processes of the lung. This is without doubt, due to the fact that there is not sufficient destruction of the parenchyma before death and little exudation into the air passages, but most of the material expectorated represents the increased secretion of the mucosa. Darrasse and Roger each report a case bearing out this conclusion.

Deductions from the work of the writer: 1. Albumin is not present in the sputum from all cases of *active* pulmonary tuberculosis. This seems indisputable. Doubtful and negative cases are not reported in this paper without several examinations at sufficient intervals to justify the record of negative albumin. A case has been considered active if clinical signs indicated it and if the bacilli were found within one month of the examination for albumin. As a corrolary to this first conclusion it may be said that the percentage of negatives in the active cases is sufficient to seriously affect the value of the reaction from a diagnostic standpoint.

2. An increase in globulin accompanied by a decrease in albumin is a favorable prognostic sign.

3. Albumin is present in the sputum from cases of pulmonary syphilis and is therefore not a means of differential diagnosis between that disease and phthisis.

4. As a general rule, though there are exceptions, the albumin content corresponds to the amount of activity.

5. Fibrous cases with moisture but no active tuberculosis in the lungs do not show appreciable amounts of albumin in the sputum. Thus the determination of albumin may be of aid in the dif-

ferential diagnosis between moisture due to tuberculous activity and that due to other causes as in the fibrous tissue of an old healed lesion or surrounding such and due to congestion.

It seems to me, from the diverse results we must conclude that for diagnosis, direct or differential, albumin in the sputum either quantitatively or qualitatively determined, while possibly acting to substantiate other methods, is of very little value alone. As in many other reactions a positive result is of more value than a negative.

Many other diseases give a positive reaction; some being easily differentiated while others are not. The disease most frequently offering difficulty in differential diagnosis is bronchitis, including bronchiectasis. If the reaction is strongly positive bronchitis is probably ruled out. Bronchiectasis, if of slight degree, may likewise show only a slight reaction, but if severe and with abundant cavities or large dilatations allowing stagnation and autolysis of exudate, the albumin content may be very large.

Many authors emphasize the importance of determining the source of the sputum. This is difficult and many times impossible. The sputum in the actively tuberculous may be almost entirely from an inflamed mucosa and therefore contain little or no albumin. This secretion alone or diluting that from the parenchyma certainly will give an erroneous reaction.

There may be such differences in the activity and amount of exudation of pulmonary tuberculosis that the quantitative estimation has scarcely the importance attributed to it by some observers and practically the technique is far too cumbersome to be of value.

In apparent exacerbations of the disease the reaction may serve to differentiate true activity from bronchitis and in the course of the disease a progressive diminution to total absence may indicate healing; a reappearance or increase, an exacerbation.

The writer can scarcely credit the reaction with an importance even approaching that of the examination for bacilli.

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PROBLEMS OF LIFE.

A REVIEW OF THE SCOPE OF OUR PRESENT KNOWLEDGE ON THE SUBJECT.

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"This fine old world of ours is but a child
Yet in the gocart: Patience! Give it time
To learn its limbs; there is a hand that guides."
—*Tennyson.*

ONE must not be entirely what is commonly called a "fatalist" to perceive that there can be nothing in all Creation, known at present, or that is to be discovered in the future, but must have a definite and distinct place in the *morale*, in the economy, or even in the materiality of life. It matters little how theoretical a discovery now appears, it must only be a fact, and it is certain to have practical application, perhaps preordained by the Creator to meet the urgencies of human progress, somewhere, sometime, or some place in this vast universe. Indeed, we can go a step further. We can say that the theories of yesterday are no longer theories. They are the facts of today, accepted by everyone as matters of fact as if they had never been in the stage of theory. Theories advanced and the researches conducted in life, no matter of what phase, whether of the theories of its origin, or of the more practical factors of its prolongation, must result to the advantage of that life; and the life given us to live will the better be able to fulfill its mission on this earth. Those who view with misgivings the expenditure of vast amounts of energy and of large sums of money in the study of wholly theoretical matters, *i.e.* in scientific research, in the face, apparently, of many more urgent necessities, must soon have brought home to them the knowledge that these expenditures have been the means of discovering truths in Nature of positive—yes, even material, value to life, and in the conservation of it. But when we ask the simple question—of life, "What is it?"—or when we presume to inquire into the nature of the many circumstances and phe-

nomena surrounding it, we find that they are still veiled in a great deal of mystery. To be sure, the lore is crowded with many interesting theories; and while these have thus far been the means of solving but comparatively few of its problems, they have cleared trackless fields of investigation, that already bear fruit, with promises of boundless futures.

The Origin of Life.—When we set out to inquire into the phases of life we find ourselves at once baffled by our lack of insight into the very nature of life. It may be that Providence has thus far wisely kept this knowledge from mortal man. All that we do know about any aspect of life is, at best, only parallel or adjective to it. About the nature of the forces controlling it, and even about many of the processes we are as much in the dark as ever. It is the opinion of some students of this subject that life is chemical in nature. The successful fertilization, by chemical means, of the egg of the sea urchin has convinced many of the truth of this postulate. The fact that the lower fungi have taken life in sterile chemical solutions is pointed to as another proof. Even admitting the truth of these observations, no proof is advanced that there was not life in the subject of observation, and that the chemicals were not merely the media in which the life developed. Indeed, the phenomena of the fungi are explained by the opponents of the chemical origin of life on the ground that there was not complete sterilization of the chemical solutions, and that on the withdrawal of the sterilizing agency, the organisms not so destroyed—if, indeed, human beings possess any means for the total destruction of this incomprehensible fact of life—again begin their life activity. This is consistent with bacteriological knowledge. It is known that the reproductive elements, the spores, of certain bacteria have a tendency to resist the most powerful destructive agents, and assume life again after the removal of these agencies. Theories can be multiplied indefinitely, and with this subject the more theories the more mysteries. The origin of life is a question that has always haunted man even from "time when the memory of man runneth not to the contrary." It almost seems that since at all times all peoples, no matter how crude they were, or how high a degree of civilization they have attained, have answered this question from the spiritual standpoint, that it is on these grounds that this question must finally be answered.

Theologians and scientists must never be at loggerheads. They are working in different fields. The scientist wants to know only the methods or processes by which Nature, and more specifically—life, works. He seeks knowledge that Nature holds out for him to conquer. The theologian is interested in the spiritual phases of life; those phases which seek especially to promulgate the religious and social duties of mankind without the proper understanding of which man does not seem to be able to enjoy the material gifts of this world. In the strictest interpretation of the term "origin," it can be seen that it is a matter with which theology is most concerned. It is concerned in tracing and crediting the gifts of Nature—matter, life, this vast whole—the universe, to its origin with the Donor. That eminent naturalist, Professor Tyndall, carried away, no doubt, by his enthusiasm, ventures the opinion that "all living things and forces come from matter, and the student of the material sciences will wrest from theology the entire domain of cosmological theory." Herbert Spencer remarks, however, that "those to whom the natural genesis of simple phenomena have been made manifest, still believe in the supernatural genesis of phenomena which cannot have their causes readily traced."

Even conceding to science the truly wonderful progress it has made, it must withal confess that it has learned only the barest attributes of life, and little else. "Life, then, is confessed even by science to be a mystery, a terra incognita, bounded on one side at least by matter, brute matter, but on the other side by something, as it seems to me, finer and better than Professor Tyndall's 'streaks of morning cloud' and 'infinite azure.'" The more of the attributes of life that we are allowed to learn the greater must become the conception of our ignorance of the subject, as if the limit of ignorance was never to be reached. The sum of our knowledge of life may be compared to the apex of a triangle, and our ignorance to the limiting lines which spread out and diverge even to infinity. "Life," says Herbert Spencer, "is a continuous adjustment of internal relations to external relations."

Probably the best definition, or rather a delimitation, of life is by means of death—at least that is, in the mortal sense, as far as is apparent to our senses, more easy of conception. Scientifically speaking, however, we are not only in the dark as to the origin and nature of life but even in respect to its termination. We can tell with moral certainty when the corporeal, systemic, or somatic life ends, broadly speaking, when it ceases to functionate, but when the individual microscopic components or cells of the body die, is another and much more difficult question to answer. Animal experimentations have demonstrated that individual tissues live longer than the bodies of which they may even be the most vital parts. The hearts of the lower animals can be made to beat a long time after the death of these animals, and even after the hearts have been removed from the bodies. A muscle removed from a frog's leg can be made to contract and lift a weight, as in life, by electrical stimulation of the muscle itself or of its attached nerve. The vitality of this muscle-nerve preparation continues to diminish as time goes on, yet under favorable conditions created by imitating the natural conditions—as well as human beings can—such as warmth, moisture, maintaining in isotonic solutions, etc., it can be prolonged for a considerable period. The molecular or cellular life-activity of the body has been extended, though the parent body lies functionless.

But science is not satisfied. It has gone much further. Not only does it prolong the cellular life of the body tissues, but it grows and cultivates these cells—that is, it makes them increase their number. The significance of this accomplishment must, however, not be overestimated. It is in no sense a creation of life. It is nothing more than a stimulation of life already in existence to renewed activity. On the other hand, the possibilities of this power to grow tissue can never be overestimated. It has a practical use in stimulating the growth of the tissue cells of injured parts of the body, beyond the usual capabilities of injured tissues. In this way it is possible to shorten appreciably the period of healing. To what ultimate extent this power will be of use to mankind is hard to predict, except to say that in the nature of things this must find its niche in the economy of life.

The Evolution of Man.—Now, as concerns life itself, as it is without regard to its nature or its origin, we usually consider it to have inception at the moment of birth, although all of us know that there is life before birth—from the moment of conception, in fact. Even to place conception as the beginning of life is not satisfactory, since that would not explain the existent variations due to prenatal, racial, or disease influences. Without these variations each human being must be exactly like every other human being. It is true that the variations are not such as to effect the predominating characteristics which relegate us to certain races. These characteristics are uniform in all of our kind or "species." The life and form of the present being have origin in the parents—whose characteristics they possess; the parents themselves possess the characteristics of the grandparents—and so on with certain variations to the beginning of mankind whenever or wherever that was, even to the very genesis. A life, then, has been coming down to us for ages. Each life and being is an infinite number of years old, whether at all times in the present form, or previously in some form different from the present, or in a form bearing no resemblance to the mankind of the present time. This conception of the age of a life parallels the theological conception of the immortality of the soul. When we endeavor to inquire how far back it is possible to trace the mortal form of man, and what is his relation to other forms or beings on this earth, we are brought face to face with the theories on the evolution of mankind from lower forms of animal life.

The proposition is simply this: Did man always possess the morphological characteristics he now has? Or, tracing him back, do we find him having different bodily form and character, but having shaped himself into his present image by changing continually under environmental, or perhaps other conditions, that is, through evolution? Lamarck is the pioneer in the exposition of the doctrine of the evolution of man. "Lamarckism" first saw the light as late as 1809, and it was not until forty-nine years later, in 1858, that Darwin published his now famous "Origin of Species." This marked the beginning of the now nearly universally adopted doctrine. The doctrine itself has undergone many modifications. We now have Neo-Lamarckism, Neo-Darwinism, etc. The principle is the same in all of them.

The doctrine of the evolution of man is, then, the natural result of speculation into the reasons for the similarities in man and in some of the lower animals, with respect to certain physical and functional characteristics. The doctrine is founded on the fact that certain organs are in a rudimentary and non-functionating condition in man, while in some of the lower animals they are fully useful and active organs. Likewise, certain parts of the human body are retrograde in their form, but fully developed in the lower animals. The former condition is illustrated by the appendix, which is apparently useless in man, but is a useful organ in the lower animals. The latter condition is illustrated by the rudiments of a tail at the bottom of the spine of man. Such facts as these formed the groundwork for the inquiry into the ancestry of man, and was complete with the work of tracing man back to his very earliest ancestry, accomplished by following successively his genealogy through animals most nearly like him. In other words, this established man's line of descent.

The Descent of Man.—The animal nearest to man in morphological characteristics is the monkey, especially the ape type. Of the many species of monkeys it is found that the lower ones differ from the higher or man-like monkeys to a greater extent than man himself differs from these higher apes. On this condition of facts Huxley propounded the dictum that, "Whatever system of organs be studied the comparison of their modifications in the ape series leads one to the same result—that the structural differences which separate man from the gorilla or the chimpanzee are not so great as those which separate the gorilla from the lower apes." In tracing the lower apes back we find them approaching in form still other and non-ape animals. Each backward step is accompanied by the loss of some of the features of the higher types, and the assumption of those of the lower; and so on till the animals reached become very primitive, somewhat in this order: monkey, higher mammals, lower mammals, reptiles, fishes, insectoids, and on to the single-celled, or ameba-like creatures. This genealogical table may perhaps be evolved by commencing with the lowest forms of life and tracing them upward to man.

To clarify fully the genealogical relationship between man and his lower ancestry, it must be understood that all animal life, human or otherwise, begins in a single minute egg-like cell about 1 400 inch in diameter. The human egg or ovum, the earliest and most immature manifestation of the human being which it is to develop, is yet very like, in size and form, the mature, fully developed ameba—a unicellular being of the lowest species in the animal creation. The later, more mature, stages of the human embryo are the prototypes of mature being of successively higher species. This parallelism of human development can be traced alongside of the genealogical table already outlined, and is the basis for the doctrine of the descent of man from the very lowest form of life. In 1811 Meckel summed up these truths when he said: "There is no good physiologist who has not been struck by the observation that the original form of all organisms is one and the same, and that out of this form all the lowest as well as the highest are developed in such a manner that the latter pass through the permanent forms of the former as transitory stages."

For a long time, however, this chain of evolution was not complete, because the gap between the higher apes and man was still too wide. There was a link missing in the chain between man and monkey. In 1886 Ernst Haeckel formulated a description of the species that would, when found, fill in this gap. He called this species the "hypothetical genus *Pithecanthropus*, species *Alalus*." And, truly, in 1894, Dr. Eugene Dubois confirmed this prophesy by discovering in Java the remains of a being which dovetailed into the place between man and the higher ape—the so-called "missing link." Now the chain is complete. "Either all the various species of animals and plants have been created independently by supernatural forces (and in this case the creation of man is also a miracle), or the species have been produced in the natural way by transmutation, by adaptation, and progressive heredity (and in this case man is also descended from the other vertebrates, and immediately from the series of primates—monkeys)."

Natural Selection.—The question now arises what forces compelled the changes operating in the development of man from his most primitive

state as a unicellular organism, through the various species, to his present height as Man? The answer is, the forces embraced in *variation, adaptation,* and *natural selection.* This means that every species of animal or plant has variations within certain limits, which, however, are usually not marked enough to excite notice. But such variations which are more in accord with, or suited to, the needs of the environment and its influences, have a tendency to predominate in degree, and to develop to higher perfection, while other variations not so suited have a tendency to lag behind and to be finally wiped out entirely. The changes thus effected are then marked enough to consider the species to have changed. In the same way, the species themselves that are unsuited to or cannot meet changing or adverse environmental conditions are wiped out, leaving only the changed and stronger species to thrive and to propagate their kind. This, too, is the doctrine of the *"survival of the fittest."* The only species that survive for higher development are those that have within themselves some resistant quality that saves them from succumbing to adversity. These seem to be selected by Nature, of all others, to remain. This is in effect, then, the doctrine of *"natural selection."* The variations, the adaptations, and the natural selections are repeated in the successive higher generations or species, till it has now reached man—and will no doubt continue to perfection, if that is ever possible.

more adverse, and the more numerous become the influences with which the species have to contend the more tendency there is to variation and natural selection in order to meet them. The less adversity the less variation and the more uniformity. For this reason there is more uniformity in savages than in the civilized. The civilized have such a multiplicity of circumstances and adversities to combat that their many variations and adaptations are purposed to meet them all. The environment of civilization is continually becoming more exacting, which will require more effort or effortive-selection to meet. Only the fittest will be selected by Nature to remain and overcome these conditions. We may be unable to foretell what will take place in the environment or in the conditions of future times, but we can perceive that whatever they will be, man much change according to the needs, or else succumb as a species. The changes in us are not quite so gradual but what we can appreciate that we are even now undergoing changes which make us just a little different from our immediate predecessors in the fields of activity—in life. At the present time, as it must surely have been in the early evolutionary times, competition is very keen, and since Nature selects for survival only the best, it becomes apparent that the need for evolving a race sufficiently virile and efficient, both mentally and physically, is a practical as well as a scientific consideration.

While most of us have accepted the theories of evolution as at least logical, some very eminent scientists have denounced them as absurd. Chief among the doubters and scoffers was that eminent German scientist, Virchow. "It is quite certain," he said, "that man is not descended of apes. Man may as well be descended from the elephant or from the sheep as from the ape." Virchow's disbelief of the doctrine of evolution has always been a source of mystery to his admirers. To Ernst Haeckel is credited the remark that: "No general problem in zoology and botany, in anatomy or physiology can be discussed without the questions arising, 'How has this problem originated?' 'What are the real causes of development?'" Huxley says of the theory of evolution: "This is the question of questions for mankind. Whence our race has come, what are the limits of our power over Nature, and of Nature over us—to what are we tending? These are the problems which present themselves anew with undiminished interest to every man born into this world. Our theory that man is descended from the lower vertebrates, and immediately from the apes or primates, is a case of special deduction, which follows with absolute certainty from the general induction of the theory of descent."

Heredity.—Now, then, the whole theory of evolution, which traced the genealogy of man from a unicellular organism, dealt with him only up to the time when he assumed the image or species, Man. Discarding from further consideration man's animal ancestry, we must consider the human species itself, its characteristics, qualities, propensities, etc., but especially the manner of their acquisition and transmission, *i.e.* his heredity. Special weight has been given to this subject of heredity since the rise of interest in the science of eügenics, a science that purports to occupy itself with breeding of a better race of people, and the nurture of desirable racial qualities. It is by heredity or by hereditary transmission that we are endowed with our racial, familial, or individual character, featural or even social, our defects, and at times even our diseases. Indeed, the heredity of mental disease and defect seems to be established since the better understanding of the principles of heredity.

The theory of heredity becomes comprehensive after a brief survey of the early, microscopic, stages of the development of the human embryo. Essentially, both the male and the female elements comprise a cell body and a central speck or nucleus. The female contribution, the ovum, the human egg, so to speak, when fertilized is a minute spherical or egg-shaped body about 1/400 inch in diameter. Within is a similarly shaped but smaller body, the nucleus. Immediately after fertilization the ovum divides into daughter cells. This division continues and increases the number of cells until a mass of cells are formed which, arranging themselves into three long layers, form the groundwork for the development of every part of the body. These layers contain, therefore, in miniature every organ or member of the mature individual.

The nuclei of the male and the female cell elements each surround, graphically speaking, four minute parallel bands, the *chromatin* elements. These contain, or perhaps are themselves, the determining factors of the particular type of being from which they sprang. They determine the character of the being they are to help form. Indeed, the union of the male and the female cell elements, cell conjugation, has for its chief purpose the mixture of these chromatin elements in order to form the conjugates of these cells. This mixture of the chromatin elements is also spoken of as *amphimixis.* The term has an important bearing in the evolving of the Mendelian doctrine, to be explained presently.

But while the male and the female cell elements each contain four chromatin bodies, the fertilized ovum after amphimixis has only four because in the scheme of development four are thrown from

the fertilized ovum, just before it begins its cycle of development. The fertilized ovum contains then, two chromatin elements of each parent; each grandparent contributes one-fourth of them, each great grandparent contributes one-eighth, and so on in a lessening proportion to the remotest ancestry. Every ancestor contributes his or her proportion of the characteristics of the present individual. The mixtures and the ancestral contributions do not, of course, take place in the exact proportions mentioned. Various conditions influence the manner of the transmission of characteristics, and influence the proportion and the character of the ancestral contributions, as we shall see. The throwing off of the extra chromatin elements is believed to have for its purpose the eradication of such of the characteristics as are possessed by one parent only, and in this way to prevent wanderings too far from the prevailing species. But characteristics possessed by both parents, whether desirable or no, are emphasized, because the throwing off of the extra elements leaves remaining ones more room for self-assertion. They are left in a more concentrated, and hence in a more emphatic state.

We have seen that the union of the fertilization of the male and the female cell elements, the amphimixis of the chromatin bodies of the nuclei, starts the cycle of development of the human being. Every feature or character present in the child just born existed in miniature in the fertilized ovum as a physical imprint. The ovum is not merely the prototype in gross of the parent cell specie, but in addition it has all the individual characteristics of the whole line of parent cells, with such variations and modifications as might be expected to result from the mixture of traits of the whole line of ancestry. In other words, this is an enunciation of the doctrine of heredity. "Whatever a man may be at any particular time he is the product of the contributions of his ancestors, which he brings into the world with him, and the effects upon him of the environment in which he finds himself." Heredity on the one hand, environment on the other hand, are the factors in the shaping of our lives and those of the future. It is of vital and practical importance to us particularly, and to the race in general, that we possess by heredity, and acquire by proper environmental conditions, the best possible characteristics for transmission to posterity. Throughout this entire discussion on heredity the fact must be borne in mind that we are dealing in matters almost entirely theoretical, which have thus far no actual demonstration. The scheme of action in Nature is undoubtedly more complicated than outlined.

Racial Incest.—We have all observed the featural differences in members of the same family, and we may have been at loss to account for it. A family may have members in it who are neither like each other nor like a "composite" of their parents, nor like either one of them separately. Some take after the father, others after the mother, and some even after certain of their collateral relatives. In the same family may be blonds, brunettes, tall and short individuals, and so on, with other characteristics. In spite of the variations all yet conform to the race-type to which they belong. Northern European races are tall of stature and light of hair with blue eyes; the Southern are small, dark haired, and dark eyed. Marked variations from the prevailing type arouse a suspicion of intermixture between the races in the immediate or remote ancestry. Crossings between distinctly different races, as between white and black, white and red, etc., seems productive of transition types, for what reason is not understood, which are not as stable as either of the parent types. Mixtures of this kind are extremely undesirable from the viewpoint of racial integrity.

In like manner, a strict adherence to breeding only within the particular race and line, inbreeding, or racial incest, as it may be called, is undesirable in man as well as in animals. It is universally recognized that actual or familial incest is undesirable, and that such unions almost invariably result in defective lineage. That form of incest is abhorrent to our notions of civilization, is not permitted, and, therefore, needs no further attention. Intermarriage or inbreeding not merely within the race but also within the tribe, while it may result in the production of a highly specialized and sensitive nervous organization, which is, however, very prone to rapid disorganization, more often produces poor physical types. For this reason it is nearly as undesirable as cross-breedings of wide latitude. The best breeding is within the race but between the tribes. The term "tribes" is here used to denote, say, the different subraces, as the different white races, for example. Unfortunately, the domain of this entire subject is as yet little understood.

The Mendelian Doctrine.—In an effort to explain these familial differences and similarities, Gregory Mendel, an Austrian monk, established by experimentation with plants a mathematically accurate scheme of the hereditary transmission of qualities. This scheme or doctrine is now known as the Mendelian Doctrine, or Mendelism. Whatever application of this doctrine is made in man, it must be borne in mind that Mendel worked entirely with plants. Yet even in man many heretofore inexplicable phenomena of heredity find explanation under this doctrine. Mendel cross-bred variously sized and variously colored peas and observed the nature of the ensuing progeny. When, for example, he crossed tall plants with short ones, or white ones with red ones, he invariably found that the issue were three tall, or three red, to one short or one white plant, and so on when plants with other characteristics were crossed. The most desired or the fittest quality in a plant he called a "dominant," as would, for instance, be exemplified by tall plants; the undesirable qualities, here personified in a shortness of the plants, he called "recessive." Mendel's scheme evolved the details of the variations in the kind of offspring that resulted from the union between a dominant and a recessive.

The elaboration of the doctrine credits the germinating cell elements with having within themselves the materials which determine the character of the being they form. These entities are called "*determiners.*" "These determiners are definite material entities, and therefore the inheritance of these special characters cannot be blended inheritance, but must be an inheritance dependent upon the segregation and grouping of these determiners, and Mendel endeavored to formulate with mathematical precision the ways in which inheritance would manifest itself, by determining all the possible combinations in which the determiners could group themselves." A limit of six possible combinations are provided for in this doctrine.

Every dominant or recessive offspring, the issue of a dominant and a recessive parent, have dormant

within themselves the desirable or the undesirable qualities, as the case may be, possessed by the parent. The recessive progeny have within themselves, in a dormant or inactive state, the dominant qualities of the dominant parent. Conversely, the dominant progeny have within themselves, in a dormant or inactive state, the undesirable qualities of their undesirable or recessive parent. Though inactive in this offspring subsequent unions with other types, or under the influence of conditions not yet understood, may activate the dormant qualities in the descendants.

To apply this scheme to human beings let us call a perfectly normal, healthy individual a "dominant," and a defective individual, defective in some way or in some respect, a "recessive." Schematically carried out the union of such individuals must result in three normal and one defective offspring. The difficulty of the application of the scheme to human beings lies in the fact that Mendel dealt with plants and that he had to have series of four offsprings at least, while in man the total number of offspring may be less than the schematic four. Now, the dominant or normal children of such a union would have in their composition a recessive characteristic, dormant in them, however; the defective child would, on the contrary, have dormant within itself a dominant characteristic. In future generations, under certain influences, the characteristics now the dormant ones may become the active ones. In this way the normal children may in their unions, and even if they unite with other normals, yet have one or more recessive children. On the other hand, the defective child, if his offspring numbers less than the schematic four, after union with a normal, may have only normal children; that is, only the dominants of his future family may be born. The absence of any subsequent births prevents the assertion of the defective stock of this union. The active recessive element in this family is wiped out because of the limitation in the number of the offspring. This becomes the explanation for the heretofore curious fact that in a family of children, the issue of highly developed parents, there is born a defective. In all likelihood, if the ancestral history of this family were traced back there would be discovered somewhere in the stock from which this child came a defective ancestor. In the defectives resulting from racial or familial incest no fitter determiners are brought to the stock to raise it and even slight racial or familial defects become emphasized from the mere addition. In any event the study of the stocks of prospective mates might reveal interesting information about defective ancestry, when it would otherwise not be suspected.

Eugenics.—It is the sphere of eugenics to study the stock from which individuals spring. Then, it is the ideal of the eugenist to mate only individuals of the best stocks—to mate them also with the view of bringing out particular desirable qualities. For this reason the science of eugenics is also called "Stirpiculture," from the Latin *Stirpes*, stock. Animal breeders are interested in this same endeavor, and we need not be prejudiced against this science because of its application to animals. Human beings are animals, and not far distant from the lower ones, as we have already seen. Herbert Spencer aptly remarked: "To be good animals is the first requisite to success in life, and to be a nation of good animals is the first condition to national prosperity."

Eugenics is either positive or negative. Positive eugenics concerns itself in the building up synthetically, so to speak, of a better race. It is the stock-farm method. Negative eugenics is that phase of this science which desires to prevent the breeding of defectives by preventing the mating of defectives. At present this promises to be the most practical way, since, for obvious reasons, the stock-farm method cannot yet be applied to human beings. Eugenists propose to render sterile the physical defective and the criminal defective, and thus to prevent the propagation of such strains. But many public spirited and race proud people oppose this plan of sterilization on the ground that a defective may yet, in a union with a normal, propagate *some* normal children whom we have no right to prevent from coming into being—in order to prevent the birth of those that might be defective. This may have some justice when we consider that the unions of normals with "tainted" ancestry may result in defective offspring just as much as after the union of known defectives. It seems that this is altogether too theoretical and sentimental an objection for so practical a problem as this one. Many States have, however, already passed laws requiring the sterilization of criminals and defectives in the public institutions.

To illustrate the possibilities of negative eugenics and to point out an interesting example of the schematic tendency to the hereditary transmission of defective qualities, let us consider the so-called "bleeders." These individuals bleed very profusely, sometimes even fatally, from insignificant wounds or abrasions. Surgical operations are out of the question with them, and death may frequently result from inability to perform on them urgent surgical operations. Investigation demonstrates that this bleeding characteristic is transmitted in a definite manner, from the bleeder *through the female* offspring only, without, however, affecting her, to her male issue. It skirts all the immediate offspring of the bleeder and affects only the *male* grandchild through the female. The bleeding characteristic was, then, dormant in the first generation, but activated in the second generation through the female. Hence if the original bleeder had no female children the tendency would be entirely wiped out. But, unfortunately, sex determination or influence is not within our knowledge. It is easy of conception, however, that other defects have some natural, and as in bleeders, some definite scheme of transmission, which were it possible to determine, say on Mendelian principles, would put the breeding of human beings on a scientific basis.

The attempt to build up a better race of people synthetically by selecting the best material mentally and physically, and the prevention of propagation of and by defectives are but preliminary steps in this question of eugenics. Since a very large part of defective characteristics transmitted are acquired primarily through disease, it is of paramount importance to the eugenist in his endeavors, to prevent the acquisition of diseases, so that there may be none to spread and none to transmit. It is the *nurture* as well as the nature of racial qualities with which the eugenists are concerned. It was formerly strongly believed that all diseases were transmitted. Now this is modified somewhat. It is believed that the germinating cells of the body become sensitized to, and weakened by the particular disease from which the

parent is suffering. The offspring, while not actually suffering from the disease, is said to be predisposed to that disease, which he may acquire under certain adverse environmental conditions. But disease can be warded off by obtaining for the individual with this predisposition the best possible environment. This is illustrated in the offspring of tuberculous parents, who do not themselves have the disease at birth, and who need never acquire it if taken from the tuberculous environment of the parent and placed in the best possible antituberculous environment. On the other hand, if the disease affecting the parent is not too profound, or is not of sufficient duration to leave an impression, the germinating cells of the parent body are not sensitized sufficiently to transmit a predisposition. The deleterious influences of ancestors generations back are felt by the present generation, and the biblical prophesy of the visitation of the sins of the parents on the children of future generations is none too lightly carried out. Individuals defective through defective ancestry are just as helpless as the individuals whose defects are of present origin. They are enormous burdens on the State, and a drain on the coffers of the taxpayers. The large number of physically and mentally feeble persons is a growing menace to the community, and fully justifies the interest taken in this problem of eugenics. Proper ancestry is a very essential factor in the wellbeing of the present generations. Indeed, we have an absolute right to good ancestry. Emerson said that "a child's education begins a hundred years before it is born." He may well have said, "thousands." It begins with the remotest human ancestor and continues throughout the life of the child in question.

Having considered the details of man's animal ancestry, his human ancestry, and the principles of heredity, we are now well launched upon the consideration of man's sphere on earth from birth —and even before birth—throughout life, and to death.

Child Life.—In early historic times a child's individuality began only when it was in being—that is, after birth. Even then its life or its welfare was of little concern. A child was the exclusive property of the parents, to be dealt with as they saw fit. They could take its life with impunity. There was no communal interest in the child. Now the State is considered to have as much interest in the child as the parents, possibly more. In early times infanticide was a common and a not reprehensible crime. In ancient Greece they were wont to expose to the elements such of their children as they believed were not robust enough to become warriors, and thus good citizens. This is probably the first sign of the doctrine of so-called euthanasia, the killing of the defective and the sick, of which we now hear so much. In ancient Rome infanticide was advocated as a legitimate means of limiting overpopulation. Pliny, the elder, speaks of this practice with approval. Be it said, however, to the credit of early writers of equal note, that they expressed their profound abhorrence of this practice. In like manner, as is to be expected, the destruction of life before birth was very common.

Now, although we consider the lives of children just as sacred as those of adults, even we need some moral education on the sacredness of life before birth, and even before that. The antiracesuicidists justly contend that no amount of sophistry can justify the prevention of the coming into being of human life at any stage, unless we deny at the same time absolutely the inviolability of human life. If ever justified, it is justified only to save an existing prior life—the life of the mother. Children born to unwilling parents are the only really and morally illegitimate children. Overpopulation among the poverty stricken is a problem which must find solution along other lines, in all likelihood along economic and social lines of betterment. The Malthusian method of regulating and checking overpopulation, proposed by the Rev. Thomas Malthus (1766-1834), consisted in deferring marriage till late in life. This proposition has now no moral significance, although it seems that the increasing stringency of life under present keen competitive conditions and with respect to the cost of living is accomplishing this very result.

The decline in the birth rate is among the higher and the more educated; the increase is among the lower. This is not desirable, since the elevation of the succeeding generations of higher classed individuals, were they sufficiently prolific, could be continued from the point where the preceding generations left off, and thus progress among a large body of people would be very rapid. The education of the lower classes must always be along primitive lines. In sufficient numbers the former would tend to predominate and survive as the fittest. Poverty and large families seem, however, to be inseparable. "Wherever there is a greater carelessness of child life, in the matter of its use, there is the birth rate highest." David Heron found, on the contrary, that before the economic legislation against child labor in the woolen districts of Yorkshire, England, large families were very common, were economic assets, because of the use of child labor, and their health was carefully guarded for that very reason. Since the restrictions placed on child labor there are few districts where prenatal life destruction is so consistently carried out. Investigations of child labor in the Southern States of the United States, although as yet incomplete, point to the same conditions. In these places it is either the mothers or the children who must work in the factories. The question which is yet to be answered is whether it is more harmful for the child, in respect to its physical and mental wellbeing, that the child itself should work, or that its mother should work. Neither is desirable in itself. Which is the lesser of the evils? Which affects infant mortality least?

Infant Mortality.—The question of the reduction of infant mortality now commands considerable attention, not only from moral or sentimental grounds, or from instinct which creates a desire to save the lives of our own kind, but also from the more modern economic standpoint. Children are subject to a great many diseases because their tissues are more tender, are yet not sufficiently hardened to make uninviting food for the disease agencies. Scientific and hygienic advances have reduced the infant mortality from nearly every disease to a very large extent. There is yet so much room for improvement, however, that the time for congratulation has not yet arrived. Diseases of infancy and childhood are now prevented rather than cured. This is the Golden Age of preventive medicine. All the time and money formerly wasted in cures, or to be more exact, in funerals, can now be devoted to child welfare in other directions. One-fifth of all children still die before the first year; one-half before the twenty-third. What does it cost to keep

these children alive in this unproductive period? Whatever money is thus spent is never returned to the coffers of the community, as is done by those who live through the productive period of life. In the language of the sea, it is a total loss. The cost of salvage will be many times repaid by the productive value of those salved. Every baby born into this world now has a better chance to live through adolescence than ever before. In time the State will pay at least as much attention to the lives and welfare of children as it already does to those of animals. It must only appreciate their money value. The conservation of child life must soon be a branch of economics, in which science will do the field work, the State the executive work.

The Conservation of Life.—The movement for the conservation of child life is only a part of the general movement to conserve and prolong life through the prevention of disease and the betterment of economic and social conditions. Scientific researches and active hygienic measures have committed severe depredations among the disease forces. A little retrospect will bring to mind the fact that the occurrence of plague, cholera, smallpox, etc., which swept away whole communities and decimated the population of whole nations, is still modern history. These diseases are today so rare that few physicians ever have an opportunity to see any of them. It is within memory when the Southern States were hot-beds of yellow fever. It is gone, probably never to return. Systematic antiplague work drove that disease out of San Francisco. The few sporadic cases in Porto Rico, Cuba, and New Orleans mark the end of these diseases in the civilized and scientifically controlled countries. The eradication of these diseases have, however, not been accomplished without the making of many medical martyrs.

The progress made in the reduction of such diseases as typhoid fever, cancer, and the degenerative diseases gives little room for pride. Cancer and the degenerative diseases, such as hardening of the arteries, kidney, liver diseases, and the like, are on the increase. While typhoid fever has shown a reduction of over 40 per cent. since 1880, cancer has risen over 105 per cent. Typhoid fever is now being further reduced, and, it is hoped, will be eradicated entirely by the introduction of typhoid vaccination. Against the spread of cancer a campaign of public education has been started to teach the public the probable predisposing causes, the earliest signs of the disease, and the necessity of obtaining expert advice at the earliest possible moment. The increase in the statistical cancer population is attributed by many merely to refinements in diagnosis, which discovers many cases that were not previously discovered. The increase is said to be more apparent than real.

With tuberculosis we have had the campaign of education idea developed to the highest degree. And who can say that the results have not been more than gratifying? The omnipresent skeptic even in the medical profession denies a reduction in the amount of tuberculosis. When it is considered, however, that modern methods of diagnosis make possible the detection of this disease almost before there are any outward manifestations, and that even with the addition of these unmanifested types the disease is certainly not claimed to be on the increase even by these skeptics, then it must be apparent that there has been a very material reduction. Progress with this disease is made not so much with the reduction of the numerical tuberculous population of any one period or of any one place, as it is in the arrest in the advance of this disease, and the prevention of its spread among heretofore healthy individuals. It is better for the community to recognize every case at its inception and to admit a rise in the number of the afflicted, than to be satisfied with an apparent decrease because all cases had not been discovered till so far advanced as to be without hope of recovery. There may be an increase in the number of incipient cases of tuberculosis. That is because they are recognized in that stage. But the advanced cases show a steady decrease in proportion as the incipient cases rise.

The terror inspired by tuberculosis has almost disappeared, because it is generally understood that early diagnosis with proper care means certain and speedy cure. The number of totally cured cases, preaching the Gospel of modern methods of combating this disease, is increasing daily. A diagnosis of tuberculosis no longer means a death sentence.

Economic Value of Life.—Previously the death rate was extremely high in childhood, and a little lower in adult life. Now it seems to be reversed. The seeming increase in the mortality of adults is ascribed merely to the general lengthening of life, which permits more individuals to get into the adult class before they die.

The prolongation of life can be accomplished only by advances in preventive medicine. Professor Rosenau of Harvard University remarks: "Preventive medicine is the watchword of the hour, and enlistment in the cause can come only through education." Another expert remarks: "The highest aim of scientific medicine today is the eradication of preventable diseases, and in the solution of this problem all men who have the interest of the human race at heart can and do unite, regardless of medical schools and creeds."

Except for the few large generous private donations to this cause, there has been little support from the public at large, and only meager contributions from the State. For example, in the last few years, the city of New York spent about 150 millions of dollars for the governing of that city. For its health it spent about 3 millions. For its fire department it spent over 8 millions, though its total fire loss was a little over 9 millions. During the same period over 33,000 lives were lost from preventable causes. With the value of a life placed at $1,700, the loss is above 55 millions of dollars. Offset this against the 3 millions spent in health work. This is the story of all State appropriations for health work. Far more money is appropriated for the protection of the lives and of the health of cattle. Ex-President Taft answered objections to health appropriations by saying: "There is nothing in the constitution especially about hogs or cattle or horses; and if out of the public treasury at Washington we can establish a department for that purpose, it does not seem to me to be a long step or stretch of logic to say that we have the power to spend money in a bureau to tell how we can develop good men and good women."

Prof. Irving Fisher of Yale remarks: "If we appraise each life lost at $1,700, and the average earning capacity at $700, the economic gain to be obtained from preventable or postponable disease, measured in dollars, exceeds one and one-half billions annually."

Longevity.—In spite of the myth of Methusala and other myths of the ancient long-lived, it is modern civilization that has prolonged the span of life. During the Dark Ages, when disease ravaged the weak, and war destroyed the strong, the average length of life did not exceed 12 years. For the good of the race it seems that pestilence, since it destroys the weak, is a boon to the race—a sort of providential euthanasia—while war, since it destroys the strong, undermines the racial stability. At present the average span of life is 45 years. If the sunny optimists have their way, but especially if science has free rein, it promises to be prolonged even more.

Karl Pearson's investigations on longevity point to hereditary influences even in this matter. He found that of children born of mothers who died before the age of 39, 68 per cent. died before the age of 21; while of children born of parents reaching the ages of 70, less than 30 per cent. died before 21.

It is not merely the prolongation of life in the abstract that is so much to be desired. It must be on a concrete basis of efficiency before it can be of value to the community or to the individual. "It matters not how long we live, but how." A long life, but an inefficient one is no life at all. Longevity associated with mental or physical invalidism is deplorable. The length of life must be prolonged only in company with the active efficiency of that life. As E. E. Rittenhouse, of the Equitable Life Insurance Society, puts it: "Efficiency longevity is best achieved by bearing in mind the principle that life is a trust fund, which should neither be hoarded with parsimonious and sterile solicitude, nor expended with lavish and futile extravagance."

Old age is either chronological or physical. Physical old age may occur when the years are still few. It is due to disease or dissipation. Physical old age is premature old age. The creative power of the mind ceases at 45, and if the mental faculties have not been developed before that time, there is little possibility for active development after that time. The prematurely senile attain this maximum of mental development even before 45. Their general incapacity sets in at a very early age. A man may acquire a fund of knowledge after 45, but only such matter can be assimilated as requires no creative activity to absorb. The very quietude of the mind after this age allows the orderly and systematic arrangement and storing of knowledge already therein. The bustling activity of youth, in mind as well as in body, does not brook such arrangement of knowledge. The properly arranged library of knowledge of the aged can be drawn upon by those who have not lived long enough to store in their own pile. This, then, is the experience of age which is of so much value to youth. Experience is nothing more than an orderly arrangement of knowledge already acquired. It is "old men for council, young men for war." Dr. Osler's remarks on the subject of the usefulness, misquoted "uselessness," of age are: "The teacher's life should have three periods—study until 25, investigation till 40, profession until 60, at which time I would have him retired at double allowance. Whether Anthony Trollope's suggestion of a college and chloroform should be carried out or not I have become a little dubious, as my own time is getting so short."

While it is true that many of the most responsible positions are held by men advanced in years, it is quite as true that they hold their positions not so much because of any present active creative ability, but because, having advanced to these positions by years of activity, they now hold on to their positions by force of might, so to speak. More especially do they hold on because they are in possession of a fund of knowledge piled up during these years, and possessed by no one else. The presence of creative mentality in youth only, is tacitly admitted by the great employers of labor who refuse to give emplomeut to individuals beyond 45. Government, military, and other similar organizations recognize this and provide for compulsory retirement after a certain age, and this age is always descending.

Old age which has not stored up its fund of knowledge and conserved its bodily vitality is of little use, and might as well be "chloroformed," to quote as they misquote Osler. On the other hand, many old men clog the wheels of progress by persisting in the occupancy of positions which, although they have deservedly conquered, they have outgrown, and which positions they would do well to relinquish to younger, more active, and more progressive assistants. It is a question whether such individuals are not as undesirable in the economy of life as those who have never created, and who in their old age are dependent on others. Every person, no matter what is his position in society, should make such provisions for the period of incapacity from old age, that he will be a burden on no one; that the offspring shall be at liberty to work out their own economic salvation without hamper from dependent parents. Provision for old age is surely as important as provision for family in case of death during the active productive period, that is, by life insurance.

Life Insurance.—The necessity for life insurance is no longer questioned. It is an established institution in civilized communities. The computations with respect to life insurance premiums and policies are made from the expectancy of life as is shown by the so-called life or mortality tables. Life insurance policies are really wagering contracts. The insurers wager an amount of money on the possibility that the insured will live beyond the time when the premiums paid will have paid for the loss sustained by the death of the insured. The longer the insured lives the less will the insurers lose—in the long run, the policyholders. It is for this reason that a great deal of the campaigning in the interest of longer life, the prevention of disease, emanates from life insurance organizations. They supply free nursing to their policyholders, establish sanatoria, print and distribute literature on the many phases of disease prevention, etc. They are doing part of the work that should be done by the public at large.

While life insurance is the method of providing for one's dependents in the event of death, annuities are designed to make financial provision during old age. It is the reverse of life insurance. In the latter period premiums are paid for the return of a lump sum in case of death. With annuities a lump sum is paid and periodic payments are made throughout life, the size of the annuities varying according to the sum paid, just as the size of the life insurance benefit varies according to the size of the premiums.

The construction of life tables is based on the registers of the vital statistics for certain periods and from certain districts. From these registers

the expectancy of life is computed. Logarithmic calculation determines the premium that each policy-holder shall pay. The value of these tables depends entirely on the accuracy of the registers of the vital statistics. Their importance even in other regards cannot be underestimated. Large communities are daily aiming to perfect their registers; in small communities they are deplorably inaccurate. The accuracy of the registers of a community is a good index of that community's caliber.

Death.—We say, unknowingly, however, that there is an end to everything. Life ends with death. But life is matter, and as such is indestructible. In the sense that man is constantly reproducing himself, life is continuous, without end. Each new life is in being before the old one goes out of existence. To most of us the fact of the death of the body is simple. Yet it is far from simple to tell definitely the moment of death. Treatises have been written on the signs of death—and the question is still open. Man has always felt this ignorance and feared burial alive. While the possibility of this occurrence is very remote, it should yet be considered. Indeed, in animals apparent death, or hibernation, is recognized. Animals like the hedgehog, bat, bear, etc., habitant in cold and temperate zones, assume, during the cold season, a condition of suspended animation or apparent death. Their temperature is reduced to that of their surroundings, their respirations become so reduced as to be imperceptible, and they take no nourishment. On the advent of warm weather they thaw out and resume their usual activities.

Human hibernation, or trances, have been mentioned in literature from time to time. There are apparently authentic accounts given of human hibernation among the natives of India, lasting for periods of over six months. They have as yet no scientific corroboration. The subject was of sufficient interest in the middle of the last century to result in the publication of a book by Braid in 1850 on "Observation on Trances or Human Hibernation."

Conclusion.—The study of life is important, useful—it is compelling. To be thorough it should commence with a careful perusal of the origin of mankind—the doctrine of evolution. Man's evolution should be followed from unicellular organisms through insectoids, fish, reptiles, invertebrates, vertebrates, higher primates, the missing link, to man. The study of life should embrace the subject of heredity, Mendelism, and its offshoot, Eugenics. It must include the consideration of life from infancy through adult life, its conservation, prolongation, and especially the means of prolonging life activity and usefulness. It must not end before we have given thought to the money value of life to dependents and in old age and the necessity of insurance against both. Then we are ready for death—and after death—life? Who knows?

"Dust thou art, and unto
Dust shalt thou return."
Genesis, iii, 19.

351 East Fiftieth Street.

Congenital Cyanosis without Auscultatory Signs.—M. Grandjeon calls attention to a group of cases of congenital heart disease in which there are no auscultatory signs. At autopsy there is found a uniform narrowing of the pulmonary artery and an abnormal uniformity of thickness of the interventricular septum.—*Gazette des Praticiens.*

A STUDY OF 150 CASES OF TWILIGHT SLEEP.

By JACOB HELLER, M.D.,

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In considering any measure for the relief of pain incident to childbirth, two things have to be proven: (1) That the measure actually does relieve the pain, and (2) that it is free from danger to life and health of mother or child.

That opium and its derivatives, and scopolamine and the whole group to which it belongs, possess, in varying degrees, the power so to lower the sensitiveness of the nervous system as to diminish pain or abolish it, has long been an established fact, but that they can be used in combination in such manner as to rob childbirth of its terrors and render it painless or almost so, without interfering with its normal termination was first described by Steinbuchel in 1902.

It was, however, Gauss of Krönig's Klinic in Freiburg, who brought the use of scopolamine-morphine anesthesia in labor prominently before the world. It was also Gauss who gave it the convenient and very descriptive name of "Dämmerschlaf," or as we call it, "twilight sleep." His first article on the subject, which appeared in 1906 and contained a report of five hundred (500) labors in which twilight sleep was used with relief of pain and perfect safety to mother and child, created intense interest in the subject among medical men, and for a considerable time after numerous reports on the subject appeared in medical literature. Some of the writers, chief among whom were Krönig, Zweifel, Beiruti and Newell, confirmed the observations of Gauss as to its efficacy and safety. Others, particularly Hocheisen, not only denied any great benefit to it, but condemned it as unsafe and dangerous to mother and child.

As has so often been the case, however, in medical research and investigation, the adverse reports were readily accepted as final, with the result that interest in the subject subsided, and, with the exception of Freiburg, where it was adopted as a routine measure, the method was not tried anywhere to any great extent and with any degree of thoroughness.

In May of this year there appeared in a New York lay magazine a sensational article on twilight sleep which brought down upon itself the just criticism of the medical press, but which, however, served the good purpose of reawakening a general interest in the question. It was then that the medical staff of the Jewish Maternity Hospital decided to give the method another and thorough trial if possible. We say another and thorough, advisedly, for only an indifferent attempt had been previously made and abandoned for no apparent reason. We were fortunate in having been able to obtain the cooperation of Dr. Kurt E. Schlössingk, a coworker of Krönig and Gauss, who was thoroughly familiar with the Freiburg technique, mode of administration, indications, and contraindications, points so much emphasized by Gauss as essential to the successful application of this method.

Our report is based on the experience obtained in 150 cases drawn from the charity and private service of the Jewish Maternity Hospital

No case was excluded except for one of the following reasons: (1) A marked disproportion between the fetal head and pelvis, requiring in the opinion of the attending, a major obstetric operation. (2) Placenta previa. (3) Absent or doubtful fetal heart sounds. (4) The woman being too far

in labor. The last class was excluded for obvious reasons; the first three, because we did not want any accident to mother or child, under such circumstances, to be attributed to the twilight sleep. All minor degrees of pelvic contractions were included, where it was thought labor could be terminated by forceps. So also were included in this series two cases of nephritis with threatened eclampsia, one of which culminated in convulsions six hours after delivery and made a rapid and uneventful recovery, as well as two cases of chronic endocarditis. These two latter were particularly gratifying, going through their labor without any shock or strain on their hearts. It seems to us that twilight sleep is exceptionally useful in this complication.

Of the series one hundred and thirteen (113) were primiparæ and thirty-seven (37) multiparæ; one hundred and forty-eight (148) presented the vertex and two the breach. Of the vertex presentations there were the usual number of positions, thus, 103 were L.O.A., 27 R.O.P., 16 R.O.A. and 2 L.O.P.

Mode of Delivery.—Of the total of 150, 131 delivered themselves spontaneously with the ordinary support of the perineum, and 19 were artificially terminated. One by breach extraction and 18 by forceps, 3 of which were medium and 15 low. With a little more patience on the part of the attending the number of forceps deliveries could have been reduced to six, for in only six of the cases was there any indication for immediate delivery. The others were done for the convenience of the attending. Krönig lays great stress on the fact that twilight sleep reduces the percentage of forceps deliveries, for the reason that with the pain and the consequent exhaustion removed, there is no risk to let the patient take a longer time to deliver herself.

Separation of Placenta and Bleeding.—"What effect has the method on the separation of the placenta and bleeding?" is one of the questions most frequently asked. For, with absence or diminution of subjective pain, it is difficult, for one who has not watched these cases, to conceive of a well contracted uterus. In our whole series we did not meet a single instance where the placenta was retained for longer than thirty minutes, and the average time for its expulsion was about twenty minutes. Nor did we meet a single case in which bleeding was abnormally profuse. In fact, a hemorrhage which might have been expected in 150 labors was here conspicuous by its absence.

Duration of Labors.—With very few exceptions, all writers on the subject agree that labor is moderately prolonged by twilight sleep. Siegel, of Freiburg, states that in their experience there is a delay of about one hour for the first stage and thirty-three minutes for the second. Our figures on this phase are rather inconclusive and, if anything, would show a shortening of labor, for the average duration of labor in the primiparæ of the series was only 8½ hours, obviously too short. The reason for this apparent shortening is the fact that the great majority of our patients are admitted in a fairly advanced state of cervical dilatation, and our records take the time of their admission to the hospital as the time of the onset of labor. Personally, from observations made on a small number of cases that were admitted, that were not in labor, I believe the first stage is actually somewhat shortened, and I attribute that to the softening effect, morphine-narcotine meconate and scopolamine have on the cervix and lower uterine segment. The second stage, however, is positively delayed. The patient being in a semi-conscious state cannot be taught to utilize her abdominal muscles to advantage, since the contractions of the abdominal muscles are entirely of voluntary origin.

Condition of the Mother During Labor and the Puerperium.—Half an hour after the first injection the patient usually becomes flushed. The pupils are dilated and the lips parched. She is somewhat drowsy and her pains markedly diminished. With the second dose her sleep deepens and the uterine contractions are evidenced by a slightly painful expression on her face or by very weak attempt at crying. Her memory, however, is still not much impaired. It is not until after the third injection that her memory is entirely lost. She then fails to remember any object previously shown her or the number of injections given, although she will answer questions quite readily on anything that does not tax her memory. This state continues until the birth of the child, when she falls in a quiet and natural sleep lasting in our patients about three hours. She awakens rested and cheerful, free from any shock or sign of exhaustion, no matter how long the labor lasted. Often the patient asks of the nurse when she will be through with her confinement, and it has been hard to convince her that she is already through without showing her child to her and inviting her to feel her reduced abdomen. The rest of the puerperium was perfectly smooth and normal, so much so that patients were with difficulty kept in bed and many were permitted to get out on the second or third day.

The most troublesome thing encountered by us was occasional restlessness. Particularly was such the case at the beginning of our work when we were rather timid and felt our way slowly, being uncertain of the dosage and the intervals. With gained experience and confidence in the method we were able to eliminate much of the restlessness, and the latter was only rarely evidenced by the patient's moving about in bed and upsetting her aseptic surroundings.

Effect on the Child.—The harmful effects of opium and the belladonna group on infants and children being known, apprehension for the twilight child is justified. Many prospective mothers, as well as many physicians, ask the question: "Does twilight sleep have any ill effect on the child?" Of the 152 children (two of the births being twins) not one was born still, that is, failed of resuscitation. Three of the children died within a short time after birth. One, in the eighth month of gestation, with a spina bifida, died three hours after birth; a second died three days later from melena neonatorum with a family history of bleeders, and the third one apparently from subdural hemorrhage. We could obtain no postmortem to verify our assumption and so this death remains doubtful. But even if we should credit it to twilight sleep, the child mortality would be 0.6 of one per cent., comparing more than favorably with the ordinary fetal mortality of 1.5 per cent. The fetal heart *in utero*, which was always watched with the greatest care, never went up above 160 or fell below 120 per minute. One hundred and twenty of the children cried out immediately and spontaneously. In 29 there was an average delay of five minutes, and in only one case, where, owing to great restlessness of the mother, we were compelled to repeat the morphine-narcotine meconate three times, was there a delay of 20 minutes, requiring artificial respiration. This child did not do well for a week; was rather drowsy, did not take the

breast, and cried but weakly. It finally, however, made a good recovery. The comparative freedom of the child from the effects of drugs, which so overwhelm the mother, can be explained only by the selective powers of the placenta preventing the greatest part of the drug from reaching the fetal circulation.

Technique.—We followed the technique practised at Freiburg without deviation. When it was determined by the effect of the uterine contractions on the cervix and membranes, that the patient was in active labor, she was removed to a dimly lighted room away from the general noise of the hospital. She was placed in a bed prepared for delivery. After her pulse and respiration, the fetal heart, as well as the frequency and duration of the uterine contractions, were observed and noted down on record, she was given an initial injection of 1 c.c. of a 3 per cent. solution of morphine-narcotine meconate, which is equal to half a grain of the powdered drug. Through the same needle and without removing it, she was injected with 1.5 c.c. of a 3/1000 of 1 per cent. solution of scopolamine hydrobromide, equivalent to 1/133 of a grain. One hour later a second injection of scopolamine alone, one-third of the original dose, that is, one-half c.c. of the same solution, was given. Half an hour after the second injection the memory test was applied; the patient was asked whether she remembered having seen a certain object previously shown her or the number of injections given her. If her answer was ready and clear she was given another half c.c. of scopolamine at once, if not, we waited with the third injection for the hour. She was then constantly watched, and the injection of 0.5 c.c. of scopolamine repeated on the slightest sign of reappearance of memory until she was delivered. On an average the injection had to be repeated every one and one-half hours. The greatest number of injections given to any one patient was 19, the smallest, one; the average, five. The longest time a patient was in twilight sleep was 25½ hours; the shortest, 45 minutes; the average, 6½ hours. In only a few instances, owing to restlessness of the mother, did we repeat the morphine-narcotine meconate also. Pituitrin we used rather frequently, a little more often than ordinarily. With the birth of the child the cord was rapidly clamped and the child removed whenever that could be accomplished before it cried, so as not to awaken the mother.

Results.—In 122 cases, or 81.3 per cent., we succeeded in obtaining a complete amnesia and an almost equal degree of analgesia. All that occurred during the time the patient was under the influence of the drugs, was wiped out of her memory. In 13, or 8.7 per cent., we got analgesia without amnesia. These were started somewhat too late. Gauss thinks that the ideal case is one in which amnesia is complete. In our opinion, amnesia, while present in the great majority of cases, is not essential. The analgesia case without amnesia seems to us the more ideal, for not only does that labor appear more natural, but the patient can make good use of her abdominal muscles to shorten the duration of her labor.

In fifteen cases, or in 10 per cent., we failed to obtain any marked results. With our present experience it is quite possible to reduce the number of failures to a smaller figure, but since the sensitiveness of the nervous system varies in different individuals, as does the susceptibility to drugs, there will always be some cases that will not be influenced by the drugs unless carried beyond the point of safety.

Our small series, then, proves that judiciously used, and with proper precaution, the method is capable of relieving pain in 90 per cent. of cases and that it is free from any danger to life or health of mother or child.

Let me say a word about the objection raised against any attempt to relieve childbirth of pain and suffering. It is argued that since nature that encourages propagation in every possible way and manner, could not have been so cruel and inconsistent as to inflict untold suffering on half of the human race, or perhaps on half of living creation, and thus handicap her own work, if she had no distinct purpose in that pain and suffering; and that any interference with that purpose will be resented by her in some manner. Krönig tries to meet that argument by stating that a very great number of our present-day women to whom twilight sleep is particularly beneficial, are so far removed from nature as to make their labor border on the pathological, and therefore, he says, interference is not only justified but clearly indicated.

In our opinion, subjective pain incident to childbirth serves no purpose in nature but is rather an unnecessary result of an unchangeable natural law, that all severe muscular effort is accompanied by pain. The metabolic end-products of muscular activity are irritating to the nerve ends, causing pain. Thus, we see fatigue following an immoderate bodily exertion, severe pain accompanying the hurried muscular peristalsis of the bowel in ridding the system of injurious material; excruciating colic caused by the expulsion of a biliary or renal calculus, and finally agonizing pain incident to the expulsion of the fetus from the uterus, and in trying to relieve this pain we are not in conflict with a natural purpose, but with an unnecessary and undesirable result of a natural law.

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PRACTICAL POINTS IN TONSILLAR INFECTION.

By BEVERLEY ROBINSON, M.D.,

NEW YORK.

There can be no doubt at the present time, in view of good, careful work on the part of experimenters and physicians, for several years, that not a few acute and chronic diseases are dependent upon tonsillar infection. Of course, in some cases, there are errors of observation, or interpretation. But in summing up numerous facts from trained observers, we should conclude that in the diseased tonsil is found the direct cause of some acute and chronic affections.

Among the former, acute arthritis, often rheumatic, seems to be the disease which accompanies or follows the affection of the tonsils most frequently. To some writers, an acute inflammation of the tonsils as of the appendix at times, indicates clearly, separately or combined, a rheumatic cause. To support this view, they note the similarity of glandular structure and also the effects of treatment. In both diseases salicin, or the salicylates, have often marked efficacy. Further, in both diseases, certain hygienic preventive measures can be utilized effectively. These are mainly included in proper habits and dietary. Avoidance of dampness, draughts, badly ventilated, crowded places on the one hand, and on the other, a suitable vegetarian

diet with moderation as to meats, sweets, rich food, will do much to ward off attacks. Local measures cannot be the same by reason of difference of locality as to tonsils and appendix, but even in this regard, certain topical applications may be usefully employed which are not unlike, although their way of relief in the two diseases is not the same.

The tincture of iodine, pure or diluted, applied to a tonsil at the beginning of an acute attack may be beneficial as a disinfectant and counterirritant. The same preparation applied over the appendical area when slight localized pain exists, with or without notable resistance, is probably useful at the time by reason of its resolutive effect, apart from the idea that it can act deeply upon hidden parts through its other properties.

In a measure, both tonsillar disease and appendicitis are prevented by sufficient regular fecal evacuations, and while in the one case the throat remains healthier, in the other so does the appendix. Among the remedies which have been vaunted to shorten and lessen acute tonsillitis is there a drug which, taken internally, merits our confidence? I know of only one in which I still retain a fair amount of faith, in some instances, and it is guaiacum. Extolled, as we know, by many writers, and especially Sir Morell Mackenzie, it does seem occasionally to be really efficacious, not only locally, but internally.

The lozenge is, when it can be given to adults and to children half grown, the best form in which to prescribe it. In mixture, it is nauseous and upsets the stomach, as I know.

Locally, as a remedy, I place great reliance upon the use of tincture of perchloride of iron and glycerin, 1 drachm to the ounce, applied to the tonsils, pharynx, and uvula, several times in twenty-four hours. It is an astringent and local disinfectant of very great value. The sole objection to its use is the injurious effect upon the teeth and the fillings. So far as possible, all direct contact with them should be avoided. As an additional precaution the mouth should be rinsed after each application with a throat brush, always avoiding any gargling which would wash off the application from the throat and thus neutralize largely any curative effects.

In connection with the use of the iron topically and between the times of applications, I advise the use of Wadsworth's* mouth wash. This wash, diluted, two or three times with water, is notably antiseptic and astringent and is not at all harmful to the teeth. It owes its efficacy mainly to alcohol, which enters largely into its composition. There can be little doubt, also, that as a preventive measure against tonsillitis, Wadsworth's mouth wash, employed also as a gargle, is highly beneficial. I am confident that it has prevented attacks in many instances, where after exposure in crowded cars or assemblies it is thus used.

So far as the abortive effect of any remedy is concerned, when a tonsillitis is fully under way, I have my doubts. I would make an exception in favor of the use of turpentine locally applied over the affected tonsil, or tonsils, and carried sometimes to the point of blistering. Equal parts of soap liniment and spirit of turpentine, rubbed in the neck or applied on flannel, and may be, covered with thin rubber tissue, to prevent evaporation, has proved in my experience, very valuable. In one instance lately treated in the latter way, I am quite sure an abscess from a quinsy sore throat was prevented. So true is this that I do not recall another case in a stage so advanced where suppuration did not occur and in which the tonsillar enlargement and dysphagia disappeared so rapidly. Of course, one such case does not prove anything, except in so far as a comparison with other similar cases may have value. This comparison I made and I speak of the use of turpentine for that reason. True it is, the turpentine blistered the throat and to some practitioners and patients, nowadays, that might be a great objection to my advocacy. To those who have had to do with cases of quinsy sore throat and noted the great suffering from it for two or three days, or until the abscess bursts or is opened, my support of turpentine, applied locally, will come as a welcome suggestion.

Internally, the use of small repeated doses of Rochelle salt, dissolved in a little water, is to me the most satisfactory internal treatment I know of. It combats agreeably and effectively all the general symptoms and can be taken as well as any other liquid. Perhaps, given in the form of a Seidlitz powder, mixed as usual, and the carbonic acid gas allowed to escape, and then taken in tablespoonful doses every half hour or so, it is especially desirable whenever the tongue is coated, the breath foul, and there is disgust for everything—and a pill or unpalatable mixture must be carefully avoided—the first, of course, by reason of the risk and, indeed, inability of swallowing. The use of panopepton is, to my mind, the best, most available nutriment I know of given also in frequent, small repeated doses, from a teaspoonful to a tablespoonful at a time.

To children and adults, affected with follicular tonsillitis, I give freshly powdered cubebs, with the knowledge of its great curative value. One or more pinches dry on the tongue, every half hour, are evidently and rapidly effective. They very soon cause to disappear all white patches, even those which closely resemble diphtheria. To render cubebs more palatable to children, I mix with it a small proportion of sugar and sometimes add also a little nitrate of potash, if the temperature is high, or the kidneys are inactive. The combination of cubebs, powdered rock candy, and nitre was a favorite one with a late famous practitioner of Philadelphia.

Hitherto I have been considering merely the consequences and treatment of acute tonsillar infection. When the tonsils become enlarged chronically and often diseased as a result of repeated attacks of acute tonsillitis, there can be little doubt that they occasion many infections. Moreover, this tonsillar condition may be developed insidiously and without obvious preceding cause and yet the consequences to the economy in a morbid way, are unquestionable. Presumably there are a fair proportion of enlarged tonsils among children especially, and a few instances among adults, where the tonsillar hypertrophy does no special harm, at least so far as we can determine. It may be, of course, if the growth is considerable, that there is a sense of obstruction in the throat and the voice is somewhat affected, but that is about all of consequence.

When the tonsils are not only chronically enlarged, but also diseased, it is clearly our duty to

*The following is the formula of this wash: Sodium chloride (C. P.), ʒss; sodium bicarbonate (C. P.), gr. x; distilled water, ʒii; glycerin, ʒi; alcohol, ʒv; thymol and menthol, of each gr. i; oil of wintergreen, gtt. iii; oil of cinnamon, gtt. ii; oil of eucalyptus, gtt. v; tincture of cudbear, ʒiss; tincture of rhatany, ʒss. *Journal of Infectious Diseases*, Vol. III, No. 5, October, 1906, pp. 774-797.

treat them actively and effectively, so as to bring to an end much of ill health that is due to them. Many different local agents may be employed to effect this, such as iodine, nitrate of silver, the electrocautery—but finally, when the use of the foregoing has proved insufficient, proper excision by tonsillotomy or tonsillectomy remains to be done and is frequently curative, when previous means have wholly failed. Formerly, no doubt, as Dr. J. N. Mackenzie of Baltimore has shown, there were far too many tonsils removed. Of the number not a few were healthy and causing no harm. To-day, I am glad to say, the furore to operate unduly has been lessened and a saner practice prevails.

In one particular, however, I am opposed to what is now being done, *i.e.* the radical extirpation of the whole tonsil. I am confident that the excision of a portion of the tonsil is preferable in many cases. The cure of any disease in the organ itself is accomplished by this procedure and further, the functions of the throat remain later in better shape, and the general health is equally good, if not better.

In practice, the pendulum is very apt to swing too far in one way or another, and a wise conservatism is what is always most desirable because it is most useful.

The tonsil has a function that the economy needs, even though we are not agreed altogether what it is and how important it is. This statement is equally true of the appendix, which has been slaughtered so unmercifully in times past. But a new era is coming, in which both tonsil and appendix will be saved to many men and women, and later it will be fully recognized how many become sufferers in consequence of an exploitation which proceeded from narrow views of what nature provided and intended for the human body.

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WHAT PREPARATION IS THERE IN THE FUNDAMENTAL BRANCHES IN OUR DENTAL SCHOOLS FOR THE TEACHING OF ORAL SURGERY?

By A. H. LEVINGS, M.D.,

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Oral surgery as taught today in the dental schools is a large and important subject. It includes the bacteriology of the mouth, oral sepsis, asepsis and antisepsis, dislocation of the inferior maxillary bone, fractures and tumors of both maxillary bones, surgical affections of the tongue with excision, ranula, empyema of the antrum of Highmore, ligation of the lingual, facial, and internal maxillary arteries, operations for hare-lip and cleft palate, operations on the supraorbital, infraorbital, and inferior maxillary nerves, and Meckel's ganglion, operations for salivary fistula and calculus, for ankylosis of the lower jaw, for necrosis and tuberculosis of the jaws, and should include full courses in surgical pathology and surgical bacteriology. (In addition to this one school gives a course on the eye, ear, nose, and throat, and another on rhinology.)

I submit that the dentist to understand oral surgery as taught and to practise it intelligently must be well versed in the fundamental branches upon which as a foundation his diagnosis and treatment must rest. These fundamental branches are anatomy, including embryology and histology, physiology, pathology, bacteriology, and chemistry.

In order to determine, if possible, the importance placed upon these fundamental branches in the dental schools and the time the student devotes to each, I wrote to the dental colleges in the United States asking for catalogues, and what follows is largely the result of a careful reading of these catalogues and a computation of the hours devoted to the fundamental branches in each of the dental schools. There probably are some errors in computing the hours, but in the main, I think they are correct. I received twenty-four catalogues in all.

The Indiana School of Dentistry gives nothing definite in its catalogue as to the number of hours devoted to the fundamental branches.

The Southern Dental College says that anatomy is taught in a thorough and practical manner; that the course in physiology is plain, concise, and easily comprehended. Embryology is not taught.

The Western Dental School gives nothing definite as to the course; embryology is not taught.

University of Maryland: Nothing definite in anatomy; no embryology. Pathology and bacteriology get 84 hours.

Baltimore College of Dentistry: General information only.

Louisville College of Dentistry: Nothing definite as to hours.

New York College of Dentistry: Only general information.

Washington University: No laboratory work in pathology. In the freshman year the fundamental branches get 630 hours; dental branches 540 hours. In the junior year 180 hours are devoted to the fundamental branches and 760 to the dental. In the senior year the fundamental get 120 hours, and the dental subjects the remaining.

North Pacific College of Dentistry and Pharmacology: Nothing definite.

In this connection I wish to state that in my opinion every dental school should be compelled to publish in its catalogue the number of hours devoted to each subject taught and there should be some one with authority to see that these requirements are carried out. There are quite a number of schools, however, that do give definite information as to the number of hours devoted to the fundamental sciences.

The Lincoln Dental College associated with the University of Nebraska gives the following: Operative dentistry and technique, 764 hours; pathology, dental and general, 96 hours; surgery, oral and general with anesthetics, 124 hours; oral hygiene, 32 hours; histology, general and dental, 144 hours; radiography, 60 hours; materia medica, pharmacology, and therapeutics, 96 hours; chemistry, 368 hours; dental anatomy, 256 hours; general anatomy, 256 hours; physiology, 256 hours; bacteriology, 128 hours; infirmary practice covering all branches, 1,132 hours, making in all, 4,608 hours, of which approximately 1,152 hours or less than one-fourth of the time are devoted to the fundamental branches.

In the Harvard Dental School, excepting four hours each day for four months devoted to prosthetic dentistry, the entire first year is devoted to anatomy, physiology, histology, embryology, and chemistry. In the junior year, excepting some lectures on materia medica and bacteriology and a laboratory course, the entire year is given up to dental subjects; dental pathology is taught, but no general pathology; four lectures are given on neurology.

Northwestern University Dental School: In the freshman year, 644 hours are devoted to dental subjects and in the junior year, 544. Aside from this they require 100 points in gold filling and 100 points in silver filling. Also 100 points in crown and bridge work, and 100 points in plate work. Four lectures are given on embryology. In the fundamental branches they devote 1,217 hours or about one year's work.

Colorado College of Dentistry: Nothing definite is given in regard to anatomy. Physiology gets 90 hours, histology 90, pathology 60, and chemistry 150. Embryology is not taught.

University of Buffalo: The freshmen get 300 hours in the funtamental branches, the juniors 150, and the seniors 200, making 650 hours, plus the hours devoted to dissection. This would be a little more than one-half of one year's work devoted to the fundamental sciences.

Chicago College of Dentistry: Anatomy gets 90 hours plus dissection; no embryology; no laboratory pathology, yet its students are taught to tie the facial, lingual, and internal maxillary arteries, to operate for hare-lip and cleft palate, to operate on the supraorbital and infraorbital nerves, and Meckel's ganglion, to adjust fractures and reduce dislocations, to operate for salivary fistulæ, necrosis, tuberculosis, and tumors of the maxillary bones, and ankylosis of the lower jaw.

In the University of California College of Dentistry the freshmen get 645 hours in the fundamental branches, and in dentistry 630 hours. The juniors get 390 hours in the fundamental branches and 695 hours of purely dental work. No embryology is taught and little laboratory work done.

University of Illinois: Freshmen get operative technique four half-days per week; prosthetic technique three half-days per week; dental histology, ten lectures; dental anatomy, fifteen lectures. The juniors get in pathology, one lecture a week; no laboratory work in course; prosthetic dentistry, one lecture a week; prosthetic dental laboratory work, two half-days per week and infirmary practice; orthodontia, one lecture per week; orthodontia technique, one-half day per week; operative dentistry, two lectures per week, also operative dentistry and infirmary practice; in the fundamentals they get 1,298 hours.

Ohio College of Dentistry: The freshman year curriculum includes lectures in anatomy, histology, chemistry, dental anatomy, and prosthetic dentistry, courses in extracting teeth and operative technique; also a prosthetic laboratory course, prosthetic clinical practice, and a course in dissections. The junior year includes lectures on anatomy, physiology, operative dentistry, prosthetic dentistry, chemistry, dental materia medica, dental histology, and embryology, chemical laboratory course, daily general infirmary practice, crown and bridge work, orthodontia technique, bacteriology, and anesthetics.

University of Tennessee College of Dentistry: First year students get general anatomy, histology, physiology, and chemistry, in the latter 256 hours, also dental anatomy, operative technique, and prosthetic technique. Second year students: Technique of operative dentistry, technique of prosthetic dentistry, including crown and bridge work, technique of orthodontia, materia medica, bacteriology, pathology, anatomy, oral hygiene, prophylaxis, and metallurgy; no embryology. The only subject in which they give the hours is chemistry. In contrast to this if we turn over a few pages of the catalogue we find outlined the courses in the school of medicine, and here, anatomy gets 680 hours, chemistry 656, bacteriology and histology 288 hours, physiology 376, pathology 272, and embryology 80. In the fundamental sciences in the first year the student gets 1,126 hours; in the second year 1,120 hours.

University of Minnesota Dental School: They divide their course into 171 credits. Out of these the fundamental branches get 62, and the dental branches 109; that is, about one year's work is done in the fundamental branches.

Marquette University School of Dentistry: The freshmen get 656 hours in the fundamental branches, and in dentistry 480 hours, making 1,136 hours in all. The juniors get 512 hours in the fundamental branches and 608 in the dental branches, making 1,120 hours in the junior year devoted to didactic and purely dental work. This does not include laboratory work in histology, prosthetic dentistry, pathology, bacteriology, orthodontia, physiology, materia medica, toxicology, and crown and bridge work. That is, 1,136 hours in the freshman year and 1,120 hours in the junior year are devoted to didactic work, dissections, and laboratory chemistry. As these hours are about the full quota generally required of a student, practically no time is left for laboratory work in the other branches.

No one can read these catalogues without gaining the impression that the dental schools consider the fundamental branches of secondary importance and give the greatest prominence, that is, two-thirds of their time to purely dental subjects, such as dental anatomy, operative technique, dental technique, prosthetic dentistry and technique, and orthodontia. In other words, the most advanced of the dental schools in this country at the present time are devoting only about one year to the fundamental branches while some of the schools apparently do not give more than six months to these branches. It may be contended that this is right and proper; at least, by this course, the American dentist has become renowned as a technician the world over; but while this teaching makes artists of dentists it may be questioned if it makes scientific men of them. Nor is the present course in the fundamental branches a proper foundation in any way upon which to build a superstructure for oral surgery, which requires a thorough knowledge of the fundamental branches.

The students of dentistry whom I have taught cared little or nothing for any subject not directly related to the oral cavity, nor could I enthuse them with any subject not intimately related to dentistry. Instead of taking a full course in anatomy, they wanted a short special course; instead of a thorough knowledge of chemistry, they wanted only a smattering, instead of a thorough understanding of pathology they wanted only dental pathology, and the same in physiology and histology.

This, I believe, is the fault of the dental faculties or of the dentists, for these students enter the dental college with the idea that only a smattering of the fundamental sciences is necessary. A student entering a medical college with the idea of becoming a specialist in ophthalmology, otology, rhinology, or dermatology does not ask or expect or contemplate limiting his studies to the subjects which relate specifically and only to the organ or structures to which he expects in the future to devote his attention; but he enters the class with other students in order to obtain a thorough knowl-

edge of the fundamental branches, which knowledge he will find absolutely essential to his future success. These are but specialties of medicine, and dentistry should be a specialty of medicine. As the course in the dental colleges is now outlined and taught, it is my opinion that oral surgery should be expunged from the curriculum.

I am informed that a great many, perhaps the majority, of the dental schools in this country are private institutions. I cannot but feel that this is a stumbling block, if not *the* stumbling block, in the way of proper progress. So long as the number of students in a dental school and student's fees are dominating factors, there is little hope of betterment in dental education.

During the last twenty-five years dentistry has stood still in so far as any improvement in the teaching of the fundamental branches is concerned or special increase in the length of course. During the same time the course in medicine has been increased from three to six years. Dentistry has an honorable past; dentistry has been and is of the greatest benefit to mankind, but if the dentistry of the future is to keep pace with medicine and be something more than a training in technique, something broadly scientific in addition to handicraft, then the schools of dentistry will be obliged to make marked changes in their curriculum.

These changes should contemplate two full years of work in the fundamental branches and in addition, a course in surgical pathology and surgical bacteriology and a lengthening of the course of study by at least one year.

The student who is going to do only dentistry requires this training, while it is absolutely essential for the man who contemplates practising oral surgery.

609 Wells Building.

FOOT TROUBLES AS A FACTOR AFFECTING HUMAN EFFICIENCY.

By J. B. TYRRELL, M.D.,

CHICAGO, ILL.

Education, as the term applies in government circles, has a direct bearing on all questions affecting reform in any line of endeavor. If, for example, the United States Government had placed several thousand workmen in the Isthmian canal zone, without the formality of first inculcating into their minds the supreme importance of sanitary measures, the result would no doubt have been failure, as was the case with the French who had failed in more than one attempt. Human efficiency, likewise, can be attained only by education of the public in matters pertaining to individual comfort and bodily health. It has been estimated that each and every human being represents in money value to the Government or State, $2,900. Increase in efficiency of live stock and conservation of natural resources means an increased value to the State in actual dollars and cents. Increase in human efficiency means conservation of health and producing power in the individual, and consequently an increased money value to the State.

How the foot is a factor in human efficiency can be readily understood by anyone who has ever given the subject any thought. Within the experience of all of us, the sidewalk has changed from a soft to a hard one. In a soft walk the foot shapes the ground, but on any unyielding one the sidewalk shapes the foot. Therefore, the type of foot of the savage can no longer be considered as a type of foot that will sustain us without pain and discomfort under modern conditions. The Indian or the Japanese will go to pieces on our sidewalks and contract weak feet; or, if he had such before, they will suddenly become more painful. The front part of the foot with its small muscles, mainly for maintaining equilibrium, is put out of commission by use on a surface upon which it cannot make an impression. This means a loss of function of these muscles and ligaments and a consequent weakness. It is, as we shall learn, after all a question of function, and not one of structural change entirely. I do not maintain that this is the only etiological factor, but it is one that goes far in explaining the great increase in this condition. Before studying the end results of flat or weak feet we must first consider the normal foot and its shape. In a normal foot there are four distinct arches, two being all that it is necessary to consider at present; these are the internal longitudinal, running from the os calcis forward to the phalangeal bones, the highest point of which is at the astragalo scaphoid articulation; and the anterior or metatarsal arch, which runs across the foot from the first to the fifth metatarsophalangeal articulation, the highest point being at the second of that group. These act as springs, supplying the elasticity of the foot; therefore a weakness or depression of the arches, with loss of natural elasticity, gradually forces a foot into a deformed position as a result of the superincumbent weight of the body and use of improper shoes.

As depression of the longitudinal arch occurs, the foot elongates on the inside causing abduction of the fore foot, which eventually assumes a position of valgus: the os calcis rotates inward and downward carrying the astragalus with it. This descent and rotation produce a separation of the articular surfaces of the astragaloscaphoid, astragalocuneiform, and astragalotibial articulations; naturally this means a stretching of all these ligaments, and will eventually produce extreme tenderness and marked pains through the foot, with spasmodic contractions in several groups of muscles not only of the foot but of the leg as well.

Still another set of discomforts results from a depression of the anterior arch. Elevation of the heels (high heel shoe) throws more weight on the distal extremities of the metatarsal bones; further weight resulting from the weak longitudinal arch imposes more force, and a chronic depression finally results, producing pains and cramps which Morton described nearly 40 years ago. This is Morton's neuralgia, or metatarsalgia. This pain pierces the foot radiating from the point of greatest depression, usually at the fourth metatarsophalangeal articulation. The pain is extreme and excruciating and pressure is unendurable. Cramps through the calf muscles, especially at night, are frequent in these cases.

So much for the actual mechanism. What occurs as a result? The whole postural attitude of the victim changes. The patient involuntarily abducts the whole foot far beyond the normal weight bearing angle until the whole leg is rotated outward, causing a tension and subsequent stretching of the capsule and ligaments of the inner side of the knee joint, a rotation outward of the tibia upon the femur; therefore pain through the inside of the knee radiating upward from the head of the tibia, sometimes through the outside of the knee

with a sense of tightness back of the knee, results; and this the patient tries to overcome and relieve by bending the knee and assuming a position of genu valgum. Since rotation of the leg has occurred, hip-joint changes follow. The femoral head is rotated forward, throwing the line of weight anteriorly in the acetabulum, at once producing a laxity of the posterior capsule and iliofemoral ligaments, the anterior ones being at the same time tense and stretched.

Purely from fatigue in supporting the body in this badly balanced posture, the patient will in time allow the pelvis to sag or tilt backward until its upper plane, instead of lying in an angle of 30°, will be nearly horizontal. The tilting of the pelvis carries the sacrum backward and downward, with it the whole lumbar spine, causing a flattening or obliteration of the normal lordosis in that region, and thrusting the entire trunk out of balance. Furthermore, to compensate this new alignment, the dorsal spine and shoulders are bent forward, and the sternum and chest wall are depressed. The whole body balance is lost and to overcome it postural deformity must ensue.

Let us consider for just one moment what occurs to the spine in the lumbar and lumbosacral regions, as these are the points most affected. Obliteration of the normal lordosis would actually compress the anterior portion of the vertebral bodies, pinch or mash the intervertebral discs, and cause abnormal tension and stretching of the muscles and ligaments and fibrous bands of the posterior portion, as well as an actual separation of the vertebral bodies.

The axes of both pelvis and abdominal cavities are changed. All these physical changes in the spine are bound to produce pain. That is just what occurs. Pain develops in the lumbar region, induced by undue pressure from weight to the anterior portion of the vertebral bodies and to the tension and stretching of ligaments posteriorly, with the posterior separation adding to it. These pains become chronic, and may radiate forward and down the thighs, simulating sciatica. We hear the old familiar complaint of weakness in the back and, in cases of long standing, pain which is relieved only in the prone position; again the old familiar "stiffness" upon rising till the patient limbers up. After standing for a while the old annoyance will return as before.

What effect will all this postural change have upon the abdominal and thoracic viscera? When the forward curve of the lumbar region is lessened or obliterated a great many of the normal supports or shelves are lessened and more weight is necessarily thrown upon their respective mesenteric and peritoneal attachments. These, in time, give way to a constant tension and strain, visceroptosis results, with chronic constipation as a secondary evil. With the increase in the habitual or postural deformity, the anteriorposterior diameter of the thorax is decreased. This deformity restricts thoracic and increases abdominal breathing, thereby increasing intra-abdominal pressure, and affecting especially the anchorage of the liver and stomach, and interfering physically with their functions.

When a patient presents as the most prominent symptoms, chronic backache, chronic constipation, nervous irritability, and sometimes digestive disturbances, he may not complain of foot trouble at all, and the physician on first thought would look for some trouble in the lumbar section or possibility in the sacroiliac synchondroses. But careful examination in this region will reveal no disturbance, until possibly he will find a tightness back of the knee. Then an examination will disclose markedly pronated feet, depressed plantar arch with often a complication of anterior arch weakness. It is not because of the foot troubles probably, that they consult a physician, and, conversely, not all patients with static foot trouble have the more serious complications, because, in all probability, they seek relief before complications develop.

The significance of this affection, not only as a source of local pain, but as a predisposing and aggravating cause of disability of neighboring joints and of profound disturbances in other organs of the body, is now more generally recognized by the profession, and the use of the more popular terms fallen or falling arches, instead of flat foot, gives a better understanding of its nature—an acquired weakness that may be prevented or cured.

As evidence of a thorough study of the condition by the profession the records that appear in the Reports of the Hospital for Ruptured and Crippled in New York are convincing. In 1890, in the orthopedic department arch trouble embraced 2.6 per cent. of the new patients treated. In 1906 the percentage had risen to 18.3, and in the last report to 29.2 per cent.

The paramount question is: What are you going to do for this condition? It is with us, what are we to do to correct or counteract these tendencies? The weak foot is, in most instances, an acquired disability which under favorable conditions may be cured, and this, rather than the relief of symptoms, should be the aim of treatment.

The weakness is due to deformity and the impaired function that accompanies it. The first indication therefore is the restraint of deformity, since symmetry, in other words, the normal relationship of the joints, is essential to normal function. Effective treatment should prevent not only actual deformity, but, on the principle of natural resiliency, should stimulate muscles and ligaments, weakness and atrophy of which predispose to it, as well. Logically, then, supports are necessary. The B. & B. adjustable arch support meets these indications. It is not a steel brace, but a double spring metal arch with a leather sole superimposed. It is resilient, combining this feature with great strength, and it is light and adjustable, either to model or to the natural foot. It is not meant to supplant other well-known methods of treating weak feet, but is a necessary supplement to massage, exercises, and the use of proper shoes, etc. This form of support serves the same purpose as the celluloid support offered and used by Lange of Munich, and in this country by Geist and others.

1449 North LaSalle Street.

Case of Possible Insufficiency of Endocrinic Glands.—F. G. Crookshank reports the case of an apathetic and flaccid male infant aged 32 months who did not speak and seemed to have extremely little initiative. Some of the features were suggestive of mongolism; there was a marked Hapsburg lip. The vault of the nasopharynx was very small and the respiratory system generally poorly developed. The upper part of the trunk and the arms were relatively less developed than the belly, which was protuberant, and the legs, which were large and shapeless. There was a marked dimple above the anus. For some weeks the patient was given thyroid and thymus tablets and improved. It was thought that the child had in addition to some degree of mongolism, some pituitary as well as genital insufficiency.—*Proceedings of the Royal Society of Medicine.*

MEDICAL RECORD.

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BLOOD PRESSURE AND PULSE PRESSURE IN ARTERIOSCLEROSIS AND NEPHRITIS.

THE generally prevailing belief that all cases of arteriosclerosis and of nephritis are accompanied by high blood pressure must be corrected in the light of recent investigations. The importance of blood pressure studies from the viewpoint of diagnosis and prognosis in both of the above conditions cannot be exaggerated, but an essential element in gauging the limitations of these studies is the recognition of the fact that in a fairly large percentage of cases of arteriosclerosis and nephritis the blood pressure is normal or may be even subnormal. These facts have been pointed out by a number of observers during the past few years. They are brought into particularly sharp relief by the recent observations of W. Janowski in the *Zeitschrift für klinische Medizin*, Vol. 80 Nos. 5 and 6.

The material upon which these observations are made comprised 350 patients. They are classified into three groups as follows: (1) There were 200 cases of arteriosclerosis in which urinary examination excluded nephritis. (2) There were 50 cases of arteriosclerosis with a coincident primary or secondary nephritis. (3) There were 100 cases of nephritis of various types which were not complicated with arteriosclerosis. Regarding the normal blood pressure as varying between the limits of 80 and 120 mm. Hg, and the normal pulse pressure as varying between the limits 22 and 40 mm. Hg, the author found that of his 200 cases of arteriosclerosis there was an increased blood pressure in 72 per cent. It is concluded that an increased blood pressure must be regarded as a valuable symptom of arteriosclerosis. The exceptions, comprising nearly one-third of the cases, in which the blood pressure is normal or subnormal, may be said to "prove the rule," for these exceptions can be explained on the basis of certain well-marked clinical factors. Among 55 arteriosclerotic patients with a normal blood pressure there were 52 in which there was evidence of an impairment of the functional power of the heart, which impairment prevented the blood pressure from reaching the height characteristic of arteriosclerosis. In 16 of these patients stenocardiac attacks were common. It is pointed out that angina pectoris occurs more frequently in arteriosclerosis with normal blood pressure than in arteriosclerosis in which the blood pressure is heightened. The above facts are of eminent significance, indicating that one must regard as particularly serious all cases of arteriosclerosis in which the blood pressure is normal or subnormal. In these cases there is a pronounced impairment of the nutrition of the heart muscle, manifesting itself in a disturbance of conductivity, as a result of which the heightened blood pressure cannot be maintained in the distal parts of the arterial tree.

The second group, comprising 50 cases in which arteriosclerosis was coincident with a nephritis apparently secondary to sclerosis of the smallest renal vessels, showed a considerably higher rise in blood pressure than cases of arteriosclerosis not complicated by nephritis. Only in 8 per cent. of the cases of the latter category was there a blood pressure greater than 180 mm. Hg, while of the former category this limit was exceeded in 58 per cent. of the cases. Moreover, in arteriosclerosis complicated with nephritis there is a considerable rise in the pulse pressure. These observations agree with those made by other authors.

The third group, including the 100 cases of nephritis in which arteriosclerosis was not evident, are again subdivided into the cases of acute and those of chronic nephritis. In the 7 cases of acute nephritis the blood pressure varied between 130 to 180 mm. Hg, and was the highest when the symptoms were most pronounced, and particularly during the development of uremic manifestations. Both pulse pressure and blood pressure show this rise coincident with the onset of uremia, a fact not only of diagnostic but also of prognostic significance. Systematic blood pressure estimations in acute nephritis enable one to follow the course of the disease most accurately, and consequently to predict a happy outcome when the blood pressure sinks to normal.

The cases of chronic nephritis present facts of striking interest. They comprise two groups, in one of which the blood pressure is normal, and in the other of which (including 84 per cent. of the cases) it is heightened. This observation, together with the results of the various functional tests, indicates that the older classification of the parenchymatous, the interstitial, and the mixed types of nephritis is no longer in accord with clinical facts. Janowski inclines to the classification of the French school under the leadership of Widal, which recognizes four types of nephritis, as follows: (1) This group includes patients with so-called urinary symptoms, such as the presence of variable amounts of albumin, casts, and blood cells in the urine. These patients for a number of years manifest no other signs of renal disease, and these signs arise only toward the terminal stage of the nephritis. (2) This group presents the symptom-complex of chloride retention, with various degrees of edema, vomiting, diarrhea, obstinate headache, convulsions, coma, Cheyne-Stockes breathing, cerebral irritation, and amblyopia. (3) In this group the symptoms of nitrogen retention occupy the foreground. In the pure cases of this type there is no edema, but there are pronounced anorexia, pruri-

tus, vomiting, stomatitis, and stupor which often deepens into coma. Retinitis and pericarditis may complicate this picture. (4) The last group is characterized by the high blood pressure which prevails from the very outset of the disease. The patients suffer from obstinate headache and vertigo, tinnitus, disturbances of vision, muscular twitchings, and numbness in a finger or in an entire hand. The blood pressure is very high. The heart is enlarged and gallop rhythm is frequently observed. In time symptoms of chloride or of nitrogen retention or of cardiac insufficiency develop. But apart from these the greatly increased blood pressure may give rise to such complications as hematuria, epistaxis, retinal hemorrhages, cerebral hemorrhage, and acute edema.

VACCINES IN PERTUSSIS.

SINCE the positive demonstration of the pathogenicity of the Bordet-Gengou bacillus in pertussis, many papers have appeared reporting the use of vaccines of this organism in the treatment of the disease. These reports have, as a rule, been of a rather optimistic nature, though generally summarizing a comparatively small number of cases. The use of the vaccine as a prophylactic measure has been much less extensive and, so far as the literature affords information, no adequate opportunity has been had to test its efficacy.

Recently Alfred Hess has reported ("International Clinics," 1914, vol. iii, Series 24, p. 97) his observations on the use of pertussis vaccine in both prophylaxis and treatment in an epidemic of whooping-cough in an orphan asylum housing about 350 children. He used four different vaccines. Two were commercial preparations, the third was made from a laboratory strain of the organism, while the fourth was made from strains isolated from cases in the asylum. Two hundred and forty-four children received preventive inoculations, of whom twenty-one later developed the disease. Of these one-half received the commercial vaccines. The other preparations were apparently more protective in their effect, although of the 199 who received them, nine afterward exhibited symptoms of whooping-cough. One hundred and thirty children received no protective inoculation. Of these thirty were infants confined in a ward by themselves. No cases developed in this ward and they were therefore not exposed. Twenty-five were in another ward in which one patient had the disease. These were also infants and confined to bed so that the exposure was not at all intimate and there were no secondary cases, a fact which "shows the difficulties in judging of the results of prophylactic treatment." Among the other seventy-five children sixty had whooping-cough.

It would seem, therefore, from these figures that the vaccine had a distinct prophylactic value even though its action was not always sure, and even though the percentage of severe cases was just as high in the inoculated as in the uninoculated. There was no evident excuse for the failure of its action at times so that it seemed necessary to conclude that sometimes "it doesn't work." The epidemic was a comparatively mild one, there being no fatalities and but two cases of pneumonia, but the author failed to see that the administration of vaccine had any discoverable beneficial effect on the course of the disease. He does note, however, that "in no instance did any harmful local or systemic reaction follow the injection of the vaccine."

The pertussis vaccine, therefore, shows a certain amount of analogy to the typhoid vaccine in the manner of its action, in that it seems to be more powerful as a preventive than as a curative agent. Its use is especially recommended in institutions to prevent the spread of the disease. It is interesting to read that all attempts to use the vaccine for diagnostic purposes, whether by the cutaneous, intracutaneous or subcutaneous methods, proved failures.

THYMUS DEFICIENCY SYMPTOMS.

THE picture caused by thymus deficiency is variable, or else involved in technical errors of experiment and observation. According to some investigators removal of the organ in young animals leads to osseous changes while others find the bones intact. Some discrepancies are due, doubtless, to the fact that certain finds are merely transitory. Failure to extirpate the entire gland is perhaps also responsible for negative results. Some experiment animals are said to have been inbred to the point of degeneracy. In certain experiments there was suppuration of the operation wound. Experiments which have been most free from objection appear to show that thymus deficiency symptoms are as good as nonexistent in the present state of our knowledge. Thus far we know nothing of compensatory activities in other organs. A plus state of the thymus appears to play a role, not mechanical either, in the genesis of thymic asthma and of some cases of Graves' disease. At a recent session of the Berlin Surgical Society (*Deutsche medizinische Wochenschrift*, August 27) Nordmann, whose views are expressed in the foregoing lines, asserted that as yet we have neither a physiology nor a pathology of the thymus gland, and that our clinical knowledge of the course of its diseases is equally defective.

PRESENCE OF TETANUS GERMS IN FELT.

THAT substances useful in medicine and surgery may contain the germs of lockjaw is well known. We may mention commercial gelatin and charcoal in this connection. Quite recently Kirmisson has found that felt so commonly used in orthopedic retentive dressings may contain tetanus germs in abundance (*Berliner klinische Wochenschrift*, August 17). Two patients who had been treated with Abbot's scoliosis method lost their lives as a result of infection from the felt plates used to make a retention support. One case was so fulminating that death occurred in twenty-four hours after trismus began. The other case was also acute. It is the custom at a particular stage of treatment to insert the felt plates between the gibbosity of the spine and the dressing proper. In this manner small ulcers were produced and promptly infected. Cultures of tetanus bacilli were grown in abundance from the felt.

MOTION PICTURES OF OBSTETRICAL OPERATIONS.

IT was long ago evident that the cinematograph could be made to do much for the small, remotely situated medical college in the direction of replacing in clinical instruction actual demonstrations on the living. The pictures would necessarily come from the large medical centers, inferentially in the case of obstetrics from the large lying-in hospitals. Manipulations could be shown on the scale of magnitude and at the rate of speed best suited for the occasion. At a meeting last summer of the Freiburg Medical Society Gauss (*Berliner klinische Wochenschrift*, September 7) exhibited films of this sort and demonstrated that they possessed great didactic value and rendered as good service within certain limits as could be desired.

News of the Week.

Army Medical Corps Examinations.—The Surgeon General of the Army announces that preliminary examinations for appointment of First Lieutenants in the Army Medical Corps will be held on January 11, 1915, at points to be hereafter designated. Full information concerning these examinations can be procured upon application to the "Surgeon General, U. S. Army, Washington, D. C." The essential requirements to secure an invitation are that the applicant shall be a citizen of the United States, shall be between 22 and 30 years of age, a graduate of a medical school legally authorized to confer the degree of Doctor of Medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training as an interne, after graduation. The examinations will be held simultaneously throughout the country at points where boards can be convened. Due consideration will be given to localities from which applications are received, in order to lessen the traveling expenses of applicants as much as possible. In order to perfect all necessary arrangements for the examinations, applications must be completed and in possession of the Adjutant General at least three weeks before the date of examination. Early attention is therefore enjoined upon all intending applicants. There are at present twenty vacancies in the Medical Corps of the Army.

A Women's Medical Club.—At a meeting of twenty-five women physicians, held October 18 at the residence of Dr. Hannah M. Graham in Indianapolis, an association to be known as the Indianapolis Women Physicians' Club was organized. The ultimate aim of the organization is to establish a children's hospital, and it will also be ready to advise with any of the public officials on matters relating to the health of women and children. The president of the new society is Dr. Hannah M. Graham and the secretary, Dr. Lillian B. Mueller.

Health in the Philippines.—According to the report of the Bureau of Health for the Philippine Islands for the first quarter of the present year, the health conditions in the archipelago were then very much better than they had been any time during the past ten years. The death rate of Manila for March was 20.39 per 1,000, which is the lowest on record, and when compared with the rate of 40.23 per 1,000 for March, 1904, an idea of the health transformation may be gained.

Revision of the Sanitary Code.—A general revision of the New York City sanitary code has been undertaken, with the purpose of bringing the code into conformity with the great body of municipal ordinances recently remodeled by the Codification Committee of the Board of Aldermen.

Gifts to the Georgia Medical Society.—Dr. Isaac Minis Hays of Philadelphia has presented a gift of 450 bound volumes to the Library of the Georgia Medical Society, located in the new Hall of the Society at Savannah, Ga. Dr. W. W. Owens of Savannah has presented to the Library an engrossed and framed copy of a quaint old notice of meeting issued by the Society in 1807.

No Preservatives in Antimeningitis Serum.—The statement having been made that certain untoward symptoms following the spinal administration of antimeningitis serum were due to the action of trikresol used as a preservative, the New York City Health Department has decided not to add any preservative to the serum prepared in its laboratory. This has been done, despite the fact that the Department has never observed a single instance of collapse in the hundreds of cases in which its physicians have administered the serum, in order that neither physicians nor their patients may hesitate to use the serum freely in cases of cerebrospinal meningitis.

Alvarenga Prize of the College of Physicians of Philadelphia.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about $250, will be made on July 14, 1915, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in medicine, but cannot have been published. They must be typewritten, and if written in a language other than English should be accompanied by an English translation, and must be received by the Secretary of the College, Dr. Francis R. Packard, 19 South 22d street, Philadelphia, on or before May 1, 1915. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award. The Alvarenga Prize for 1914 has been awarded to Dr. H. B. Sheffield, New York City, for his essay entitled: "The Fundamental Principles Involved in the Use of the Bone Graft in Surgery."

Personal.—At the annual meeting of the West Side German Dispensary and Hospital, New York, held October 29, 1914, Dr. Homer Gibney was appointed to succeed Dr. John L. Adams (recently deceased) as president of the Medical Board; Dr. Max J. Schwerd as vice-president, and Dr. E. L. Kellogg, secretary.

Dr. Theodore C. Janeway has removed from New York City to the Johns Hopkins Hospital, Baltimore.

Dr. William Seaman Bainbridge, of this city, delivered a lecture on October 27 before the medical students of the National University of Arts and Sciences, St. Louis, on "The Surgical Treatment of Chronic Intestinal Stasis." On this occasion Dr. A. R. Kieffer, president of National University, con-

ferred the degree of Master of Surgery (C. M.) upon Dr. Bainbridge.

Harvey Society.—The third lecture of the present course will be delivered at the Academy of Medicine by Prof. A. S. Loevenhart of the University of Wisconsin on Saturday, November 7, at 8.30 P.M. The title of the lecture is "Certain Aspects of Vital Oxidation."

A Course of Lectures for Employees of the New York City Department of Health.—The work of the Department of Health is so varied and progress in public health work in recent years has been so rapid, that it is difficult for the various inspectors and nurses employed in the Department of Health to keep informed concerning the activities of the different bureaus. Yet in order to render efficient service both to the Department and to the public at large, it is highly important that they not only possess such information, but in addition be familiar with progress in medical and sanitary science. With this in view, the Bureau of Public Health Education has organized a series of lectures constituting, as it were, a school of sanitary science for Health Department employees. The lectures are to be held weekly at 4 o'clock, from October 15 to March 3; the lectures for Medical Inspectors and Field Nurses in the Assembly Hall at Hunter College, Park avenue and 68th street, the lectures for Lay Inspectors on the fifth floor of the Department of Health building, 139 Center street, and the courses for Hospital Nurses, in their respective hospitals. Although attendance will not be compulsory, employees are expected to be prepared, when the course terminates, to pass an examination on the subjects discussed. The public is also invited to attend all the lectures except those to hospital nurses which are to be given in the Department's hospitals for contagious diseases.

New Hospitals.—The new dispensary of the Hospital for Deformities and Joint Diseases at 43 East 123d street, New York, was dedicated with appropriate ceremonies on Tuesday afternoon, November 3.

The Springfield, Mass., Free Hospital was opened for the reception of patients on October 13.

St. Luke's Hospital, Portsmouth, N. H., has recently been opened. It now accommodates twelve patients only, but will soon occupy a larger building with a capacity of twenty-five beds.

A modern hospital erected and equipped at a cost of $165,000, has been presented to Indiana county, Penn., by Adrian Iselin, Jr., and his sister, Miss Georgine Iselin of New York City.

New York City Charities Criticised.—The August Grand Jury, which has been investigating the institutions under the control of John A. Kingsbury, Commissioner of Charities, handed to Judge Nott in General Sessions yesterday a presentment severely criticising present conditions. It finds that many of the homes and hospitals are greatly overcrowded and that the food in some cases is unsatisfactory in quantity, quality, and preparation. The suggestion is made that the management of the institutions be taken out of the hands of a Commissioner and be put in the hands of a Board of Charities.

Obituary Notes.—Dr. WALTER SAMUEL BAKER of Newark, N. J., a graduate of the New York Homeopathic Medical College and Hospital in 1863, died at his home suddenly, from cerebral hemorrhage, on October 26, aged 73 years.

Dr. ISAAC G. WORRALL of Cresskill, N. J., a graduate of the New York University Medical College in 1850, died recently at his home, aged 86 years.

Dr. FRANCIS LESTER BABCOCK of Dedham, Mass., a graduate of the Boston University School of Medicine in 1879, a member of the Massachusetts Homeopathic Medical Society and the American Institute of Homeopathy, a former member of the Board of Health of Dedham, and for many years physician to the Dedham House of Correction, died at his home on October 26, aged 65 years.

Dr. DAVID C. HARMISON of Havana, Ill., a graduate of the College of Physicians and Surgeons, Keokuk, Ia., in 1878, and a veteran of the Civil War, died at his home on October 20, aged 70 years.

Dr. FRANK H. HOBBS of Waterboro, Me., a graduate of the Medical School of Maine, Portland, in 1900, and a member of the Maine Medical Association and the York County Medical Society, died at his home, following an operation for appendicitis, on October 11, aged 55 years.

Dr. PHILLIP E. PARKER of Bay City, Tex., a graduate of the Tulane University of Louisiana, School of Medicine, New Orleans, in 1885, and a member of the American Medical Association, the State Medical Association of Texas, and the Matagorda County Medical Society, was accidentally shot while hunting and died from his injuries on October 16, aged 56 years.

Dr. WALTER D. GREEN died as a result of a railroad accident at Bellemead, N. J., on October 25, at the age of 53 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1886. He subsequently became resident physician in the Presbyterian Hospital and later in the Pennsylvania Hospital. In 1892 he became assistant medical inspector for the Philadelphia Bureau of Health and in 1894 he was appointed physician for the Port of Philadelphia.

Obituary.

GEORGE LIVINGSTON PEABODY, M.D., NEW YORK.

Dr. GEORGE LIVINGSTON PEABODY, who retired from practice in New York City in 1909, died suddenly from heart disease at his home in Newport, R. I., on October 30, aged 64 years. Dr. Peabody was born in New York and was educated at Columbia University, receiving the degree of A.B. in 1870 and of A.M. in 1873, in which year also he was graduated in medicine from the College of Physicians and Surgeons. After post-graduate study in Vienna, Strassburg, Paris, and London he returned to this city, and in 1878 was appointed pathologist to the New York Hospital, thus beginning a connection which lasted through a long service as attending physician from 1884 until 1909, when he became a consultant. In 1884, also, he was appointed clinical lecturer in medicine at the College of Physicians and Surgeons, and in 1887 became professor of materia medica and therapeutics, retiring in 1903. He had also served as attending physician to the Roosevelt, Bellevue, and St. Luke's Hospitals. From 1884 to 1890 he was one of the Trustees of Columbia University and from 1891 to 1895 a member of the University Council. He was a member of the Association of American Physicians, the New York Academy of Medicine, the Practitioners' Society, the Association of the Alumni of the College of Physicians and Surgeons, and the Century and University Clubs.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

MEDICAL SOCIETY OF LONDON, PRESIDENT'S ADDRESS—CANCER OF GASTROINTESTINAL TRACT—DISEASES AMONG TROOPS—WOMEN SURGEONS AT ANTWERP HOSPITAL—HOSPITAL SHIPS FOR INDIAN TROOPS—OBITUARY.

LONDON, October 16, 1914.

THE new session of the Medical Society of London was opened on Monday as I informed you would be the case. The retiring president, Sir D. Ferrier, received a unanimous vote of thanks to which he replied, and after the other retiring officers had been similarly thanked he introduced his successor, who had been previously elected, viz.: Sir John Bland-Sutton, and invested him with the badge of office. Sir John then took the chair and delivered his introductory address, which he devoted to "Cancer of the Duodenum and Small Intestine." He began by remarking on the unequal distribution of cancer in the gastrointestinal tract—common in the stomach, but between the pylorus and ileocecal valve uncommon. Primary cancer is rare in any part of the small intestine, but is more frequently seen in the duodenum, short as it is, than in the jejunum or ileum. Contrary to some he does not think duodenal cancer arises in chronic ulcer. Malignant disease of the duodenum of any kind is uncommon and there are few specimens in our museums. It may not be of practical importance to fix the precise locality of this cancer, but when it arises in the ampulla it exhibits remarkable peculiarities. Nowhere else in the body does so small a growth lead to such grave consequences. It may, when no bigger than a cherry, block the flow of bile and pancreatic juice, setting up intense jaundice and emaciation—if three clinical signs are painlessness, jaundice and emaciation. In spite of its local nature it is quickly postal—mostly within six months. The daring resourcefulness of modern surgery has attempted to deal with it, and Sir John did not doubt that success will eventually be attained. The disease is more frequent in the transverse or infra-ampullary position, and the symptoms then resemble cancer of the pylorus, but the vomit contains bile and pancreatic juice and may be very offensive. In the small intestine any kind of tumor, the president said, was rare but interesting, and the benign were generally pedunculated. The propulsive efforts provoked by them are apt to lead to intussusception. Then he mentioned accessory pancreas because some who still hold that cancer arises in embryonic vestiges think this may arise in islands of pancreatic tissue, though there is no evidence of such a thing or that duodenal cancer results from changes in Brunner's glands or that parotid chondroma arises from relics of Meckel's cartilage—theories which indicate that pathologists as well as poets have imagination.

After referring to hyperplastic tuberculous affections the president described melanosis of the colon, which has not received much attention in this country. The condition is a curiosity, but if detected in the course of a clinical examination might receive undue attention, so that further observations on this curious pigmentation would be useful.

In conclusion the president announced a discussion on the surgery of tumors of the intestine at the next meeting. It was also hoped to have an exhibition of specimens of tumors and hyperplastic tuberculous disease, and the society would be grateful for the loan of specimens, particularly any illustrating cancer of the vermiform appendix about which there is much uncertainty. Pigmentation of the colon also deserved more attention.

In such circumstances as we are passing through the precautions taken by army medical officers against the outbreak and spread of diseases among troops call for extra attention from civilian practitioners. Wherever troops are quartered there is some danger that diseases affecting them may extend to the civil population, and the local government board has reminded the medical officers of health of such districts that this is the case. Under existing conditions the introduction of smallpox is not unlikely and some unauthenticated reports of its appearance in one or two places have been circulated. Typhus and typhoid are quite as likely to appear and spread, perhaps more, but every medical officer of health will be on the lookout for them, and the more efficient their arrangements for dealing with early cases the greater will be their success in preventing extension. An increase of hospital accommodation may be needed in some districts.

The Army Medical Service has been doing a great work as testified by combatant officers, who declare they have been supplied with clockwork regularity. Correspondents declare that the organization throughout is so completely satisfactory that the French commissariat is closely studying it with a view of copying some of its methods which are contrived to meet every eventuality. Unexpected changes in the movements of troops do not interrupt their supplies if need be.

The Army Service Corps will take food up to the firing line and well-fed troops are not likely to lose their nerve. The Germans, who plan to live on the country they invade, are said to have already suffered a good deal from deficiency. The British reserves and soldiers encamped for refitting get well cooked meals of meat and vegetables, etc., just as if they were in barracks at home, and regiments on the march have "army cookers" of the newest pattern and so get hot soups or stews and are said also to take hot tea regardless of the enemy's shell. Tobacco and cigarettes are looked upon as next to food, but we hear that a great desire for sweet things has developed among the men—chocolate and jam especially. This craving was stronghly marked also in the last South African campaign.

A hospital at Antwerp was organized by Mrs. Stobart and equipped by the Women's National Service League and staff by 28 women, six of whom were qualified doctors. Dr. Florence Stoney says they proved that women surgeons were of use in war conditions, for when shells were screaming overhead and part of the roof of the hospital blown off there was no sign of fear or panic, but all went about their work as orderly as if it were a picnic in the park. She made light of 18 hours under shell fire, as not one of the patients were hurt, though the nerves of some of them were shattered.

By advice of Lt. Col. W. A. Sykes, I. M. S., six vessels are being fitted up as hospital ships for the Indian troops in the present war and some of the Indian princes propose to present others. Each will accommodate about 350 patients, of which 100 will be in swinging cots (for the most serious cases) and the others in fixed iron bunks. Each ship is a complete hospital. One has already left the docks

in charge of Lt. Col. Ginslittle, late I. M. S., and another is just reaedy to start under Lt. Col. Pratt, I. M. S.

Returning to the danger of epidemics among troops, it seems already to have become realized on the German side, for this morning we have news of numerous cases of typhoid, dysentery, and pneumonia having occurred. Professor Besserer of Münster, having been sent to investigate and take measures against the outbreak, has made an unfavorable report and declared nothing else could be expected under the circumstances. It appears that soldiers had had to stay for five days and nights without a break in trenches that were flooded and in places half full of water, and still worse, during all that time no fresh provisions had reached them, with the natural result that what remained in their knapsacks became mouldy. Moreover, there was no possibility of moving the dead or wounded and though some improvement had followed a favorable change in the weather the professor naively remarks that he could give no guarantee for the future. As winter approaches and the rainy season no doubt trenches will become quite untenable and the conditions of the campaign changed.

Dr. Fletcher Little, who died recently, was a prominent advocate of post-graduate instruction and esteemed both within and without the profession for his enthusiasm in various public positions. He was a magistrate, a Cambridge M. B., 1888, M. R. C. P. Lond., 1889, and among appointments he held the physiciancy to the Temperance Hospital and that of the N. L. Consumption Hospital. He was M. O. H. for Harrow, and although a long illness, eventually fatal, had made some progress, he was able to complete his Annual Report for 1913. He visited America to study the physical methods there in vogue just previously to Weir Mitchell's work. He also took great interest in politics and contested Oxford city in 1895. He was for some years on the London County Council.

Dr. Hooper May, consulting surgeon to the Prince of Wales's General Hospital, formerly called the Tottenham Hospital, died Sept. 23, aged 83. He took the F. R. C. S. in 1858 and M. D. S. I. in 1860. He retained his mental activity, his hearing, and eyesight to the close of his life. After his first qualification he went to Edinburgh for an extra year's study under Syme and Lister. On his return he introduced the carbolic spray at Tottenham Hospital, the first in London to try it.

Mr. John Hartley, who died recently, was surgeon to the Darlington Hospital. He qualified in 1879, took F. R. C. S. in 1892, having been a student at the London and at the Middlesex hospitals. He served as demonstrator of anatomy at the latter, where also he took a turn in the resident offices. He recorded a case of recovery from tetanus after administration of intra-cerebral injeections of antitoxin.

PARIS IN WAR TIME.

To the Editor of the Medical Record:

Sir:—Things have changed since I last wrote. We have now put our tails well up in the air and are even venturing to wave the tufts gently to and fro. Now that it is all over we don't mind admitting that for a few days early in September we all had an uncommonly queer sensation in our solar plexus. It certainly looked as though the enemy were going to walk right into Paris without so much as knocking at the door; and if he had been half equal to his reputation there seemed every likelihood of such a massacre of inoffensive non-combatants as history had never registered, since there was sure to be some hothead to fire on a German from a window. It is true, the American Embassy had undertaken to affix a big poster to our doors saying that that property was under the protection of the United States; but since, of course, every German would have claimed to know no English, this seemed to promise but feeble protection. A great many of our country folk hung out the Stars and Stripes from their balconies; this was not a bad idea, though it affords me now unlimited satisfaction to feel that I postponed buying a flag until the last extremity, and that my 3-fr.-50 are still jingling in my pocket. But the really sore point with me is the stock of canned goods I laid in, in provision of the general disorder liable to ensue for a week or two after a German occupation. I explained to my housekeeper that circulation in the quarter would probably be risky for a while until things settled down, and that we must have sufficient articles of food in the house to carry us through the initial period without its being necessary for any of the womenkind to move abroad. These directions were conscientiously carried out, and I am now the distressed possessor of a stock of dried milk, sardines, biscuit, ham, tongue, cereals of every conceivable variety, cheese, tea, sugar, and dog-biscuit, that would suffice to start an orphan asylum. However, if this war drags along all winter I need scarcely say that opportunities for discreetly placing these foodstuffs will not be wanting—far from it.

Von Kluck's first rush was certainly a wonderful performance from a military point of view. The heat at that time, August 23, to the beginning of September, was excessive, for Europe, and to have covered the ground he did in about ten days, from Mons to Charleroi to Chantilly with those masses of men, will certainly take a place among the great feats of war. But it really looks as though he had utterly broken down his troops in the doing of it, completely winded them, as they have never been the same men since. So that by the time they reached the line of the Marne the Allies were able to hurl them back all along their front without too much effort. And here it is only proper to say that for generals to have been able to rally troops that had been mauled as badly as the Franco-British army had, stiffen them up for a stand, and then drive the enemy back at the double for upwards of a hundred kilometers, will rank fully as high as a performance, if not higher, than the German *tour-de-force*. It is beyond question that the general advantage now lies with the Allies; the enemy is being gradually worn down and driven back. But even were that not the case, the moral advantage is overwhelmingly theirs; for the mere fact of having brought the great early onslaught to a halt, which the Germans looked on as their trump card, and to the obtaining of which they went to such a length as the violation of Belgian neutrality, is practically equivalent to beating them. The Germans can never repeat that effort; their defeat is now no more than a question of time. In fact, this collapse of the German initiative is to me inexplicable, with the information at present available; there seems to be an element in this question that we on this side do not yet know, and which the withdrawal of men to the Russian side of the con-

test does not suffice to explain. It appears that early in the war the German advance was so extraordinarily rapid that the commissariat could not maintain the pace; the troops had therefore to live on what they had with them and on what they could find. The result was a condition that very nearly approached starvation. This hunger, combined with the killing pace, and the great heat, not to speak of the disappointment in not taking Paris, which for them must have been a terrible blow, may have demoralized them mentally and physically. Another factor that may have an important bearing on this side of the question is the French 7.5 gun. All accounts agree that this weapon is a fiendish invention and that it is served by a corps of men who are past masters in their art. The fire of this weapon is more accurate than the guns of the enemy, the timing of the shells more precise, they burst just in the right place, and the shrapnel itself is a more deadly affair and *does* burst, which appears to be often not the case on the other side. This is a matter of the greatest importance, as will be shown a little farther on. The result of this has been that the German losses, with their compact formation, have been enormous.

The war has now lasted long enough to have given certain medical and surgical results that are of no little interest, though French data alone are available up to the present. The feature that has attracted most attention in this conflict is that it is a *gunner's* war, as distinguished from a rifle contest; cannon claim most of the honors of the day, the 7.5 on the French side, and the huge siege-mortar of the Germans that is such a serious affair that it has to have a concrete foundation to rest on and has to be fired by electricity from a distance by a special corps of engineers. To this fact must be added that all accounts agree in placing the German general regimental rifle markmanship extraordinarily low; if current accounts are true the Germans when in massed formation do not even bring their weapons to the shoulder but let them off at the hip, trusting that such a sheet of lead will do some good somewhere. The consequence is that on the side of the French most of the wounds are shrapnel and shell wounds, and very serious affairs they are, many of them. A straight hit with a long, slender, sharp-pointed bullet from a modern rifle, if it doesn't kill you outright, is apt to heal up in a fashion that is altogether disconcerting. I know of two men in one small ward of eight, here in Paris, both shot right through the gastric region, who recovered in the simplest manner possible. These missiles, owing to friction in the gun-barrel and their high velocity, appear to be aseptic; if then they hit the combatant straight, that is, end-on and without any ricochet, the wound is so small that the fibres of the tissues must come immediately back on themselves and produce spontaneous obliteration of the aperture. It does not seem possible to account for these frequent recoveries from abdominal wounds in any other way; to suppose that the bullet slips between the coils of the intestine seems untenable. Anyhow, numbers of these men are eating and up and about in a wonderfully short time. As for the thorax, you seem to be able to send balls through the lung very nearly with impunity, so readily do these patients recover.

When, however, we turn to shrapnel and shell wounds, the question becomes at once vastly more complex. The bullet wound, clean, and very often dressed with the soldier's emergency package, on the spot, is little exposed to infection, and as a rule, the projectile passes right through clothes or accoutrements without carrying anything with it into the wound. But the large, round, leaden ball of the shrapnel is not clean, often remains buried in the tissues on account of its low degree of propulsion, instead of passing right through, as the rifle bullet does, and carries with it into the depths of the tissues fragments of pretty much anything it meets. Both bullet and foreign tissues set up suppuration, and these wounds are often long in healing. The worst wounds of all are, of course, those made by jagged pieces of shell, which frequently burst on the ground and carry with them dirt and all manner of filth. Up to the present time I have not seen a single mention in any of the reports that I have read on these subjects of any bayonet wounds on the Allies' side. This struck me as so peculiar that I questioned the head of one of the important surgical ambulances here concerning the matter and was surprised to hear that not a single bayonet and only one sabre wound had as yet been received at his ambulance, one of 250 beds where only Allied wounded are brought, the Germans having to go to places under guard.

The number of the wounded in this war has far exceeded all anticipations, and for a while the medical organizations were somewhat overpowered. The prompt removal of the wounded from the actual field has been difficult on account of the intensity of the fire, and many are the doctors who have already laid down their lives in this way. The outcome of all this has been that a large number of the graver wounds have become badly infected, and that the mortality from tetanus, simple gangrene, gas-gangrene, and hospital rot, has been a very serious affair. At one time the cases of tetanus assumed almost alarming proportions, with a mortality of nearly 100 per cent.; one man saved one patient out of fourteen, another had "hopes" of bringing four through out of twenty, while a third lost all four of his. Measures have, however, now been perfected for better immediate care of these seriously wounded men before their evacuation to the hospital centers, as well as for the prompt use of serum in advance with all jagged and soiled wounds. The fortitude and philosophy of the Allies' wounded has attracted unanimous comment, and is one of the most serious warrants for the ultimate success of the allied cause; what mortal man can be got to put up with, without complaint, the apparently unnecessary hardships and dangers that many thousands of these brave soldiers have had to undergo, simply leaves one speechless.

C. K. AUSTIN, M.D.

PARIS, October 16, 1914.

The Reaction of Morelli in Tuberculous Pleural Exudates.—Mameli Zannini states that this reaction, which is similar to the Runéberg nitric acid test, is based upon the fact that mercury combines with different types of albumin and gives rise to corresponding metallic albuminates. The technique of the reaction is a simple one. A cylindrical glass vessel is filled with a saturated aqueous solution of corrosive sublimate. Into this there are introduced slowly three or four drops of the liquid to be examined. If this is an exudate there forms on the surface of the solution a yellowish annular coagulum of albuminate of mercury which adheres to the side of the glass. If the liquid to be examined is a transudate the coagulum falls to the bottom of the vessel in the form of fine flocculi. This is the negative reaction which occurs constantly in the case of tuberculous pleural exudates.—*Rivista Ospedaliera.*

Progress of Medical Science.

Boston Medical and Surgical Journal.

October 22, 1914.

1. Vaccine Therapy in Eye Diseases of Bacterial Origin. L. S. Medalia.
2. A Study of Two Hundred and Twenty-Six Cases of Enuresis. A. B. Schwartz.
3. Tobias Smollett: Physician and Novelist. R. M. Green.
4. Nervous Diseases in China. A. C. Reed.

1. Vaccine Therapy in Eye Diseases.—L. S. Medalia finds that the judicious use of vaccines in bacterial infections of the eye yields results superior to those of any other method of treatment. Autogenous vaccines should be used and the treatment should be begun before permanent damage to the eye occurs. In the case of infections of the anterior chamber, especially in hypopyon ulcers, repeated paracentesis, in addition to vaccine treatment, yields better results than when vaccines are used alone. Small and oft-repeated doses are not followed by a marked negative phase and minimize the chance of a possible setback, both of which may occur if too big a dose is employed. The use of vaccines is of value in preoperative immunization. Vaccines are of particular value in cataract operations when the conjunctiva contains bacteria that cannot be eradicated in the ordinary way. Bacteriological examination in connection with prophylactic immunization prior to cataract operations seems to be the logical method of procedure and largely obviates the risk of postoperative infections.

2. Enuresis.—A. B. Schwartz notes that the good results and the failures in the treatment of the 226 cases of this condition that he had under observation are similar to those reported by other writers, and a study of these results leads one to the conclusion that the cause of enuresis in children is not the same in every instance. In some instances the nervous element plays a part, and in other instances faulty habits. Local irritation from any source is a predisposing cause. Excessive fluids result in a greater secretion of urine, while too little fluid results in a concentrated urine, which, whether it contains crystals or not, may irritate the base of the bladder and cause the desire for frequent micturition. Enlarged tonsils and adenoids, in the author's experience, have no connection with enuresis, neither have digestive disturbances, but possibly constipation is a predisposing factor.

New York Medical Journal.

October 24, 1914.

1. Muscle-Bound Feet. R. A. Hibbs.
2. Eventration of the Diaphragm. M. Manges and H. Wessler.
3. Tuberculosis of the Conjunctiva. W. T. Shoemaker.
4. Neoplasms of the Bladder. F. R. Hagner.
5. End Results of Criminal Abortion. M. Rabinovitz.
6. A New Bed Bathtub. E. A. Gallegher.
7. Implantation of the Generative Glands and Its Therapeutic Possibilities. G. F. Lydston.
8. A Curette for the Endotympanum. E. L. Meierhof.
9. Syphilis in Colored Canal Laborers. W. G. Baetz.
10. Horse Asthma. J. G. Missildine.

1. Muscle-Bound Feet. — R. A. Hibbs defines a muscle-bound foot as primarily one in which dorsal flexion at the ankle joint is limited to an angle of ninety degrees or more by a short calf muscle. Dorsal flexion of the foot at the ankle joint should be to an angle of eighty or seventy degrees to the leg. This allows for the free swing of the tibia forward over the articular surface of the astragalus to the limit established by the change of the center of gravity. This causes the distribution of the weight through the foot in a constantly changing direction, makes possible the proper rest periods of the calf muscle, and insures the proper action and development of the opposing muscles and of the intrinsic muscles of the foot. When dorsal flexion is limited by a short calf to an angle of ninety degrees or more, the stride is shortened, the contraction of the calf is more frequent, and its rest periods are shortened. Or else, if the stride is not shortened, when the tibia reaches the limit of its swing forward over the articular surface of the astragalus established by the short calf, tension is made upon the muscle and it contracts, elevating the heel. The muscle is held in a state of contraction for a longer period of time, and it also suffers somewhat from tension made upon it. Its contraction is made in response to that tension, rather than to an impulse originating in the central nervous system, excited by a change in the center of gravity. The heel, being held elevated for so long a period, with the weight borne upon the distal ends of the metatarsal bones, adds the important element of footstrain. The circulation of the blood in the foot and leg is affected, because its perfect accomplishment depends to a very important degree upon normal freedom of the muscle action. Evidence of this disturbance is shown by a cold and clammy condition of the skin, excessive perspiration, feelings of heaviness and numbness, and a slight varicose condition of the veins of the calf. The gait produced by feet in such a condition must of necessity have an unfavorable effect upon the nervous system, because there is an overproduction of those waste products of muscle action which cause fatigue and muscle tension and affect the nerve ends in the fibers of the calf muscles by the impairment of the circulation, and so give rise to footstrain. Evidence of this is given in the fact that all these patients suffer from excessive fatigue. A certain amount of relief is obtained from exercise and massage, while properly fitting plates often relieve footstrain and hold the foot in a better relation to the leg. High-heeled shoes are more comfortable, and walking with a slightly bent knee is less fatiguing. It is impossible, however, to give permanent relief until the limit to dorsal flexion is removed and the normal muscle balance restored. This should be done early, before the changes in the foot have taken place and before the nervous system has been affected. The removal of the limit to dorsal flexion must be accomplished by some method which at the same time inhibits the function of the calf, after walking is resumed, long enough to allow the opposing anterior leg muscles to develop. Otherwise muscle balance will not be restored and no permanent good will be accomplished. Lengthening the tendo Achillis fulfills these conditions perfectly. It removes at once the limit to dorsal flexion and at the same time inhibits the function of the calf for from two to three months in children and four to six months in adults, giving abundant time for the proper development of the opposing muscles and the intrinsic muscles of the foot, and for the complete restoration of normal muscle balance.

2. Eventration of the Diaphragm.—M. Manges and H. Wessler state that eventration of the diaphragm is a comparatively rare condition in which the diaphragm, owing to extreme atrophy, succumbs to the pressure of the stomach and the intestines beneath it and, together with them, is displaced into the thoracic cavity. Anatomically, and from the point of view of morbid physiology, this differs only from a true diaphragmatic hernia in that, in the former the atrophied remains of the diaphragm are interposed between the lungs and intestines. In most cases the diaphragm seems to have entirely lost its function of contraction. The author reports two cases of this condition. The first case illustrates a common symptom complex. Under the influence of trauma or unusual distention of the abdominal viscera with gas, the already weak-

ened and stretched diaphragm is subjected to a further injury and the patient experiences a respiratory crisis very much like that which occurs in a sudden pneumothorax or in the onset of a pleurisy, viz., dyspnea, pain, cyanosis, and cough, symptoms which probably depend on the extreme displacement of the heart and bloodvessels and the resulting interference with the circulation. In their physical signs also, these attacks closely simulate pleurisy and pneumothorax; the signs comprise loud or dull tympany over the chest, immobility of the chest in respiration, succussion (due to the distended stomach) and dextrocardia. So frequent and striking is this association of symptoms, that not infrequently these cases are aspirated for fluid, a procedure not devoid of the danger of perforating the distended stomach. These crises are followed for a longer or shorter period by sticking pains in the back, and dyspnea and palpitation on exertion, until they are succeeded by another acute attack. In the gastrointestinal type, owing to the chronic dilatation of the stomach and also to periodical partial obstruction of the splenic colon in the cul-de-sac of the atrophic diaphragm, the patient may suffer from dyspepsia and recurring attacks of intestinal obstruction. If these symptoms are combined with a loss of weight and a severe anemia, as occurred in the second case, it is easy to see how a suspicion of carcinoma may be entertained. In this case the gastrointestinal symptoms were preceded for some years by definite cardiac symptoms which were attributable to the extreme dextrocardia which was here present. From the point of view of treatment, the differential diagnosis between diaphragmatic hernia and eventration is of practical importance. The former condition is amenable to operative treatment, which may become urgent in the case of intestinal obstruction. The treatment of eventration, on the other hand, can only be palliative. It is not possible to do anything to restore the function of a completely atrophic diaphragm. On the other hand, it is evident that anything which will increase intra-abdominal pressure will add to the difficulties of the already displaced diaphragm. It would seem rational to put patients suffering from eventration in consequence of a defective or atrophied diaphragm on a diet in which the fattening elements of the food are restricted, and to avoid such foods which by their fermentation would give rise to flatulence.

3. **Tuberculosis of the Conjunctiva.**—W. T. Shoemaker points out that this condition is an infective granuloma affecting the conjunctival tissue, whether bulbar or palpebral, and is due to the local multiplication of the *Bacillus tuberculosis*, and to the action of the toxins it elaborates. The presence of the tubercle bacillus is held to be indispensable for the existence of tuberculous conjunctivitis, and its demonstration absolutely essential for a certain diagnosis. The importance of laboratory investigation, therefore, in all suspected cases and in many cases thought to be other than tuberculous, is apparent. For this reason it seems probable that tuberculosis of the conjunctiva is perhaps not so rare as general records show, many cases escaping detection and falling under one of many other diagnoses. The treatment of tuberculous conjunctivitis includes the various measures used for tuberculosis, general or local. Tuberculin, *x*-ray, and radium are the newer remedies and all have given favorable results in the hands of their advocates. Cauterization, curettage, excision, and local applications of many kinds have also been of use. Certain cases can be cured, but Shoemaker says that the disease must always be regarded as very serious and the prognosis as most unfavorable.

Journal of the American Medical Association.

October 24, 1914.

1. The Standardization of the Surgeon. J. M. T. Finney.
2. The Surgical Service in Hospitals. H. O. Collins.
3. Testing the Efficiency of the Collateral Circulation as a Preliminary to the Occlusion of the Great Surgical Arteries. R. Matas.
4. Aneurysm of the Posterior Tibial Artery, with Report of Two Cases. A. McGlannan.
5. Myositis Ossificans Following a Single Trauma. P. Oliver.
6. The Treatment of Heart Involvement in Syphilis, Based on a Study of 300 Cases. H. Brooks and J. Carroll.
7. The Four Common Types of Heart Disease. An Analysis of 600 Cases. R. C. Cabot.
8. Cardiorenal Disease. The Clinical Determination of Cardiovascular and Renal Responsibility, Respectively, in Its Disturbances. A. Stengel.
9. Discussion of the Surgical Theories of Intestinal Stasis. A. Bassler.
10. Subscapular Exostosis with Adventitious Bursa. C. A. McWilliams.
11. Harness Rivets Removed from Nasal Cavity. A. J. Dalton.

1. **The Standardization of the Surgeon.**—By J. M. T. Finney. (See MEDICAL RECORD, July 11, 1914, page 86.)

2. **The Surgical Service in Hospitals.**—By H. O. Collins. (See MEDICAL RECORD, July 11, 1914, page 86.)

3. **Testing Efficiency of Collateral Circulation as Preliminary to Occlusion of the Great Surgical Arteries.**—By R. Matas. (See MEDICAL RECORD, June 27, 1914, page 1193.)

4. **Aneurysm of the Posterior Tibial Artery.**—By A. McGlannan. (See MEDICAL RECORD, June 27, 1914, page 1193.)

5. **Myositis Ossificans Following a Single Trauma.**—P. Oliver notes that this malady results from a severe traumatism such as the kick of a horse, a blow from a sharp-cornered object, or dislocation of the elbow, without break in the skin or subsequent suppuration. Nearly all cases occur in the brachialis anticus or the quadriceps extensor, rarely in other muscles. It is found most commonly in vigorous middle-aged men. Porter and Quinby state that it is most commonly a result of posterior dislocation of the elbow. Machol records sixteen cases following the immediate reposition of uncomplicated posterior elbow dislocation and says that more than one half of the cases at the elbow follow this injury. Frangenheim states that aside from this variety of dislocation, it has been known to occur but once in the subclavius following clavicle dislocation, and once in the subscapularis following humerus dislocation. Schultz collected 233 cases from records in the German army during ten years, and in all but three the new bone was in either the quadriceps extensor or the brachialis anticus muscles. The essential character of the process is the formation of typical spongy bone intimately incorporated in the muscle. At an early stage it is cartilaginous, varying greatly in extent and shape. In the arm it may involve the origin, middle or entire brachialis anticus muscle and often the periarticular structures. The most typical growth is a somewhat tapering piece of bone in the brachialis anticus attached by a narrow stem to the tip of the coronoid process of the ulna. But as a rule, the new bone is not firmly attached to the humerus or ulna. Of fifty-six cases at the elbow collected by Cahier, in twenty-six it was entirely movable, four pedicled, sixteen attached to the capsule, and one at first movable but later fixed.

6. **Treatment of Heart Involvement in Syphilis.**—By H. Brooks and J. Carroll. (See MEDICAL RECORD, June 27, 1914, page 1190.)

7. **The Four Common Types of Heart-Disease.**—By R. C. Cabot. (See MEDICAL RECORD, June 27, 1914, page 1190.)

8. **Cardiorenal Disease.**—A. Stengel states that among the pathological conditions included in the term are three important groups: (1) primary valvular or

myocardial disease with secondary renal disease; (2) primary arterial or arteriolar disease with secondary renal and myocardial disease, and (3) primary renal disease with secondary myocardial and vascular disease. The group of cases included under the term cardiorenal diseases presents a varied symptomatic picture. Dyspnea, continuous or paroxysmal, high arterial tension, a pallid (arteriosclerotic or nephritic) appearance, palpitations, and sometimes substernal or precordial pain, sometimes edema of the extremities and effusions in the serous cavities, headaches, neuralgias and various cerebral disturbances, polyuria or reduction in the amount of urine, disturbances of vision, gastrointestinal disorders and heaviness, stupor, or even coma are among the prominent symptoms encountered. Physical examination discloses enlargement of the heart and evidences of cardiac weakness, sclerosis of the vessels, albuminuria and casts in varying degrees of prominence. As the disease advances, increasing evidence of circulatory embarrassment on the one hand or of renal inadequacy on the other hand manifest themselves, and the termination may be quite clearly a circulatory or renal death; but even up to the last there may be difficulty in determining the major fault. Particularly true is this in patients dying in coma when the possibilities of cerebral hemorrhage and uremia seem equally balanced, and in cases of severe paroxysmal dyspnea. From the very beginning, however, the physician finds it necessary to make a decision and direct treatment accordingly. Of the three groups of pathological conditions comprised under the general heading of cardiorenal disease, that which most frequently presents a clinical history of value is the combination of valvular or myocardial disease with secondary nephritis. In Group 1, especially in valvular cases, cardiac enlargement and particularly enlargement toward the right is significant. A second point of importance in the physical examination is the character of the murmur heard over the heart. In primary mitral regurgitation, the systolic murmur always occurs in the early part of the systole, sometimes so early that it quite overshadows the first heart sound; while in the mitral leakage following continued high tension, the murmur is so late in systole that the first sound is heard an appreciable interval before the murmur and the second heart sound follows immediately after the murmur. Among the functional tests in use at the present day are the following: the phloridzin test, the determination of the time relations and quantity of excretion of potassium iodide, sodium chloride, milk-sugar, indigo-carmine and phenolsulphonephthalein. The marked response of primary cardiac cases to digitalis and other cardiac tonics is sometimes fairly diagnostic in significance. Rarely ever does one see anything approaching this response in the other groups, even when secondary cardiac failure has become a marked feature. In the second group one finds the most satisfactory results from the diuretics of the caffeine group. The same enormous diuretic effect from caffeine or theobromine salts is rarely seen in other cases. In the third group diaphoresis by means of baths, pilocarpine, etc., sometimes yields satisfactory results to an extent far more striking than in the other two groups.

The Lancet.

October 17, 1914.

1. Cancer of the Duodenum and Small Intestines. Sir J. B. Sutton.
2. Position of Psychiatry and the Role of General Hospitals in Its Improvement. C. H. Bond.
3. Incontinence of Urine in Women. D. Newman.
4. Multiple Round-celled Sarcoma Originating in the Nares. C. N. Slaney.
5. A Case of Mediastinal Pleural Effusion. A. Rose.

1. Cancer of the Duodenum and Small Intestines.—Sir John Bland-Sutton points out that a study of the effects produced by cancer of the duodenum shows that the time-honored division of this section of the small intestine into first, second, and third parts is of little use for the purposes of clinical medicine. It is more convenient, following Sherren, to call the portion above the bile papilla the supraampullary segment, the portion containing the bile papilla, the ampullary, and the remainder the infraampullary segment. Cancer arising in the duodenal mucous membrane around the bile papilla is known as circumampullary cancer, in order to distinguish it from cancer arising in the ampulla or in the common bile-duct, but the three varieties lead to obstruction of the bile-duct, jaundice, and distention of the gall-bladder. There can be little doubt that cancer of this section of the duodenum would often escape detection if it were not for the obstruction it offer to the flow of bile from the common duct. It is very difficult to distinguish clinically between circumampullary cancer, ampullary cancer, and malignant disease of the head of the pancreas, for all give rise to obstructive jaundice, often associated with an overdistended gall-bladder. Primary carcinoma of the ampulla is interesting in itself and exhibits some remarkable peculiarities. Nowhere in the body does so small a growth lead to such grave interference with digestion. A cancerous growth, sometimes no larger than a cherry, will block the outflow of bile and pancreatic juice, and cause intense jaundice and great emaciation by interfering with digestion in consequence of the obstruction to the outflow of pancreatic juice. The three clinical signs of cancer of the ampulla are painlessness, intense jaundice, and great emaciation. The pathological features of the disease are its slight tendency to infiltrate surrounding structures, the infrequency of dissemination, and the enormous dilatation of the main bile-ducts and the gall-bladder. A feature of cancer of the ampulla which distinguishes it from cancer of the gall-bladder is the infrequency with which it is associated with gallstones. The transverse or infraampullary duodenum is the common place for duodenal cancer. The symptoms associated with it are like those set up by cancer of the pylorus, but the vomited matter contains bile and pancreatic juice and is sometimes very offensive. The simple tumors arising in the intestinal walls may be lipomas; some are described as myomas, and many as sarcomas, but whatever the structure the constant propulsive efforts of the intestine tend to force the tumor towards the lumen of the bowel until it projects within it, covered merely by a layer of mucous membrane. The danger to be feared from such a tumor is invagination or intussusception of the gut, for the tumor acting as a foreign body is urged along the bowel, and being fixed to the bowel wall drags it in and produces an intussusception which, if unrelieved by art or the timely sloughing of the intussusceptum, ends in fatal obstruction. Cancer of the small intestine may arise in an accessory pancreas. Small detached masses of pancreatic tissue have been detected in the stomach near the pylorus and in the duodenum; they may be situated in the mucosa, the muscularis mucosa, or in the muscular layer of the intestine, and measure 3 or 4 centimeters in diameter. An accessory pancreas is occasionally situated at the apex of the diverticulum. The ileocecal valve, notwithstanding its narrowness, is rarely attacked by morbid growths. The hyperplastic form of intestinal tuberculosis is most common in the cecum and cecal end of the ileum. It differs from other varieties of tuberculous disease in that the lesion is not destructive and leads to an increase in the bulk of the part affected. From the operative point of view the

distinction between cancer and hyperplastic tubercle is not important, for the treatment in both conditions is the same—excision; but the distinction is a matter of great concern in regard to prognosis. Cancer and hyperplastic tubercle left to run their course end fatally, but the latter is curable by excision. Melanosis is a morbid condition of the mucous membrane of the colon that has received little attention. Although the pigmentation begins, as a rule, at the ileocecal valve and extends to the anus, cases have been observed in which it does not involve the whole length of the colon. When the colic membrane is involved throughout the pigmentation is discoverable at the anus by means of a speculum. The condition is mainly a clinical curiosity, but if detected in the course of a clinical examination it might have an undue significance attached to it.

3. Incontinence of Urine in Women.—D. Newman notes that the most common causes of simple incontinence of urine in women—that is to say, loss of control unassociated with disease of the bladder or the urethra—are injury received during parturition and overdistention of the urethra and neck of the bladder by instruments. As a result of these injuries a secondary cystitis or urethritis may be set up which aggravates the suffering considerably. There are other cases where no history of traumatism can be discovered. The former are more amenable to surgical treatment than the latter, but even these may be much improved by operation.

5. Mediastinal Pleural Effusion.—A. Rose points out that extensive pleural effusion limited to the mediastinum is a rare disease. He reports the case of a patient 52 years of age who gave a history of gradually increasing weakness, wasting, and dyspnea of at least twelve months' duration. On postmortem examination it was found that the right lung was adherent to the chest wall all around. In a cavity bounded by the diaphragm below, the mediastinal pleura internally, and the compressed lung in other directions, there were 80 ounces of serous fluid which coagulated spontaneously. The principal points of interest in this case were the position and large amount of the effusion, the slight inconvenience caused to the patient during the many months it must have taken to accumulate, and the almost complete absence of pressure symptoms. The postmortem findings suggest that the effusion was originally an encysted diaphragmatic one, and that its extension to the mediastinum occurred comparatively late. The lung, being tuberculous and fixed, would offer less resistance to the pressure of the fluid than offered by the mediastinal contents and the comparatively healthy left lung.

British Medical Journal.

October 17, 1914.

1. Cancer of the Duodenum and Small Intestines. Sir John Bland-Sutton.
2. Present-Day Lessons from the Life Work of Mitchell Banks. Sir Victor Horsley.
3. Pinewood Sawdust as a Surgical Dressing. C. W. Cathcart.
4. Insects and War: Flies. (1) The House-fly. A. E. Shipley.
5. The Outlook in Epilepsy. W. A. Turner.
6. Rheumatoid Arthritis. D. D. Brown.
7. The Treatment of Torticollis. (Congenital Non-spasmodic Wry-neck). P. B. Roth.

3. Pinewood Sawdust as a Surgical Dressing.—C. W. Cathcart states that sawdust has been used from time to time by many surgeons as a surgical dressing, but its merits do not yet seem to be appreciated as they deserve. The sawdust from various kinds of pinewood has given good results. The softer kinds are the best, being more absorbent, while the harder kinds, although less absorbent, have the advantage of containing more resinous material. The method of preparation the author has found useful is the following: Two large standard wire sieves are required—No. 8, that is, eight threads per inch, and No. 40, that is, forty threads per inch. In order to reject the coarse fragments the sawdust, as obtained from the sawmill, is passed through No. 8 sieve and allowed to fall on to No. 40. It is then well shaken and rubbed on No. 40, and the very fine particles which pass through are discarded, because they would escape too readily from the prepared pads and cause an inconvenient dust. The sawdust which remains on No. 40 sieve is put into a box or sacks made of butter muslin, which are filled about two-thirds full with the sifted sawdust, and then closed with a colored thread. The filled bags or pads are sterilized by steam in the same manner as other dressings. After use the colored thread is withdrawn, the sawdust thrown away, and the bag washed, boiled, and dried for future use. Besides the advantage of cheapness, and the relative ease with which it may be obtained, sawdust is very absorbent. It is well adapted for civil or stationary military hospitals.

5. The Outlook in Epilepsy.—W. A. Turner states that when a case of epilepsy first comes under observation certain features are present by which the outlook may be surmised. As features of a favorable character may be mentioned the commencement of the disease between the ages of 16 and 20, especially if a hereditary history is obtained, and some obvious exciting cause for the disease is present; the commencement of the disease after 40 or 45 years of age provided organic disease of the brain can be eliminated; the infrequent occurrence of the seizures, and the absence of any obvious mental impairment or well marked stigmata of degeneration. In contradistinction to the above mentioned types of epilepsy, there is the incurable, chronic, or confirmed type, which finds its way eventually into institutions for epileptics. Epileptic dementia is revealed by all grades of mental deficiency, from a mere defect of memory, especially for recent events, up to pronounced dementia. Although an integral part of the disease it may be modified to some extent by the duration, the frequency, and the character of the seizures. Once the mental condition has become materially affected in the direction of dementia, the outlook as regards any real amelioration is unfavorable, although the fits may be kept in abeyance over long periods by sedative remedies.

Berliner klinische Wochenschrift.

September 21, 1914.

Atonia Gastroduodenalis Acuta.—Melchior writes of the so-called arteriomesenteric duodenal occlusion. After discussing certain anatomical and physiological conditions due to the erect position of mankind aided or not by compression of the waist he portrays the manner in which a quasi-physiological condition may pass into a pathological entity. Sinking into the lesser pelvis of the small intestine makes traction upon the root of the mesentery, so that simple compression by the latter becomes sudden occlusion with resulting acute duodenal ileus. In 1856 Wunderlich first isolated this condition. The partial blocking of the lower portion of the duodenum by the pedicle of the mesentery caused an extreme distention and stasis of the stomach with fatal termination. The clinical picture soon became known through the labors of many pathologists and clinicians, and is fairly constant. The patient vomits a vast quantity of watery fluid, brilliantly colored with bile. Examination shows a soft abdomen, although there seems to be some fullness in the epigastric region. The chances are that the medical man will have the patient's stomach washed out but the effect of this procedure will

be the reverse of that anticipated. The patient will continue to vomit watery bile, and perhaps later blood. The atony of the stomach has now become extreme, so that the dilated organ distends the entire abdomen, and the general condition becomes very threatening. Nothing passes by the rectum, extreme thirst sets in and general peritonitis is closely simulated. Death may occur in from a few days to two weeks. Upon making an autopsy the physician is surprised to find that peritonitis is absent. The stomach, pylorus and duodenum are immensely distended down to the duodenojejunal junction at which the root of the mesentery is pressing. At the moment at which this pressure is relieved by the elevation of the mesentery the contents stagnated above enter the jejunum. This condition rarely occurs save in broken down subjects, especially when these are bedridden. In a number of cases posture alone has resolved this condition—knee, elbow or simple abdominal. This occlusion differs from an ordinary strangulation ileus in the absence of reaction, the constant fluid being only a narrow ring of necrotic mucosa. The article will be continued.

Supernumerary Kidneys.—Neckarsulmer reports a case of supernumerary left kidney encountered accidentally in an autopsy upon an infant dead of bronchopneumonia following measles. This organ showed incomplete development and must be classed as rudimentary. The right kidney and both adrenals were normal throughout. The left kidney was placed somewhat lower than the right and was shorter, with a ureter normal otherwise but shorter than its fellow. The third kidney, compressed into a flattened cone, adhered to the upper pole of the left kidney and terminated in a ureter which ended as a cul-de-sac in the vesical wall. The organ could have shown no functional activity; had it done so only cyst-formation could have resulted. In a case parallel with the author's the supernumerary rudimentary kidney had become the seat of an adenoma. It is evident that this abnormality is related to double kidney with two normally functioning ureters. In 1891 Palma compiled the recorded cases of supernumerary kidney; and up to date at least five cases of this sort are upon record in which individuals have possessed three full value kidneys. In other cases the data are not sufficiently compendious to determine the exact nature of the third kidney. In the author's case and another parallel with it the data are sufficiently complete for a diagnosis of rudimentary non-functioning third kidney.

An Accessory Article of Diet for Athletes and Soldiers.—Roeder announces as a food stimulant for distance runners and marching troops a combination of malt extract and yerba maté or Paraguay tea (or Peruvian tea). The latter is described at great length. Two great advantages are claimed for it, to wit: it possesses a property of quenching thirst and can replace alcohol successfully. In addition to the classes of people already given which should benefit from its use the author further mentions school children whose intensive mental and physical activities are strengthened thereby. Naturally so excellent and promising a resource is to be marketed as a proprietary. The author seems unaware that his combination is not entirely new, although perhaps never recommended for the indications stated in the article. Nor does he refer to the fact that Paraguay tea was extensively recommended over a generation ago for sick headaches and similar affections, despite which advertisement it sank into desuetude.

Münchener medizinische Wochenschrift.

September 15, 1914.

The First War Casualties in Reserve Hospital B. Munich.—Krecke states that this institution which has 1100 beds received its first batch of wounded on August 20-21, its second on the 23d and its third on the 25th. The troops concerned were fighting in Alsatia and the first to arrive were but slightly wounded. The later arrivals, however, had participated in a heavy pitched battle and were in part severe sufferers. They had been lodged for the first night in extemporized shacks, or in barns and churches, starting for Munich on the following day. An *x*-ray apparatus was ready for the photography of all bone traumatisms, with Sielmann, an expert, in charge. The condition of the wounded was in general excellent. As a rule the first immobilization for bone injuries were very satisfactory. Even in fractures of the thigh there was no severe reaction. Bullet wounds of the soft parts were thoroughly harmless. Wounds made by fragments of shells were of course shocking especially when the tissues of the face were involved. The havoc wrought here is sufficient to exclude any idea of humane warfare. Naturally many of those thus injured never reach the Reserve hospitals. These lesions produced relatively slight reaction in the tissues. Wounds of the skull, thorax, and abdomen were not very numerous, while the reverse is the case in regard to the extremities, the terminal segments suffering notably. Lesions of bone everywhere showed the greatest variety and absence of type especially when fragments of shell were at fault. The bearing of the men was heroic, they showing great firmness and stoicism. Not one repined or bemoaned his lot.

Observations in a Field Hospital.—Klaussner, surgeon in a Bavarian Army Corps gives some of his experiences in a letter to the Military Supplement. A temporary addition to a garrison hospital was erected, with accommodation all told for the 1,500 wounded who were treated during August 12-14. Dressings were made day and night. The soldiers who were transportable had to give way to the newly wounded. Then came the order, on tactical grounds, to abandon the field hospital, and the wounded had to be conveyed to a school house, in which an operating room was improvised. Later a French garrison hospital with its medical staff fell into the hands of the Germans, who took over the work. The conditions were universally bad, as the gas supply had been cut off. The odors of gangrene and miscellaneous filth were intolerable. The French soldiers appreciated what was done for them as sanitary restitution was gradually brought about and their remarks about their own medical staff were not exactly flattering. Klaussner's letter bears many marks of censorship, names of places and other data of identification being stricken out. In the present communication he announces the postponement of his account of the wounds dressed.

Tribromonaphthol as a Disinfectant.—The present number of the *Wochenschrift* contains no less than three articles on this substance which, like nearly all innovations in Germany, is being sold under a proprietary name. Bechhold, one of Ehrlich's staff, terms it—under its natural designation—a semispecific disinfectant. The specific disinfectants must according to this nomenclature be lysins or agglutinins, while a half specific is one which can exert a quasi-specific action on certain well known pathogenic bacteria. The same property is seen in the indifference of the substance toward other activities, *i.e.* it does not exert any influence on leucocytosis, and in fact is practically devoid of toxicity. On a wound surface it is non-irritating, yet at the same time acts as an antiseptic and proliferant. In a special article Professor Leser pronounces tribromonaphthol interesting to the surgeon because of its nontoxicity, freedom from odor, high disinfectant activity

against the pyogenics, etc. A disadvantage is the unstable character of its solutions which hardly maintain their integrity for more than 24 hours. Dr. Ziegler states that he has been testing the remedy since 1909. It is a true germicide in 1 per cent. solutions (its power over spores is not mentioned) and even in very great dilution is able to inhibit bacterial proliferation, and is well adapted for hand disinfection and for sterilization of the skin of an operative field. For the latter purpose used in a 5 per cent. concentration in alcohol it can replace tincture of iodine.

Diphtheria Prophylaxis in a Settlement for Children.—Karl Kassowitz, of von Pirquet's clinic in Vienna evidently does not share the views of his recently deceased namesake on the specific treatment of diphtheria. As the result of successful jugulation of an institutional epidemic he lays down the principles to be carried out under these circumstances. All exposed persons should be tested at once with cultural methods. The nasal discharges and tonsillar plugs, should be used further in guinea pig inoculations. In the interim relative isolation is carried out after positive tests, special isolation during treatment and until tests become negative. The institute or school building must of course be closed for disinfection. Carriers should have a diagnostic intracutaneous test with diphtheria toxin, and wherever this is positive serum treatment is practised. Carriers should be under ambulatory control until all tests have been repeatedly shown to be negative. As a local remedy, prophylactic or remedial, hydrogen peroxide cannot be excelled. In the kindergarten settlement a child was found ill with diphtheria and removed to a hospital and before the author was given charge new cases continued to appear at brief intervals. Fifty-two children of this group were now systematically tested and eight were found to be carriers, but of this number only three reacted positively to the intracutaneous test with diphtheria toxin and these received prophylactic serum injections.

Deutsche medizinische Wochenschrift.

September 17, 1914.

Cancer Problems.—Von Hansemann divides cancer investigation into chronological periods, the earliest of which he terms the morphological (histomorphological). As a result of the strictly scientific work of this period we are able today to make with relative certainty a diagnosis of malignancy from the inspection of a bit of tissue removed *in vivo*. The second chronological period is termed the etiological, and unlike its predecessor it has not been characterized by strict scientific methods and forms a rather gloomy chapter in the evolution of medical knowledge. It seems clear that there is no single cause of cancer. Various factors can singly produce the same result and a single factor can produce different results. The most recent accessions are the most valuable. We know that *x*-rays alone can produce cancer in man, just as we know that certain parasites cause it in the stomach of the rat. The same parasites also cause in some rat individuals benign growths, just as in others they are unable to produce tumors of any sort. The third sequential period is the experimental from which much has been learned concerning certain animal tumors. It has doubtless been an error to devote so much time to the Jensen mouse-tumor which is not cancerous in the strict sense; and more progress might have resulted had Hanau's experiments with true rat cancer been followed up. The vast body of positive data built up in connection with the Jensen tumors unfortunately has not aided thus far in solving the problems of true human cancer. Much more promising is the line of research which is being conducted in animals by Fibiger who deals only with true carcinoma. The fourth and last period now in course of evolution may be termed the therapeutic. In the strict sense, neither the knife nor the *x*-rays constitutes a cure. Since true carcinoma never undergoes spontaneous recovery, the outlook for a true remedy is highly unpromising. For unless a disease process can show a tendency however slight to self-limitation and spontaneous cure it is a principle in therapeutics that it is incurable in the strict sense.

Diagnosis of Smallpox.—Risel intimates that our knowledge of the clinical course of variola is derived to a considerable extent from study of the pandemic of the disease which followed the Franco-Prussian war. The vaccination laws of 1874 then suppressed the disease to such an extent that but slight opportunity for its study has since been afforded. The teaching at the time was that the distribution of the rash was determined by the areas of the skin most exposed to mechanical and chemical irritation. Since that period variola has been extensively studied at the London Smallpox Hospital, especially during the epidemic of 1902 and the teaching of Curschmann as to the distribution of the rash has been abundantly confirmed, even experimentally. During the incubation period the application to the skin of an irritant like mustard or iodine will bring out a crop of pocks narrowly limited to the irritated area. In badly nourished nurslings the folds in the integument form areas of predilection. In the covered areas the rash occurs by preference where pressure and friction are found. In a general way the more intense the irritation the thicker the rash, and *vice versa*. This teaching, be it remembered, applies to genuine smallpox, as it occurs in those who have not acquired immunity from previous attacks or from vaccination. In varioloid vaccinia, varicella, etc., no such law is in operation. The eruption appears on protected localities—the flanks, loins, etc. The law of localization in genuine variola affects the distribution of the pocks but does not apply to the socalled proruptions seen during the prolonged incubation period, and which are toxic erythemas or in very severe cases petechial. This early rash bears a considerable resemblance to measles in its localization, as it spares the face, but is extremely fugacious in character. It may be studied in subjects who have been quarantined after exposure, and with the petechial form possesses prognostic significance, for the latter forecasts the hemorrhagic type of variola. In the most deadly cases we see a solid, permanent erythema of the entire surface, including face and extremities, associated with petechiæ, death often occurring before the appearance of the pocks. The ability of varicella to mimic variola is marked, even for genuine variola, and it is difficult to make a dictum in regard to the latter that cannot be realized in some degree or exceptional case of the former. The most trustworthy criteria, such as inoculation of the rabbit's cornea, are not adapted to common use.

Salvarsan Infusion in Scarlatina.—Glaser cites many cases in which authors have sought in salvarsan a remedy capable of influencing the course of scarlet fever. He himself has employed it in 42 patients. Three of these were doomed in advance as far as customary remedies are concerned and intravenous infusion of salvarsan could not stay the end. In a series of 15 cases with doubtful prognosis, the patients all having pharyngeal diphtheroid, the drug brought about a sudden fall of temperature and the diphtheroid appeared to undergo involution in all but two cases which ended fatally. The administration of salvarsan was followed by a severe general reaction which may have influenced unfavorably the two cases in which no benefit resulted.

Insurance Medicine.

SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

ACUTE RHEUMATISM AND CARDIAC COMPLICATIONS.

It is generally accepted that acute inflammatory rheumatism is an infectious disease and that the exciting cause is a microorganism which has been designated by some as *Diplococcus rheumaticus* or *Streptococcus rheumaticus*. There are a number of predisposing causes which create tendencies or fertile resting places for the cultivation of the microorganism.

Heredity is admitted as a predisposing cause, as it can be traced in about 30 per cent. of the cases according to various observers. The influence of heredity is especially marked when it is transmitted from both sides of the family. If one parent has had rheumatism, it does not follow by any means, that his child will suffer from it. On the other hand, if the applicant himself has had an attack, the probability of recurrence is greatly enhanced.

The disease is rare under five years of age, but from that time up to fifteen, it is found much more frequently. Its occurrence is rather steady through adult life after which the tendency weakens. As a rule, the earlier the age at which a primary attack occurs, the greater the likelihood of repeated attacks, the greater the severity and the liability to involvement of the heart.

Climate, season, and locality have considerable influence in the causation of the malady. It is more common and severe in changeable climates, especially where there is much dampness. The majority of cases are found in the autumn and spring. Damp localities or houses, especially those at low levels, favor outbreaks of the disease. Those following occupations calling for great muscular exertion with consequent fatigue and free perspiration, especially in places where there is exposure to draughts or strong winds, are more liable to attacks.

Diet, notwithstanding popular ideas to the contrary, has little to do in the causation of the trouble, and the so-called excess of uric acid or uric acid diathesis in the opinions of many competent judges is of little consequence as a predisposing factor.

The occurrence of endocarditis is an ever-present danger. The valves of the left side suffer more than those of the right. Simple endocarditis gives rise to few symptoms and it frequently happens that when an individual with a valvular lesion comes under observation for life insurance, he learns of its presence for the first time. Many mitral lesions exist for twenty years and more without discomfort or apparent changes. Just what percentage of cases in which a valve lesion, once established, goes on for long periods without a cardiac breakdown is unknown. The lesions in these cases, however, are usually a mere roughening or thickening of the tissues about the mitral valve with little or no leakage.

The extra mortality among policy-holders with a history of rheumatism is shown by the results of the Medico-Actuarial Mortality Committee in the table.

The table indicates that, when there has been an attack of acute rheumatism within five years, provision should be made for an extra mortality of at least 20 per cent. Rogers (Transactions of the Actuarial Society of America, Vol. XV, Par. I) states that, judging by his company's experience in risks to which a rigid selection was not applied, having been accepted as substandard on account of a history of acute rheumatism, provision for an extra mortality of 40 per cent. is necessary.

TABLE SHOWING THE EFFECT OF RHEUMATISM ON MORTALITY.

	Actual Deaths	Expected Deaths	Ratio of Actual to Expected Deaths
One attack within 2 years of application	118	348.49	120%
One attack between 2 and 5 years prior to application	551	458.92	121
Two or more attacks, the last within 2 years of application	106	86.48	123
Two or more attacks, the last between 2 and 5 years prior to application	57	52.40	109
An attack at an indefinite time in the past	168	155.91	108
One attack more than 5 years prior to application	63	57.93	109

Death from heart disease in the class represented in the tables at the younger ages at entry was about three times the normal. The mortality accompanying acute articular rheumatism was eight times the standard.

If the risks are carefully selected they may be accepted on the life plan when there has been a single uncomplicated attack previous to one or two years ago, as the medical officers may elect. In the event of two attacks prior to a year ago, the risk should be offered a rated-up or endowment policy. If there have been three or more outbreaks, the applicant should be rejected unless the date of the last attack is remote.

The examiner carries out an important task by eliciting a full history of each attack of acute inflammatory rheumatism and ascertaining as far as possible from the attending physician as to whether or not there was cardiac involvement. Furthermore, the examination of the heart and vessels should be undertaken with unusual care.

Questions by Medical Examiner—Evidence—Rules as to Rejection of Pregnant Women.—Relative to a false answer in a medical examiner's blank not avoiding a policy, though the blank, warranting the answers therein, was signed by applicant, sufficient doubt to require submission to the jury as to whether the question, Was she pregnant? was asked applicant, is raised in an action for the death benefit by the examiner's testimony that he was unable to say whether he asked her the question, and that he does not ask all the questions in the blank.

The rule of a benefit society that medical examiners shall reject a pregnant female applicant for membership, unless she signs a waiver of claims resulting from such condition, need not be in writing nor promulgated, to be within the rules, subject to all of which the application is, in terms, made.—Clark vs. North American Union, Michigan Supreme Court, 146 N. W. 336.

Age Limits.—The company showing acceptance of risks beyond the average age will have a higher mortality. The influence of age is very important. It has been shown that at 48 the mortality is lower than we have built our premiums upon, while after 50 the mortality is considerably higher. After 45 or 50 we must select more carefully. The lapse ratio will also affect the mortality.—Thomas W. Blackburn, secretary and counsel, American Life Convention.

Society Reports.

AMERICAN ELECTROTHERAPEUTIC ASSOCIATION.

Twenty-fourth Annual Meeting, Held at Battle Creek, Mich., September 15, 16, and 17, 1914.

THE PRESIDENT, DR. GEORGE E. PFAHLER OF PHILADELPHIA, IN THE CHAIR.

Presidential Address.—Dr. PFAHLER took as his subject "Electrothermic Coagulation or Excision and Deep Roentgen Therapy in the Treatment of Malignant Disease." This treatment consisted in a coagulation of all microscopical malignant disease by means of the d'Arsonval current carried between two poles locally. This was followed by deep Roentgenotherapy, with the most modern technique, consisting especially of deep penetrating rays, passed by cross fire through multiple areas of entrance. As much Roentgenotherapy should be used as would be used if depended upon alone. Twenty cases were reported.

Report of Committee on Induced Current, Including Alternating and High Frequency Currents and Apparatus.—Dr. FREDERIC DE KRAFT of New York, chairman, reported that the committee had taken up the question of the use of thermopenetration in the treatment of pulmonary tuberculosis. In marked congestion of the lungs from mitral disease tuberculosis was very rare. Therefore it would seem rational to produce a congestion in treating tuberculosis of the lungs. This could be accomplished by the high frequency current. At the tuberculosis camp of the Albany Hospital the employment of high frequency currents had given the best results of any special treatment that had been tried. The secretion of mucus was increased, and became of lighter consistency, and was more easily expectorated. The night sweats improved, the temperature dropped, the weight increased and the appetite improved.

Static Currents and Apparatus.—Dr. HERBERT F. PITCHER of Haverhill, Mass., made this report. He said there had been developed no new or improved method or apparatus during the past year, with one or two exceptions. Dr. E. C. Titus, a member of the committee, had conducted a series of experiments with different kinds of metals made into the form of tips which were inserted into a brush discharging stick. A new condenser static machine had been invented by Dr. Wommelsdorf which was said to be absolutely independent of atmospheric conditions. In the use of the static brush discharge the committee believed there should be a sharp distinction made between the "sputtering brush discharge" applied through the moistened wooden sticks and the "blue pencil discharge or flame" formed by an electrode of some resisting material with a sharp pointed metallic terminal.

In a separate report Dr. Pitcher took up the question as to whether static currents passed through the body. This had long been a mooted question. His conclusion was that the static current in its course from surface to surface, charging and discharging, always passed through instead of over the tissues of the human body. The actions and effects of static currents were energetically mechanical, exerting responses of all the tissues of the body which were capable of contracting when subjected to interrupted electro-static stimulation. Independent muscular excitation was another principle of action that must be conceded, though it had often been questioned. The action of the static current was directly upon the cell and did not depend for the induction of muscular contraction upon the complex action of the neuromuscular mechanism.

Phototherapy and Apparatus.—Dr. JOHN S. YATES of Paterson, N. J., said the dominant note in light therapy during the past year had been in the application of heliotherapy to the treatment of surgical tuberculosis. He quoted from an article by Henry Dietrich of Los Angeles in the *Journal of the American Medical Association*. He also discussed the use of artificial heliotherapy in the treatment of these cases. He discussed the treatment of cutaneous epithelioma by sunlight, and the use of ultra-violet light as a germicidal agent.

Radiography, Radiotherapy, and Apparatus.—Dr. H. M. IMBODEN of New York detailed the progress in this branch during the past year.

Mechanical Vibration Therapy, Exercise Therapy, and Apparatus.—Dr. MARY ARNOLD SNOW of New York Texas; *Vice-presidents*, Dr. A. B. Hirsh, Philadelphia, the efficacy of mechanical vibration as a remedial agent when scientifically employed to secure definite results. The simplicity of the apparatus used, the fact that the principles underlying its application were so well defined and that it was applicable to more conditions than massage, appealed to all who studied cause and effect and the most modern methods of securing best results with a conservation of time. Since the last meeting success in the treatment of splanchnic neurasthenia, cardiovascular conditions and asthma had confirmed the writer's previous experience.

Hydrotherapy, Thermotherapy, and Apparatus.—Dr. BYRON S. PRICE of New York said there was nothing new to report under this head. He read a report by Dr. Edgar A. Pole outlining the methods pursued at the Virginia Hot Springs. Dr. Price in his report discussed in detail the use of dry heat.

Dietetics.—Dr. J. W. TORBETT of Marlin, Texas, reported that the year's progress in dietetics had been made along the line of animal experimentation with the active principles of proteid food, that is, the amino acids of several varieties, to determine their influence on maintaining nutrition and promoting growth.

Standard Therapeutic Measures.—Dr. W. B. SNOW of New York made this report. The committee presented a report which was the result of a thorough investigation of all of the subjects pertaining to the methods, technique, and indications of the various forms of physical therapeutics. The report included a consideration of a careful investigation by the committee on the subjects of static electricity, high frequency currents, radiant light and heat, Roentgen ray, radium, mechanical, vibration, and the uses of heat and cold. The report comprised forty pages of carefully prepared matter considering the subjects briefly, the efforts of the committee having been to cover in a practical condensed form the outlines of the uses and indications of the subjects considered.

Dr. FREDERIC DE KRAFT of New York read a supplementary report on standardization of high frequency apparatus. He said the committee had found that by using four Leyden jars each of one gallon capacity a current was obtained of greater amplitude, in diathermy the heating occurred more quickly, and there appeared to be a quicker and more pronounced relief in conditions attended with great pain. The committee had also made some experiments to determine what voltage was best for charging the Leyden jars and had found that from 23,000 to 45,000 volts answered the purpose best.

Dr. E. C. TITUS of New York made a supplementary report outlining the requirements for the standardization of static machines.

Some Observations Concerning Blood Pressure.—Dr. J. W. TORBETT of Marlin, Texas, read this paper. Out of 1183 chronic cases seen during the first half of this year only six per cent. had hypertension. Only fifty per cent. of these had casts and albumin. At least ninety per cent. gave a history of having been large eaters of meats, pepper, vinegar, coffee, etc., and often users of tobacco, or having had chronic constipation. The cases were of two general classes: the toxic type in which there was little or no actual sclerosis. A moderate diet of bread, milk or butter, fruits, vegetables, cereals, and nuts, with eggs and breakfast bacon sparingly, with baths of any kind to make the skin act, medicine if needed for the kidneys and liver, fresh air, moderate exercise and sunshine, would relieve this class. The treatment should be repeated once or twice each year for safety. The other class of true sclerosis, except those very far advanced, might be helped a great deal. The diet and home treatment must be kept up the remainder of life. All nephritc cases were given apocynum, tincture of strophanthus, and compound lithiated sorghum. Autocondensation was one of the excellent aids in the treatment, but skin elimination and diet were paramount. A small percentage of the cases could not be reduced nermanently by any treatment without impairing their general health. So long as they led a proper life and the sphygmomanometer needle vibrated over three to five points while taking the blood pressure, these patients did not seem to be in any danger with the pressure even as high as 200 or more. Several cases of this type had been under observation for one to five years, and one for ten years. Improper relation of diet to exercise the writer believed to be an important causative factor.

A Study of Blood Pressure; Its Variations and Treatment.—Dr. WILLIAM MARTIN of Atlantic City, N. J., emphasized the importance of greater care in the daily

routine of blood pressure work, and particularly in the estimation of the three pressures, in order that we might show a full scientific knowledge of our work.

Indications for the Treatment of Inflammatory Conditions of the Spinal Cord and Meninges.—Dr. WILLIAM BENHAM SNOW of New York said the indications for the treatment of inflammatory conditions of the spinal cord and meninges were practically the same as for the treatment of inflammation elsewhere. The static modalities were capable of removing infiltration and exudation from the tissues of the spinal cord and meninges as from the other tissues of the body, thereby removing pressure and permitting the resumption of circulation and the restoration of the function of the parts. Early intervention by the employment of means for removing pressure was important to anticipate degeneration and prevent permanent impairment of function. The prognosis, therefore, as to complete restoration was relative to the promptness with which treatment was instituted and the character of the infection. In pyogenic and tubercular affections the static modalities would open up the lymphatic channels and extend the infection and were contraindicated. In these conditions the Roentgen ray with thermal penetration offered an invaluable means of relief.

The Practice of Medicine.—Dr. FREDERIC C. TICE of Roanoke, Va., in this paper gave a résumé of progress in medicine, with especial reference to diagnosis and electrotherapeutics.

The Treatment of Pellagra by the High-Frequency Current.—Dr. D. H. YATES of Madison, Fla., read this paper. He had treated about one hundred cases of pellagra. Out of this number he had lost six patients, one of whom had committed suicide. The cases lost were mostly in old people, and extreme cases. The cases were treated with the static current. The patient was placed on the insulated platform with the feet on the metal electrode, connected to the positive, with a crown electrode above the head connected to the negative side of the machine. The sliding rods were drawn out as far as possible without causing painful contraction of the muscles of the legs. The speed of the machine should be regulated so as to give about two hundred discharges at the spark gap per minute. The author thought that the action of the current in these cases was due to its influence on metabolism. Lantern slides were shown illustrating cases before and after treatment.

Elimination of Waste Products.—Dr. BYRON SPRAGUE PRICE, New York read an article, accompanied by illustrative cases, in which he pointed out the importance of thorough elimination, not only from the tissues into the blood stream, but from the latter through the glands to the excretory channels, of catabolic products in chronic diseases or conditions accompanied by depressed eliminative function. This object which was both difficult and important in certain types, could best be accomplished by the use of the oven bath (at a temperature of about 450° F.) following certain high potential and high frequency currents, in conjunction with other indicated measures.

Roentgen Therapy in the Treatment of Pulmonary Tuberculosis.—Dr. J. D. GIBSON of Denver said he was happy to announce that the literature on the subject of the *x*-ray treatment of pulmonary tuberculosis was very abundant to-day—quite a contrast to the time when he first brought the subject before the Association in 1901. He had followed out this method of treatment closely for thirteen years, and believed he was well within the bounds of truth in making the assertion that, in spite of all complications (hemorrhages, meningitis, and serious complications of the heart, kidneys, and stomach, and idiosyncrasies), eighty-five or ninety per cent. of all cases of pulmonary tuberculosis could be practically cured or made useful citizens.

The Continuous Static Currents.—Dr. CHARLES M. HAZEN of Richmond, Va., read this paper. His conclusions were as follows: Unidirectional currents may be expected to adjust to normal the polarities of the living cell or molecule. The clinical application of these currents is to all cell physiology and pathology, but especially to that of the nervous system, notably in neuritis and paralysis. The choice of these currents is the bipolar static, then unipolar, galvanism, the vacuum high frequency electrode, various other high frequency modalities, the static wave with short spark, and the rapid faradic.

The Effect of High-Potential Currents in the Treatment of Gout.—Dr. FREDERIC DE KRAFT of New York said that gout was more prevalent in the United States in recent years. There was always a condition of stasis in the affected toe. In the application of the d'Arsonval current the best apparatus was one with Leyden jars of large capacity. One should begin treatment with 1,000 milliamperes and gradually work up to 1,800 or 2,000 milliamperes. The treatment caused an increase of blood in the affected joint, facilitating phagocytosis. The phagocytes devoured the urate needles, removing the irritation, and the pain and swelling subsided. This was followed by an application of the blue pencil brush discharge.

A Further Consideration of Sacroiliac Conditions.—Dr. FRANK E. PECKHAM of Providence, R. I., read this paper. He emphasized the importance of finding out the cause in the individual case. He maintained that there was much more apt to be rigidity than relaxation. It was very important to get a careful history, to make a very careful physical examination, and to determine the etiology whenever possible.

The Postural Treatment of Chronic Arthritis.—Dr. L. T. SWAIN of Clifton Springs, N. Y., read this paper. He said that chronic arthritis was one of the most perplexing problems of modern medicine, and must be studied from all points of attack. In its diagnosis and treatment it was important to locate and eliminate all sources of infection, to study and improve metabolism, locally to treat the joints and muscles, and so to remodel the body by postural treatment that permanent improvement might be maintained.

Splanchnic Neurasthenia, Cause, Symptons, and Diagnosis.—Dr. MARY ARNOLD SNOW of New York said that the direct cause of splanchnic neurasthenia was a dilation of the splanchnic blood vessels, superinduced by some functional or chronic derangement, especially gastro-intestinal, resulting in a pathognemonic phenomenon consisting of an altered relation of the blood pressure and pulse, either or both, particularly of the blood pressure, taken both in the sitting and lying posture. The symptoms consisted of fatigue, disturbed mental attitude, dyspnea and gastro-intestinal disturbances. There was a disturbance of the relation between the pulse rate on sitting and lying. The indications for treatment were to lessen the splanchnic stasis and remove or treat the cause. The first indication could not be met by vibrating in the intervertebral spaces from the second to the fifth dorsal vertebrae inclusive. Other treatment consisted in vibration over the stomach, static wave current over the liver, the use of a correct abdominal support, increasing the lung expansion by means of exercises, and suitable diet.

Electrical and Mechanical Modalities in the Treatment of Affections of the Gastrointestinal Tract.—Dr. JOHN A. BURCH of Syracuse, N. Y., read this paper. He said very little was known about the use of physical and electrical modalities in the treatment of these conditions. During the past two years he had treated ten cases of simple anacidity by the intragastric application of the induced current. At the end of two months it was found that there was still no trace of free hydrochloric acid, and there was a total acidity of 7.9. However, five of these cases were improved clinically. Five very stubborn cases of achylia gastrica were submitted to electrical treatment by the d'Arsonval current with a vacuum tube applied over the stomach. Four of the patients improved very rapidly. Hyperchlorhydria and hypersecretion were made worse by electrical treatment. Patients with gastric and duodenal ulcer were often relieved of their distress by the simple application of the vacuum tube. Electricity, however, found its greatest usefulness in the treatment of gastroptosis and general viceroptosis. In these cases the writer used the slow sinusoidal current, with regulation of the mode of living and a suitable abdominal support.

The Nonsurgical Treatment of Intestinal Stasis.—Dr. FRED H. MORSE of Boston read this paper. Chronic intestinal stasis, whether local or general, might be in such a pathological condition following catarrhal inflammations as to demand surgery on account of adhesions and distortions which a careful diagnosis ought to determine. Many of the cases of gastroptosis and enteroptosis were freely movable about these disturbed areas and were curable by electrical and physical modalities, and if surgery were undertaken much harm was likely to result on account of dividing healthy muscular fiber. If, on the other hand, an adhesion or purulent condition existed much harm was bound to come by the usually advocated methods by physical apparatus in use by physicians. In doubtful diagnosis let *x*-ray photography decide. The sinusoidal current was the one treatment, and probably of greater efficiency in the majority

of cases than any other, though all forms were used.

Catarrhal Deafness Improved by the Yates Method, with Report of a Case.—Dr. A. B. HIRSH of Philadelphia reported the case of an unmarried woman of twenty-seven years who had a brief-period right-sided purulent otitis media in childhood after either parotitis, pertussis, or morbilli. Mild attacks of catarrhal appendicitis and of neurasthenia since then did not influence the case. Tonsillitis necessitated double tonsillectomy in 1908, but a previously noticed growing deafness grew worse. By 1912 she was forced to give up her clerical position in a life insurance company office. Head noises were aggravated, causing mental depression. The static brush discharge applied in January, 1914, to both ears according to Yates' method (*Journal of Advanced Therapeutics*, May, 1913) caused full removal of tinnitus and almost complete restoration of hearing. By May, 1914, she had resumed her regular office duties and joined freely in all church and other social duties.

Other papers read were: "The Influence of Electrical Applications upon Metabolism," Dr. J. H. Kellog, Battle Creek; "Infections of Adenoids and Tonsillar Tissues: Their Treatment, Preventive and Curative," Dr. S. St. John Wright, Akron, O.; "The Value of Movement Cure (Active and Passive) in Hernia and Uterine Displacements," Dr. Alice B. Condict, Orange, N. J.; "Intensifying Screen Technique," Dr. H. Threlkeld-Edwards, S. Bethlehem, Pa.; "Coolidge Tube Technique in Deep Roentgen Therapy," Dr. James T. Case, Battle Creek; "The Use of Diathermy in Acute and Chronic Bronchitis," Dr. A. J. Read, Battle Creek.

Officers.—The following officers are elected for the ensuing year: *President*, Dr. J. W. Torbett, Marlin, Texas; *Vice-Presidents*, Dr. A. B. Hirsch, Philadelphia, Dr. Curran Pope, Louisville, Ky., Dr. William Martin, Atlantic City, N. J., Dr. A. J. Hopkins, Pittsburgh, Dr. John S. Yates, Paterson, N. J.; *Secretary*, Dr. J. W. Travell, New York; *Treasurer*, Dr. Emil Heuel, New York; *Trustees*, Dr. George E. Pfahler, Philadelphia and Dr. Frederic de Kraft, New York; *Registrar*, Dr. Frederick M. Law, New York.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, Held June 2, 1914.

THE PRESIDENT, DR. SMITH ELY JELLIFFE, IN THE CHAIR.

Cases Treated by the Maloney Rest-Exercise Method.—Drs. I. ABRAHAMSON and ALBERT POLON presented these patients who had been treated in the Out-Patient Department of the Mt. Sinai Hospital. They were all ambulant cases, suffering from functional neuroses, and were presented to illustrate the value of the rest-exercise method of treatment, the technique of which had been given in detail in a paper on "Relief of States of High Mental, Vascular, and Muscular Tension," by Drs. W. J. M. A. Maloney and V. E. Sorapure, read at the meeting of this Society on March 3, 1914. The first patient was a girl, nine years old, who for seven months had suffered from a facial tic. The movements, which were persistent and annoying, consisted of extreme diviation of the eye-balls to one or the other side, followed by twitching of the nares and upper lip, by wrinkling of the forehead, and finally, by raising the index finger of the right hand to the nose, as though smelling it. She had been treated by various methods without relief. After two lessons by the Maloney rest-exercise method the movements had entirely disappeared, and the girl now showed no signs of the original affection.

The second case was a boy of twelve who had suffered from a facial tic which he had acquired by imitating some one in his class, and which became more pronounced under excitement. After a single lesson of 25 minutes' duration he was entirely relieved by the rest-exercise method.

The third case was that of a girl of 19, a stenographer and typist, who about five months ago, after an exciting occurrence, noticed that her left hand became weak and tremulous. These symptoms gradually extended to the corresponding lower limb and the girl was compelled to give up her work. For thirteen weeks she was under treatment by various methods without any benefit. After two treatments by the rest-exercise method her symptoms entirely disappeared and she was well enough to return to work.

The next patient was a boy of nine years who had suffered from blepharospasm, with more or less constant snuffling and hawking. This boy was still under treatment. Although he was much improved, there was still an occasional slight blinking of the right eye.

The next case was one of hysterical paraplegia in a boy of nine, which dated back three months and followed an attack of otitis media and facial erysipelas. According to the boy's history, the paraplegia came on suddenly; he was unable to stand or walk and was taken to the Beth Israel Hospital, where he remained for five weeks. He was then taken to his home, unimproved, and six weeks later he was carried to the Mt. Sinai Hospital, still completely paraplegic. The case was recognized as one of hysterical paraplegia, and after a single treatment by the rest-exercise method, the boy was able to walk home and had remained well ever since. In connection with this series of cases, Dr. Polon said he wished to emphasize the fact that by this method of treatment the patients were given self-reliance and confidence, which gave them a feeling that they could control themselves, and they were made to understand that it was through their own will power that they had accomplished these results.

Dr. A. A. BRILL said the cases shown by Dr. Polon were very interesting. He wished to call attention to the fact, however, that adult patients with tics usually gave a history of recurrent attacks dating back to childhood. The attacks came and went with more or less periodicity, and could be temporarily checked or mitigated by various methods of treatment, but they invariably recurred and he knew of no permanent cure. He recalled some cases that had been helped by psychoanalysis, but not permanently. Still, any method of treatment that would benefit these patients even temporarily should be encouraged.

Dr. BENJAMIN ROSENBLUTH said he had been giving attention to these tics for a number of years and he had come to the conclusion that most of them were referable to some occurrence in the conscious state which was repeated in the dream state. Acting on this theory, he had obtained very good results in the treatment of these patients by giving them drugs directed toward cutting out dreams, without paying any special attention to the patient's physical condition.

Dr. F. K. HALLOCK of Cromwell, Conn., asked Dr. Polon if he was familiar with the relaxation method of Anna Payson Call of Boston. Nearly twenty years ago this young woman began to treat neurasthenia and conditions of nervous hypertension by alternate exercise and relaxation movements. With the patient lying prone, she first relaxed the head, then the extremities, and finally rolled the body half way over and let it sag back in a state of complete relaxation. Dr. Hallock said he had employed this method for the relief of general neurasthenic conditions, and in many cases he had found it very satisfactory. His experience with it in tics had been very limited except as a general procedure for all persons of this type.

Dr. JELLIFFE said that even more remote than the relaxation method of treatment referred to by Dr. Hallock were those in vogue centuries ago in the time of Hippocrates and in the Æsculapian Temple, as well as among the Indian cults. An interesting historical perspective might be thrown upon the present cases in the light of the older methods. In what sense had the newer methods become more definite and precise?

Dr. POLON, in closing, said the most marked difference between this method and the types of relaxtion treatment employed in former times and still used in some clinics today in Berlin and elsewhere lay in the fact that they depended largely on suggestion and hypnosis, the idea being to dominate the patient without giving him any explanation as to cause and effect. By the method which had been employed in the series of cases shown here tonight the treatment rested upon a physiological basis which it was attempted to explain to the patient. The importance of these relaxation movements were impressed upon him, and they were intended to call upon the resourcefulness of the patient to meet the needs of the case.

A Case for Diagnosis.—Dr. LOUIS CASAMAJOR presented this patient, a man, 32 years old, a driver, who was admitted to the New York Neurological Institute on March 26, 1914, complaining of weakness and cramps in his left arm and cramps in his abdominal muscles, the trouble dating back for eighteen months. With the exception of an attack of pneumonia five years ago, his previous history was negative. He denied syphilis. About a year and a half ago he had a sudden attack of pain in the left arm. He visited a

clinic, where he was told that he had wrenched the arm and was advised to get an easier job. From this time on attacks of cramp-like pain occurred at shorter intervals, and ten months ago he noticed that his arm was becoming weak. Whenever he raised his hand to the back of his neck there was a severe, cramp-like pain in the biceps. Six months ago he began to suffer from similar cramp-like pains in the upper abdominal muscles whenever he bent over. These were extremely painful, causing him to cry out and sometimes to fall. Examination of the eyes showed nothing abnormal excepting a slight strabismus, a matter of long standing. All the deep and superficial reflexes were active and equal. On the left side there was some atrophy of the shoulder girdle and marked atrophy of many of the smaller muscles of the hand. In the affected arm and forearm there was about one inch of atrophy. When the patient first came under observation the arm and shoulder muscles showed many involuntary, lightning-like, disseminated muscular contractions, affecting chiefly the muscle bundles, and seldom strong enough to move a joint. Later these were not noticeable. When he raised the elbow and placed both of his hands behind his neck there occurred a severe tonic contraction in the left biceps which was quite painful and had to be overcome by forcible extension at the elbow. The electrical reactions showed extreme hyperexcitability of all the muscles of the left arm, with the myotonic reaction in the left biceps. The urine was negative, as were the Wassermann and spinal fluid tests. Under calcium lactate, which was given by the advice of Dr. Walter Timme, the patient had improved, only to have a recurrence of his symptoms when the drug was intermitted.

Dr. I. Abrahamson said that at a recent meeting of the Section on Medicine of the New York Academy of Medicine Dr. Jesse G. M. Bullowa presented his case as one of myotonia atrophica, and this case apparently belonged to the same category. The speaker thought that the combination of muscular atrophy and myotonia was much more common than was generally believed; he regarded myotonia as a symptom found in connection with many diseases, especially in cord diseases, including syringomyelia. He distinguished two types of the disease, characterized by progressive muscular atrophy and myotonic; a familial type, occurring commonly in more than one member of a family, previously named myotonia atrophica, and an acquired type. It was to the latter group that both Dr. Bullowa's and Dr. Casamajor's cases belonged. In the former case the earliest symptom noted was a disagreeable tonic muscular spasm of the abdominal muscles when the patient tried to rise from bed in the morning. This spasm soon relaxed, and the later abdominal movements were free. Subsequently a progressive wasting of the shoulder muscles developed. Examination showed decided muscular atrophy; myotonic electrical reactions and polar changes in the wasted muscles. Fibrillary twitchings were present, but not as widespread nor as marked as in Dr. Casamajor's case. In the latter case, no single segment of the cord could be held responsible for so widespread a disturbance. The speaker believed that there was a progressive change in the interior horns in these cases. Cases of myotonia atrophica had been described associated with atrophy or maldevelopment of the testes; this was present in Dr. Bullowa's case, and it was proposed to note the effect of the administration of testicular extract. The result of the treatment could not be seen at this early date.

Dr. I. Strauss said that while he was inclined to agree with Dr. Abrahamson, he would take exception to the statement of Dr. Casamajor that in dealing with a condition of this kind there was any necessity for assuming that it was attributable to any particular segment of the cord or to changes in the anterior horn cells. It was probably due to some change in the muscle itself. What that change was he did not know, but certainly in myotonia atrophica there was nothing to prove that it was a disease of the cord. The pain in these cases was similar to that complained of in muscles where there are circulatory disturbances, such as is not infrequently observed in the lower limbs.

Dr. Casamajor, in closing, said that with such a distribution of symptoms, involving both the abdominal muscles and the shoulder girdle, the lesion, of course, could not be limited to any particular segment of the cord, but this did not preclude the possibility that they were due to spinal cord conditions. Dr. Strauss said he could not see how a lesion of the anterior horns could bring the muscle into such a state of spasm; still, we saw that in toxic conditions, such as strychnia poisoning, which affects principally the anterior horn cells. Dr. Casamajor said he was interested in the reference made by Dr. Abrahamson to the possible relationship between this condition and atrophy or maldevelopment of the testes. In this case calcium lactate was advised by Dr. Timme on the assumption that the muscular contractions might be due to calcium starvation. When the patient first came under observation, he was incapacitated on account of the spasm of the muscles, and after taking five grains of calcium lactate, four times daily, for a week, he was so much better that he was able to return to work. After a fortnight he gave up taking medicine, and within two weeks he was so tied up with cramps that he had to discontinue his work. He was again put on calcium lactate, with an immediate improvement and the disappearance of his fibrillary twitchings.

The Infantile Roots of Masochism.—Dr. Paul Federn of Vienna presented a paper on this subject. He said it was Freud who established methodical psychoanalysis, and with its help found unconscious processes underlying most neurotic symptoms. These unconscious processes had their particular laws and mechanisms, and they could neither be subsumed to the physiological processes nor to conscious psychic activity. In the unconscious, instincts found a more unbroken representation than in the conscious psyche, and of these, the sexual instincts played the foremost part. We were all familiar, Dr. Federn said, with the cases of declared masochism and the sexual perversities reported in many publications, particularly in Krafft-Ebing's standard work. There were individuals who obtained sexual pleasure from processes which seemed far removed from the ordinary procretive instincts. The declared masochist found his sexual satisfaction in his moral slavery to some overwhelming compulsion, or his fancied deprivation of all will, or in being bound or tortured, or forced to vile and inhuman services. Frequently there was combined with masochism also passive algolagnia, *i.e.* sexual pleasure gained from physical pain. In subjecting such an individual to psychoanalysis, that is, in retracing the chain of forgotten or repressed events and images that had developed in his masochism, one would invariably discover that the sexual perversity dated back to childhood. Binet had suggested the generally accepted theory that such children had been injured by some painful trauma in moments of sexual excitement and the child had then combined the sensations of pain and sexuality so vividly that this association could not be destroyed by the later trend of normal sexual development. Psychoanalysis, however, had discovered deeper causes for these so-called autosuggestions. In many cases, masochistic fancies had already preceded the trauma; in others, the child had neither suffered any cruel experiences nor had it been influenced by the sight of unusual cruelty. Many of these individuals declared that these masochistic fancies first arose in them suddenly and spontaneously, without any external suggestion. Later, they were surprised to learn that other people experienced the same abnormal desires, and it was then that they discovered the sexual origin of their perversities. Masochism could frequently be traced back to infancy. This explained why the adult masochist found sexual gratification in the fancies and terrors and desires of his nursery days. In this connection were characteristic his fancied relations to the strong-willed and tyrannical teacher, the unjust or cruel governess, the sensation of being ridden upon or treated like some domestic animal, and the memory of his training as a very small child in hygienic cleanliness. Usually, the masochist indulged no further than fancies. Only a comparatively few masochists tried to realize their perverse inclinations. For the most part they were content with their imaginings, ever widening, and making them more fantastic and increasing to a higher and higher degree their passive slavery to some irresistible and compelling power. Investigation had proven that the sensation of pain was not essential to masochism. What was essential was the idea of passivity. While the normal male instinct tended to action, the masochist found pleasure only in passive acceptance. Dr. Federn said we but rarely found masochistic tendencies without sadistic tendencies in the same individual. Usually, both were combined in a more or less degree in normal as well as in neurotics, and in sexual perverts. The differentiation was only in the quantity of each factor, and from typical cases of combined masochism and sadism he had arrived at a number of important

conclusions. He had found that the individual who could assume both sexual attitudes not only played the active and passive rôles in his fancies, but experienced some of the characteristic sensations of both sexes in his genital organs. He had discovered, and other psychoanalysts, particularly Freud, had corroborated his findings, that the sadistic sensations were localized in the glans and the anterior portion of the penis, while the masochistic sensations were usually localized in the perineum and scrotum. The localization of sexual sensation in the perineum and scrotum could only be explained by the probable fact that this part was homologous to the female external organ. The speaker said that in extreme cases of sadism and masochism he had found that the individuals had suffered from some painful affection of the genital organs in childhood, Balanitis, phimosis and paraphimosis, eczema, urethritis, cystitis, or the presence of worms, according to his observation, might have an influence on these sexual perversities. Especially, cases of extreme algolagnia may have had their origin—without conscious knowledge of the sufferer—from smarting affections in the undeveloped organs, and to those interested in the mechanism of dreams it would be a valuable proof in that connection to know that even perfectly normal adults might have sadomasochistic dreams when they acquired some painful disease of the genital organs, like gonorrhea. Being an inhibition of virile sexual activity, masochism in itself was a disturbance of the normal sexual life, and its symptoms would be found in all degrees, varying from a slight reduction of the libido to sexual anesthesia, and even to true psychic impotence. As the masochist was inclined to assume a passive attitude in affairs of life, one could observe the effects of his masochistic tendencies in his undertakings. Very few masochists submitted to their sexual abnormality and to their instinctive passivity without fighting. Most of them felt deeply humiliated by their childish and absurd method of sexual gratification. The more refined and otherwise normal a man was, the more depressed he became by this conflict. Moodiness and continuous depression were therefore the usual neurotic consequences of intense masochism. To sum up briefly, the four chief consequences of masochism were impotence, depression, aboulia, and so-called neurasthenia. As to the treatment of this condition, the prophylactic was the most important. In most cases the neurosis could be traced back to a comparatively slight disturbance in infancy and childhood, such as infantile fear, extreme sulkiness, incorrigibility, bad habits, sudden inability to learn, self-isolation, and brooding. These different phenomena called for different lines of treatment, especially when we knew that the child at this time was passing through a period of sexuality. That was why it felt everything more intensely and was excitable, with a secret sense of guilt, and every reasonable and known method of mitigating sexuality should be employed in such cases. Among these might be mentioned diet, sport, and, in cases of physical illness, medical treatment. Children frequently failed to mention pain in their genital organs, and it was of vital importance to overcome this secrecy which upset the child. Again and again we were distressed to learn by psychoanalysis of the great and avoidable suffering of neuropathics in childhood, when the torture of abortive sexual expression was much increased by the contempt and harshness or the indifference of their guardians. By using Freud's method of psychoanalysis the neurologist would gain a deeper knowledge of the origin of mental diseases and of the child's mental development, and by deepening and spreading that knowledge the road would be cleared for the progress of mental hygiene.

Dr. A. A. Brill said that through Dr. Federn's previous published writings on this subject, he had become acquainted with his views, and in the main he agreed with him. More particularly, he could corroborate in a few cases from personal clinical observation the locations given by Dr. Federn. In connection with this subject, Dr. Brill reported the case of a man, 43 years old, a successful politician and very forceful man, who had held the highest political position in his own State, who for years had suffered almost nightly from fancies of a masochistic nature, lasting several hours, before he could fall asleep. Investigation showed that this man, who in his daily life was regarded as a big fighter, was just the opposite in his fancies. He was burdened by hereditary weakness, having had a very brutal mother and a sadistic teacher.

Dr. C. P. Oberndorf said that he had been much interested in the fact that Dr. Federn appeared to emphasize an organic basis for masochism, attributing it to a hyperirritability in the region of the perineum. If this tendency was considered primarily one of an anomaly in development, Dr. Federn's view was similar to that which Ferenczi recently adopted in regard to homosexuality. In a very enlightening discussion of homosexuality in the male Dr. Ferenczi claimed that the active form of homosexuality was a neurosis, while the passive form was due to an intermediate organic sexual development and therefore not amenable to psychoanalysis. He had never cured a case of passive homosexuality, nor for that matter completely cured the neurotic or active form of homosexuality. The speaker asked how far, in view of Dr. Federn's organic conception of masochism, he had been able to influence his masochistic patients by psychoanalytic treatment?

Dr. Abrahamson said he was rather inclined to doubt the localization of masochistic and sadistic sensations, as pointed out by Dr. Federn, as we frequently saw both varieties in the same patient. He recalled one case which he saw in Munich, that of a medical student apprehended for flagellating a young boy. In this patient, both perversions were present. In the absence of partners for his activities, he resorted to symbolic representations of these acts, so that at one sitting he would depict an entire week's program, sadism alternating with masochism; he seemed to revel in his diagrams and asserted that the sexual gratification he received therefrom was only a little less pleasurable than the actual. Surely in a case of this kind localization of sensations was out of question.

Dr. Jelliffe said he was very glad that Dr. Federn had called attention to the prophylactic aspect of this subject of masochism and in tracing these sensations back to childish habits. The desire of the child to lock himself up, the common expresion, "I will die some day and you will be sorry," were probably familiar to us all, and even into adult life we carried similar types of reaction that something might happen to us whereby somebody else would suffer. We get very sorry for ourselves. The style of French literature referred to by Dr. Federn had its prototype in this country in the tales of Nick Carter and Deadwood Dick, etc. Many examples of sadism and masochism could be observed in our every-day life, in the cruel father, the overtender attitude of the mother, the exaggeratd sympathy poured out on criminals, the misdirected efforts of antivivisectionists and antivaccinationists, and perhaps the prevention of cruelty to animal advocates and even the antisuffragettes belonged in the same category.

Dr. Federn, in closing, said he quite agreed with Dr. Brill that many masochists were energetic fighters in their particular social and business spheres. This was especially true of some individuals who, yielding to their abnormal sexual desires, freed themselves from the passive attitude in their general life. To enter fully into the question that Dr. Oberndorf had raised would mean to open the discussion of the whole problem of psychoanalytical therapy. We were far from able to make normal every case of masochism. The aim of medical treatment was to free the individual from suffering; not to change his character. We all knew of many worthy people, quite normal in other respects, who had sadomasochistic tendencies which they were able to govern or to endure without suffering. If by treatment we achieved this state in our patients, we had done our medical duty, but in many cases we were able to go beyond this point, and to combine with it some educational influences. Many patients who disliked their sadomasochistic tendencies became normal sexually after psychoanalytical treatment. By making conscious many unconscious roots or fixations of abnormal sexuality, and by removing the unconscious resistances to normal sexuality, psychoanalysis led such patients to return to the line of normal development, which meant that following the sadistic and masochistic periods in childhood, normal sexuality became dominant. In many cases the masochist must go back to the preceding sadistic period and live a renewed sadistic attitude during the treatment, but an adult who developed will power and was aided by the psychoanalyst might succeed in sublimating his sadism, and shifting it to his social work. Such individuals developed by treatment a much greater energy in social life than they ever had before. In many cases, however, where the patient's environment was unfavorable or his constitutional traits fixed, no real cure was pos-

sible. Dr. Abrahamson had mentioned a very interesting case from Kraepelin's clinic, and the speaker said he agreed with him that it was a remarkable fact that in this case the patient himself produced his symbolic fancies. The case mentioned corresponded in nearly every detail to the description he had given, as this related to the combination of both perversities. All these symptoms seemed very complicated until we found the key to the trouble. Most probably, had Dr. Abrahamson's attention been directed to that point, he would have found the difference of localization and sensation corresponding with the sadistic and masochistic attitudes, so far as the first sensation was active in the anterior and the other in the posterior part of the organ.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

SURGICAL OPERATIONS WITH LOCAL ANESTHESIA. By A. E. HERTZLER, M.D. Cloth; illustrated; 205 pages (2). Published by The Surgery Publishing Co.

PROGRESSIVE MEDICINE. By H. A. HARE, M.D. Paper; Vol. III; illustrated; 339 pages; $6.00 per annum. Published by Lea & Febiger.

FOCAL SYMPTOMS IN GENERAL PARALYSIS. By C. M. CAMPBELL, M.D. Paper; illustrated; 138 pages; price $1.25 net. Published by G. E. Stechert & Co.

DENTAL ANATOMY. By CHAS. L. TOMES, M.D. Cloth; illustrated; seventh edition; 616 pages; price $4.50 net. Published by P. Blakiston's Sons & Co.

MUNICIPAL ORDINANCES, RULES, AND REGULATIONS PERTAINING TO PUBLIC HEALTH. Paper; 570 pages.

THE VACCINATION QUESTION. By C. K. MILLARD, M.D. Cloth; illustrated; 243 pages; price $6.00. Published by H. K. Lewis.

OUTLINES OF ORGANIC CHEMISTRY. By F. J. MOORE, Ph.D. Cloth; second edition; 325 pages. Published by John Wiley & Sons.

PRACTICAL BANDAGING. By E. L. ELIASON, M.D. Cloth; illustrated; 124 pages. Published by J. B. Lippincott Co.

THE CARE OF THE SICK ROOM. By E. G. CUTLER, M.D. Cloth; 54 pages. Published by the Harvard University Press.

INTENSIVE TREATMENT OF SYPHILIS AND LOCOMOTOR ATAXIA BY AACHEN METHODS. By REGINALD HAYES, M.D. Cloth; 63 pages. Published by Balliere, Tindall & Cox.

FIFTIETH ANNUAL REPORT OF THE TRUSTEES OF THE BOSTON STATE HOSPITAL. Paper; 207 pages. Published by the City of Boston Printing Dept.

INFECTION AND RESISTANCE. By HANS ZINSSER. Cloth; 546 pages; $3.50 net. Published by the Macmillan Co.

STUDI ITALIANI DI FONETICA SPERIMENTALE. By Dr. A. FIORENTINO. Paper; illustrated; 473 pages. Vol. XXV. Published by Istituto Oto Rino-Laringologico.

HANDBOOK OF PHARMACOLOGY. By Dr. C. W. GREENE. Illustrated; 396 pages; price, $3.50 net. Published by William Wood & Company.

THE PHARMACY HANDBOOK. By F. W. CROSSLEY-HOLLAND. Cloth; 224 pages; price, $2.00. Published by the Oxford University Press.

A MANUAL OF BIOLOGICAL THERAPEUTICS. Cloth; illustrated; 174 pages. Published by Parke, Davis & Co.

THERAPEUTICS OF DRY HOT AIR. By CLARENCE EDWARD SKINNER, M.D. Cloth; illustrated; 3rd edition; published by Frank S. Betz Co., 336 pages.

MEDICAL JURISPRUDENCE. By ELMER D. BROTHERS, M.D. Cloth; published by C. V. Mosby Co., 301 pages; price, $3.00.

THE TONSILS. By HARRY A. BARNES, M.D.; cloth; illustrated; published by C. V. Mosby Co.; price, $3.00; 168 pages.

THE LAW OF FAITH. By JOSEPH F. RANDOLPH, M.D. Cloth; published by G. P. Putnam's Sons; 293 pages; price, $1.50.

TASCHENBUCH FÜR KRIEGSCHIRURGEN VON GENERAL-OBERARZT a.D. Prof. Dr. A. KÖHLER. Verlag von Urban & Schwarzenberg, Wien, 1914.

Therapeutic Hints.

Cannabis Indica in Therapeutics.—H. A. Hare points out that the use of this remedy is handicapped by its frequent lack of power. Only a preparation which has been physiologically tested should be used. The doses are: solid extract, ¼ to ½ grain; fluid extract, 4 to 20 minims; and tincture, 15 minims to 1 dram. Cannabis indica is a valuable addition to cough mixtures, as it quiets the "tickling in the throat," and does not depress or constipate as does morphine. In migraine a valuable remedy is tincture of gelsemium, 20 drops, followed by fluid extract of cannabis indica, 10 to 20 drops. In some susceptible patients the above dose of gelsemium may produce great depression. Cannabis indica quiets the tremor in paralysis agitans and affords great relief in spasm of the bladder due to cystitis or nervousness. It is useful in the headaches of the menopause and in those due to retinal asthenopia.

Hare has found the following efficient in gastralgia and other abdominal pains:

℞ Tincture of capsicum, ʒ j
Tincture of cannabis indica, ʒ ss
Deodorized tincture of opium, ʒ j
Tincture of chloroform, ʒ j
Compound tincture of lavender, q.s.ad ʒ iv

S. Teaspoonful every hour until pain is relieved. Cannabis indica has been found valuable in the treatment of dysmenorrhea and of nonorganic sexual impotence.—"Practical Therapeutics."

The Avitaminoses and Their Treatment.—H. Stassano defines the avitaminoses as diseases resulting from a deficiency of vitamines in the diet. The vitamines are complex crystalline substances belonging to a chemical group hitherto unknown. The nitrogen is not combined in the amine radicle and can be extracted only in part by the Kjeldahl method. The characteristic syndromes of the avitaminoses are classified as follows: (1) The syndrome of degeneration of nerves with paralyses and contractures; (2) the cardiac syndrome with dilatation of the right heart accompanied by dyspnea, cyanosis, and oliguria; and (3) the syndrome of anasarca, hydropericardium, hydrothorax, and ascites; all of these three syndromes belong to the group of cases properly called beriberi. (4) The classical syndrome of scorbutus. (5) The syndrome of pellagra. In all of the above conditions the following articles of diet which are rich in vitamines have been found to be of curative as well as of prophylactic value; human milk, fresh cow's milk, butter, cheese, yolk of egg, beef juice, fresh tomatoes, fresh legumes and soups containing them, fresh fruits or their juices, the sauce of stewed fruits, whole corn or wheat bread, unpolished rice, slightly roasted beef, fresh yeast, extracts and preparations of yeast, and codliver oil—*La Quinzaine Thérapeutique.*

The Treatment of Urticaria.—Bouchard states that in addition to the removal of the cause and the use of a lotion of two parts of warm water and one part of vinegar, the following lotion is quite effective:

℞ Cocaine hydrochloride,
Chloral hydrate,
Resorcin, āā, 2 grams.
Glycerin, 6 grams.
Alcohol, 40 grams.
Cherry laurel water, 60 grams.
Distilled water, 90 grams.

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Original Articles.

TOXIC DISEASES OF THE NERVOUS SYSTEM, WITH REPORT OF CASES.*

BY EDWARD D. FISHER, M.D.,

NEW YORK.

MY object in introducing this subject at this meeting of the New York State Society is to bring into consideration the large number of cases which come under every one's observation of diseases of the nervous system, which both in diagnosis and treatment are indefinite and unsatisfactory. Those cases, in fact, which do not fall under the recognized forms of cerebral and spinal disease, such as cerebrospinal meningitis, poliomyelitis, diphtheria, or tetanus—cases, however, which are very serious in their manifestation and often have a fatal issue. I believe they belong to the same class as the above-mentioned diseases. They are of bacteriological origin, as yet of an unknown nature, in which toxins are given off which align themselves to the cells of the nervous system, causing impairment or destruction of the nervous elements. The more we study these indefinite cases the more probable seems the conclusion that we have to deal with many germ diseases and their accompanying toxins, which as yet remain unclassified, but which in their clinical manifestations resemble in every respect, *i.e.* in character of onset, the better known infectious diseases with their toxins.

Disease due to toxins differs from that consequent on infection in that the latter is communicable.

By infection we understand the entrance into the body of living agents, capable of multiplication, commonly microbes. A toxin is incapable of multiplication; it is a bacterial product (Hektoen). In a strict sense toxins are soluble products of bacterial animal and vegetable origin. They are of unknown chemical structure. They resemble organic ferments. The toxic action of bacterial or other toxins (*i.e.* lead, alcohol) is dependent on the chemical union of the toxin with the cells of the body. The nervous system is especially susceptible to this assimilation. It is not surprising, therefore, that we find disease of the nervous system resulting from the various infectious diseases and their toxins. We know that it is the toxin rather than the microbe itself that causes the clinical manifestations.

This is well demonstrated in diphtheria and tetanus. The dead bacilli introduced into the system produce all the symptoms of the disease, showing that it is the end product, the sterile chemical solution, which causes the cellular changes, by the cell absorption of the definite poison. Syphilis is an excellent illustration of this view. The spirochetes, as we now know, remain active and are demonstrable not only in the early stages of syphilis but in the later manifestations, as in tabes and general paresis. Still it is not the direct action of the living spirochete which causes the symptomatology of syphilis, but the chemical poison thrown out by the syphilitic virus, even after its destruction. In the present treatment of this disease, we probably do not succeed in killing the active agent, *i.e.* the spirochete; we simply control its multiplication, leaving it ever ready, when not under the controlling influence of mercury and arsenic, under favorable circumstances to take on active increase.

A simple illustration of a similar condition is seen in malaria. Quinine is the only agent effective in this condition; still it does not kill the plasmodium, it simply arrests its development under proper conditions, and on the withdrawal of the quinine we have again its clinical manifestations in the form of chills and fever.

Influenza (grippe) demonstrates the effect of a toxin on the nervous system possibly more clearly than any infectious disease due to a microbe of inferior virulence. Here we see the sudden onset of some infection. The system suddenly collapses; various organs are affected, at times the lungs, the heart, the special sense organs, and sooner or later the nervous system; this may, indeed, be the first involved; certainly it rarely escapes, showing that the toxin of the bacillus of influenza has aligned itself to the cells. We find its manifold symptoms in disease of the meninges and of the brain and cord—involvement of the anterior horns, a form of poliomyelitis not dependent on the specific germ discovered by Flexner.

I think we all see such cases in which the paralysis is not extreme, and in which often a complete recovery takes place (see case of Guardis). Again we may have myelitis, usually also not of the acute form, but gradually progressive if the cell assimilation of toxin has been extreme. These cases later by secondary degeneration in the nerve tracts of the spinal cord explain our cases of chronic myelitis, or the so-called cases of primary lateral sclerosis.

I have spoken so much at length on influenza infection because it seems to represent the indefinite class of toxic diseases. We have now a rather complete knowledge of the specific germ in cerebrospinal meningitis and in poliomyelitis. It is still unknown for myelitis and Landry's paralysis. These both represent clinical pictures which suggest a distinct poison microbic or toxic in character.

As I have previously said, we all observe cases which do not fall completely into any of the classes clinically. I will now present some such cases which have been under my observation.

The first case which I shall refer to is one which I reported as that of Landry's paralysis or acute

*Read before the First District Branch of the Medical Society of the State of New York, October 8, 1914.

ascending paralysis, at the last meeting of the American Neurological Association. It is interesting as it was observed from the beginning and followed to its fatal termination, an autopsy fortunately being obtained. Most authors agree that Landry's paralysis is of infectious origin and attempts have been made to isolate a specific organism, but without success. In the literature of the subject, which is considerable, various lesions of the nervous system have been recorded, affecting the peripheral nerves, the spinal cord, the medulla, and the brain. Leyden and Goldscheider hold that it may assume any or all of these forms.

The first case was observed from the onset and a careful post-mortem examination has been made. The patient was a male, 15 years of age, whose previous history was negative. On September 27, 1913, he complained of pain and weakness in the lower extremities, which increased in severity until October 11, when he was admitted to St. Vincent's Hospital, New York, in the service of Dr. Constantine J. MacGuire. Examination of the heart and lungs and abdominal organs was negative. There was paralysis of the lower extremities, with loss of reflexes and tenderness over the larger nerve trunks. There was no anesthesia. The weakness gradually extended to the upper extremities, with loss of power, which in the course of a week became complete in the hands and arms. On October 29 there was difficulty in swallowing and complete paralysis of the muscles of the right eye and of the superior oblique of the left eye (Dr. Kelly). On November 7 there were dyspnea and difficulty in swallowing. All of these symptoms gradually increased in severity, and death occurred on November 21 from respiratory failure.

The autopsy, macroscopically, showed intense congestion of the cord: no other lesion. Microscopically, there was an interstitial neuritis of the sciatic nerve and congestion of the anterior horns, without perivascular infiltration or meningeal involvement. The medulla showed involvement of the cranial nerve nuclei and degeneration of the axis cylinders for a short distance from the cell body. The whole picture differentiated it from poliomyelitis. The brain, at the time of this report, had not been examined. The microscopical study of the case was made by Dr. John Larkin.

Conclusions.—We have here, therefore, a case of ascending paralysis, with attending neuritis, which followed the usual course of extension, later involving the upper extremities and the bulbar nerves, resulting in respiratory failure. The pathological findings are definite, involving both the peripheral and central nervous system. The course of the disease was longer than that usually described, extending over six weeks, but otherwise the case was typical in its manifestations.

The second case was that of a female, age 28 years, whose previous history was negative. Occupation, nurse. July 5, 1914, she was admitted to the hospital ward complaining of pain in the left side of the chest. July 8, her temperature rose to 105°F. and she had severe headache, much vomiting, and rigidity of the neck. The white blood count was 14,000 with polymorphonuclear cells 86 per cent.

July 10 there was paralysis of the lower extremities, loss of reflexes, tenderness on pressure over nerves and muscles. Blood culture was negative.

July 11, anesthesia extended to the umbilicus; there was rigidity of the neck, but no Kernig's sign. At 11 P. M. lumbar puncture was done by Dr. Zimmerman. The fluid was clear and of moderate pressure. The findings were most remarkable. There were 151 cells to the cubic centimeter, with deeply stained nuclei, looking like endothelial cells, and a few lymphocytes and polymorphonuclear cells. Fehling's solution was not reduced. Cultures in broth and agar were negative. Cultures of the urine were also negative. The condition of the patient became worse and death occurred on July 16 from cardiac failure, the patient remaining in a stuporous condition. The eye grounds had shown a beginning choked disc. All cultures were negative. No post-mortem was obtained.

Here we evidently have a distinct infection of an unknown character, involving the meninges, as shown conclusively by the rigidity of the neck, and the increased cell count in the spinal fluid. The neuritis of the lower extremities, a loss of reflexes, and ascending paralysis suggest a condition of the nature of Landry's paralysis.

A third case which from the symptoms suggested either some infection involving the membranes at the base of the brain, or basal syphilitic meningitis, is of interest, as the post-mortem revealed something entirely different.

The patient was a male, age 36 years, who complained of headache and dizziness on admission to the hospital. The principal symptoms were paralysis of the sixth cranial nerve, with internal strabismus and diplopia, and a staggering gait, suggestive of cerebellar disease. The patient had continuous headache, the eye grounds showed choked disc, but the vision was not impaired. The examination of the blood and spinal fluid showed a negative Wassermann. The patient died in coma. A diagnosis other than basilar meningitis of unknown origin was impossible. (Tuberculosis was also excluded.) Without a post mortem this might well have been classed as an infectious disease of unknown character.

The autopsy showed, however, a sarcomatous basilar meningitis. Small bodies resembling tubercles were found scattered over the meninges and the base of the brain, and two small tumors were found in the frontal lobes, incapable of causing any symptoms. There was also a secondary involvement of the liver and spleen.

A fourth case I will only briefly refer to. The patient was a male, age 40, with a specific history with Wassermann reaction. The onset of the symptoms, however, was sudden, resembling an acute ascending paralysis with neuritis. The upper extremities were not affected, but the disease extended to the cranial nerves causing almost complete ophthalmoplegia and ptosis, and later difficulty in swallowing and the characteristic nasal tone of speech seen in bulbar paralysis. There was a gradual but incomplete recovery at the time the patient left the hospital.

This case did not correspond to syphilis of the nervous system nor did it respond to antisyphilitic treatment. There was evidently an acute affection of the nervous system, cord, and bulb, suggesting acute ascending paralysis or poliomyelitis.

Two cases of subacute or chronic myelitis are now under my observation showing paresis of the lower extremities of some months standing, with incomplete anesthesia and vesical weakness with exaggerated reflexes. May not these be due to some toxin?

Possibly we may in the future put many of these cases of myelitis or primary lateral sclerosis down to such agents, especially when, as in one of these cases, there was no evidence of syphilis.

I have brought these cases together, to which I might add many more, to suggest the idea of infection or toxic poison as probably a more frequent etiological factor than has been generally supposed in various diseases of the nervous system. The question of treatment, as long as we are ignorant of the infective agent, is naturally only that of the symptoms, meeting each emergency as it arises. This is exemplified in Landry's paralysis. The importance, then, of the continued work of our research laboratories is thus emphasized.

46 East Fifty-second Street.

The Carriers of Gonococcus Infection.—A. Guépin divides these into three groups as follows: (1) convalescents from an acute gonorrheal infection; (2) cases of chronic infection; (3) those individuals who have no clinical symptoms of Neisserian infection and who deny that they have ever had such symptoms. Rigorous bacteriological examination is necessary.—*Pratique des Maladies des Organes Génito-Urinaires.*

CHOLERA IN THE PHILIPPINES DURING 1913.*

By VICTOR G. HEISER, M.D.,

MANILA, P. I.

DIRECTOR OF HEALTH FOR THE PHILIPPINE ISLANDS.

CHOLERA again made its appearance in Manila on August 24, 1913, after an absence of over two years. The first case occurred in a Filipino who worked as a carpenter at one of the local hotels but who lived at 1060 Calle San Sebastian. It is said that he invariably took his meals at his home. A careful inquiry made at the hotel showed that no guest had arrived at that institution from Hongkong, or any other foreign country where cholera was present, for more than ten days previous. The victim left his place of employment on the evening of August 23, apparently in good health. About noon of the next day he was seized with violent pains in the abdomen which later in the afternoon increased in severity. In addition he had severe cramps in the muscles of the calves and forearms. There was no diarrhea. A physician was called, who reported that by evening the case presented many of the clinical symptoms of cholera, and he ordered the patient transferred to the San Lazaro cholera hospital. Upon his arrival at that hospital, about 10 P.M., he was in a moribund condition and died a few minutes later. At the autopsy, which was held on the morning of August 25, typical lesions of cholera sicca were found in the intestines. The lower bowel contained a large amount of hard, formed feces. A rice-water-like fluid was found in the ileum, cultures from which, prepared in accordance with the procedure recommended by the International Conference of Public Hygiene, resulted in the isolation of the true cholera vibrio.

Another case of cholera came under observation on August 25. It occurred in a Filipino who was employed as a cook by a British family in Caloocan, which is a suburb of Manila and a number of miles removed from the first case. No connection whatsoever could be traced between them. This victim gave a history of having been ill with diarrhea, and having cramps in the muscles of the extremities for a period of about a week previous, and as his employer thought that he was malingering he was dismissed. The next day (August 25) after this occurred he was found in a house in the San Lazaro district and then promptly transferred to the San Lazaro cholera hospital. The records of that institution show that he had rice-water stools, cramps in the muscles of the legs, suppression of urine, husky voice, subnormal temperature, and other well-recognized symptoms of cholera. Cultures made from his stools resulted positively for cholera.

The next case came under observation on September 13 and was in the person of a carpenter who worked and lived in the district of Malate. This address is several miles removed from where the previous cases had occurred and no connection could be traced with them. During the week ended September 20 there were three cases; for the week ended September 27, five cases, and for the week ended October 4, eight cases.

The first eight cases occurred in widely separated sections of the city and a most careful investigation failed to trace any connection whatsoever between the cases. After that, however, there were a number of instances of contact infection. A most noteworthy occurrence in connection with the outbreak was the fact that cholera vibrios were found in the stools of the contacts in many instances, as may be seen from the following table:

Case No.	Contacts Examined	Found Harboring Vibrios	Found Harboring True Cholera Vibrios	Percentage of Persons Examined Harboring Cholera Vibrios	Toilet Facilities
1	20	1	1	5	Flush closet.
2	17	2	0	0	Pail system.
3	0	0	0	...	
4	7	1	0	0	Public closet.
5	4	0	0	0	Flush closet with septic tank.
6	2	0	0	0	Pail system.
7	6	0	0	0	Public closet.
8	5	0	0	0	Flush closet.
9	14	0	0	0	Flush closet.
10	6	0	0	0	Public closet.
11	9	0	0	0	Dry vault.
12	17	0	0	0	Pail system.
13	5	0	0	0	Public closet.
14	10	0	0	0	Public closet.
15	10	0	0	0	
16	9	0	0	0	Flush closet.
17	14	1	1	7.14	Public closet.
18	12	1	1	8.33	
19	51	1	1	1.96	
20	29	0	0	0	Dry vault.
21	5	0	0	0	Public closet.
22	4	0	0	0	Public closet.
23	19	0	0	0	Flush closet.
24	4	0	0	0	Public closet.
25	6	0	0	0	Pail system and dry vault.
26	11	4	4	36.36	Dry vault.
27	13	0	0	0	Dry vault.
28	70	4	4	5.7	Flush closet.
29	7	0	0	0	Public closet.
30	15	0	0	0	Public closet.
31	14	0	0	0	Dry vault.
32	14	0	0	0	Dry vault.
33	14	0	0	0	Public closet.
34	40	4	1	2.5	Flush closet.
35	4	1	0	0	Dry vault.
36	40	0	0	0	Pail system and dry vault
37	4	2	0	0	Flush closet.
38	2	1	0	0	Flush closet.
39	19	0	0	0	
40	14	1	1	7.14	
41	20	0	0	0	Public closet.
42	13	1	1	7.7	Public closet.
43	15	0	0	0	Flush closet.
44	0	0	0	.....	None.
45	9	1	0	0	Dry vault.
46	3	0	0	0	Public closet.
47	10	0	0	0	None.
48	27	1	1	3.7	Flush closet.
49	19	0	0	0	Public closet.
50	0	0	0	.....	
51	8	0	0	0	Pail system.
52	8	0	0	0	Pail system.
53	19	0	0	0	Public closet.
54	0	0	0	.....	
55	19	0	0	0	Flush closet.
56	2	2	2	100	Public closet.
57	13	0	0	0	Public closet.
58	14	3	3	21.43	
59	17	0	0	0	Dry vault.
60	10	1	1	10	Dry vault.
61	13	3	3	23	Public closet.
62	7	0	0	0	Public closet.
63	17	4	4	23.53	2 flush closets; 2 dry vaults*
64	8	0	0	0	Public closet.
65	0	0	0	.....	
66	0	0	0	.....	Public closet.
67	9	0	0	0	Public closet.
68	7	0	0	.....	Dry vault.
69	6	0	0	0	Public closet.
70	20	0	0	0	Public closet.
71	4	0	0	0	None.
72	3	0	0	.....	Dry vault.

An inspection of the premises in which cholera cases occurred showed that there was apparently more or less direct connection with the disposal of feces and outbreaks of the disease. The foregoing table also shows that the disease in over 80 per cent. of the cases occurred on premises in which there was no modern plumbing. This table further shows that of seventy-two contact groups examined, forty of them were vibrio carriers of some kind, and twenty-nine were true cholera carriers.

These results illustrate in a very striking manner the necessity for proper laboratory facilities if a campaign against cholera is to be intelligently directed.

Later, the disease made its appearance in Orani,

*Read at a meeting of the Manila Medical Society held March 2, 1914.

Orion, and Pilar, in Bataan Province; in Bocaue, Meycauayan, Bulacan, Balinag, and Malolos, in Bulacan Province; in Bacoor, Cavite, Rosario, and Santa Cruz, in Cavite Province; in Angeles, Guagua, Macabebe, Mexico, San Fernando, Santa Ana, and Sexmoan, in Pampanga Province; in Asingan, Dagupan, Lingayen, Santa Barbara, and Urdaneta, in Pangasinan Province; in Caloocan, Fort McKinley, Las Piñas, Navotas, Parañaque, Pasay, Pasig, Pateros, San Felipe Neri, San Pedro Macati, and Taguig, in Rizal Province. During October the disease suddenly made its appearance in Cebu and Opon, in Cebu Province, with a total of three cases and two deaths. The disease here, as in former places, was apparently sporadic and could not be traced to any outside source and is of special interest because no cholera was known to have occurred in that province for more than three years. Banga, Calivo, Lezo, and New Washington in Capiz Province became infected during November. The origin of the infection could not be traced.

The diagnoses were microscopically confirmed in each town in which the disease made its appearance.

It was possible to eradicate the disease within a comparatively few days in any town in which it appeared in each instance in which prompt measures were taken with the first cases. The co-operation received from the public this time in reporting cases promptly has been of great assistance, and it is believed that this co-operation was largely secured on account of the less drastic measures which were employed. For instance, no quarantine measures were imposed except to quarantine the house in which the case of cholera occurred when it was impossible to transfer the patient to a hospital. It is believed the good-will gained by this procedure more than offset the risk which was run by not imposing more extensive quarantine methods. The general populace among whom cholera appeared made practically no objections to the methods which were employed. There was one notable exception, however, to the foregoing, and this was in the province of Capiz. It seemed impossible to secure the co-operation and assistance of the public there and the efforts of the sanitary officials were much hampered by the spread of rumors that the latter were poisoning the wells and that the agents of the Government did not have at heart the well-being of the people.

From the best information obtainable, there was no cholera anywhere in the Philippines since October, 1911, and a careful investigation fails to show that the disease was introduced from a foreign country. It has been the practice of the Quarantine Service during the past two years to examine the stools of all steerage passengers and of those who come from cholera districts from foreign countries on all incoming vessels, and for more than a year previous to the appearance of cholera in Manila no passengers harboring the cholera vibrio were found. The appearance of the disease, often simultaneously, in widely separated sections and the failure, after most careful investigation, to trace the infection would appear to furnish evidence that this outbreak was not caused by the disease being introduced from a foreign country. After cholera once established itself in a town, sometimes an infection could be traced to a previous case, but as a rule they occurred in widely separated barrios that had no common water or food supply and where no contact by persons or insects could be traced with previous cases.

The record of the outbreak, with the exception of Capiz, indicates that the disinfecting and other sanitary measures were promptly and effectively applied, because it was very rare to have more than one case in a house, or even a district, unless the cases were taken all at the same time.

From the foregoing it is apparent that the origin of the present cholera outbreak cannot be definitely traced. There is considerable evidence from an epidemiological standpoint that cholera carriers may always be present in the Philippines and that perhaps the organism passes through a cycle during certain stages of which it may perhaps not be recognizable by present laboratory methods, yet such organisms, when they find their way at another stage of their cycle into the intestines of a more susceptible individual may produce cholera. The increase and decrease in virulency also very probably play an important part as to whether an epidemic results. If the sanitary measures employed prevent the passage of the organism through the intestines of a number of different persons, the virulence remains low and the disease soon disappears.

In Manila to December 31, 1913, there have been 210 cases, of which 137 died. In the provinces there were 698 cases, with 510 deaths. Of the provincial cases the great number occurred in Capiz, which was a province in which no effective co-operation could be secured. It may be of interest to note that in the outbreak of 1902 there were during a similar period 3,033 cases and 2,348 deaths in Manila, and 12,121 cases and 8,923 deaths in the provinces.

Measures Employed to Combat Cholera.—The whole campaign was directed toward the prompt disinfection of the stools and vomited matter of the sick and of the carriers. Briefly, this was accomplished by isolating the sick and the carriers in cholera hospitals or other quarters, and where this was not possible by having their stools passed directly into receptacles which contained disinfecting solutions. In communities in which cholera appeared, prompt steps were taken to dispose of the excreta of the entire population in a safe manner. On account of the very prevalent custom among the masses of eating with the fingers from a common receptacle and on account of the personal habits of the people, strong recommendations were made that everyone in an infected district wash his hands in a 1-1000 bichloride or other disinfecting solution before taking food. Water and food supplies were safeguarded. A campaign of education and other measures were carried out as in previous outbreaks, mention of which is made in more detail in previous annual reports of the Bureau of Health.

At the Bureau of Science considerable work is being done in order to ascertain whether flies, roaches, and other insects may be responsible for carrying the infected dejecta to food, and much evidence is accumulating to show that in all probability infection takes place at times in this way. It is believed that the measures outlined above with regard to the disposal of human excreta probably prevented water infection, and for that reason no considerable number of the cases in this outbreak were contracted from this source.

Treatment.—Intravenous transfusion of salt solution was mostly depended upon. More detailed information, particularly with regard to new methods, may be seen in the report of the Chief of the San Lazaro Hospital Division, published in the annual

report of the Bureau for the period ended December 31, 1913.

Recommendations.—The experience in this outbreak has again forcibly demonstrated the necessity for further laboratory studies with regard to this disease. The reasons for the simultaneous appearance of the disease in widely separated sections, if clearly understood, might be of great assistance in combating cholera.

THE FACULTY OF MEDICINE IN THE ORIGINAL UNIVERSITY OF LOUVAIN.

1426-1797.*

By JOHN BETHUNE STEIN, M.D.,
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"Academia Lovaniensis frequentia nulli cedit hodie, praeterquam Parisinæ, numerus est plus minus tria millia et affluunt quotidie plures."—Erasmus[1].

JOHN IV, Duke of Brabant, together with the civic authorities and clergy of Louvain, petitioned Pope Martin V in 1425 to found a university there, and this pontiff by a bull of December 9, 1425, granted the request establishing the several faculties except that of theology.[2]

The university opened September 7, 1426;[3] the courses of the medical faculty beginning October 8, 1426.[2] In its management the university was modeled after those at Paris, Vienna, and Cologne.[4] There were two chief or official professors appointed by the magistrate of Louvain, on the recommendation of the university, who were not allowed to leave the city without a written permit of the mayor, and could not accept an honorarium for any teaching given outside of the university. Their duty was to explain the teachings of Avicenna and Rhazes.[5, 6]

Little is known of the early history of the medical faculty. In 1864 Monsig. P. F. X. de Ram, rector of the university, found, after much searching, a manuscript which he thought was a copy of the "statutes" (Statuta Collegii Facultatis Medicinæ Studii Lovaniensis) dating from the first epoch of the organization of the faculty of medicine in 1426. This paper has probably been destroyed in the recent sacking of Louvain by the Germans, as it was presented to the Library of Louvain by Eugene van der Beelen. Broeckx, however, thinks these "statutes" are of a later date, viz., 1446, when changes were made in the faculty and the rector of the university began to serve for a period of six months instead of three.[2]

In addition to the two official professors there were doctors who came from Paris and Cologne on the invitation of the magistrate of Louvain, to teach medicine. Of these unofficial assistant or associate professors, one was Dr. Arnoul Bremis (de Brenn), who came to the university in 1426, and another Dr. Godefroid van der Willighen, "who commenced his course Christmas, 1427," and was paid for it by the city.[2]

The first occupant of a chair in the medical faculty at Louvain was Jean van den Eele (van de Neele—van Eele or de Neele), born at Breda and a graduate of the University of Cologne. He was also the first rector of the university.[2]

*In 1817 Holland reestablished the University of Louvain, but the Belgian Government abandoned it in 1834, and in 1835 it was started afresh as a free Roman Catholic University. In 1911-1912 there were 2,725 students in attendance. There were faculties of arts, science, theology, law, and medicine. The library contained over 229,520 volumes.

The following is a list of 41 members of the medical faculty, each of whom was some time also rector, the highest office of the university, from its foundation until 1788, showing the importance then attached to their work, and the esteem with which they were regarded.[2]

Jean van den Eele, 1427, 1431, 1437.
Henri de Coster, 1428, 1429.
Jean Vesale, 1430, 1433, 1438.
Jean Stockelpot, 1432, 1443, 1452.
Henri Scatter, 1435.
Sebert de Neele, 1436.
Nicolas Lamberti, 1435, 1440.
Jean Sucquet, 1441, 1447.
Adam Bogaert, 1442, 1449, 1454, 1459, 1464, 1469, 1474.
Louis de Vettere, 1445.
Jean Spierinck, 1457, 1462, 1479.
Jean de Wellis, 1462, 1467, 1472.
Jean d'Inchy or de Vallibus, 1484, 1489.
Gasper Aegidii, 1487, 1492, 1494, 1497.
Jacques Bogaert, 1502, 1504, 1509, 1512.
Jean Calaber, 1514, 1517, 1519.
Egide de Pape, 1522.
Adam Bogaert, 1524.
Léonard Willemaers, 1527.
Jean de Heems, 1529, 1532, 1535.
Charles Goossens, 1544, 1547.
Jean de Winckele, 1552.
Jacques van der Varent (Varentius), 1562, 1564, 1569.
Jean Blondel, 1574.
Jean Viringus, 1579, 1583, 1587.
Adrien Romain, 1592.
Thomas Fyens, 1594, 1599, 1604.
Jean Storms, 1619.
Gérard de Villiers, 1622, 1627.
Michel Ophemius, 1624.
V. F. Plemius, 1634, 1637, 1647, 1649.
Pierre Dorlix, 1639, 1642, 1652.
Adrien Wolf, 1674, 1677, 1682, 1684.
Jean Herregouts, 1687.
Philippe Verheyen, 1689.
Laurent Peeters, 1692.
Servais Vaes, 1694.
J. B. Raymaekers, 1707, 1709.
U. Narez, 1712.
Rega, 1719, 1722.
Van Leempoel, 1788.

In 1429 Jan Wytinch, or Wytings, Joannes Wesalia, or Vesalius, so called because he was born at Wesel, took an active part in the medical teaching which continued until his death on July 29, 1472. He wrote a work addressed to Pope Eugene IV on the correction of the calendar, and because he was so well versed in mathematics and in astronomy he was invited in 1431 to take charge of the courses of sciences in the faculty of arts at the University of Louvain. Mathematics was usually taught by one of the members of the faculty of medicine.[2, 7] The celebrated anatomist Andreas Vesalius, who was a student at Louvain was a descendant of this Joannes Wesalia.[2]

The three chief officers of the faculty were a dean, a prior, and a judge of appeals.[2]

In 1426, by an edict of Pope Martin V, the priests were permitted to study and teach medicine at Louvain, and it was on account of this privilege that many in the priesthood became professors of medicine.[2]

Pope Eugene IV, hearing that the teachings of Hippocrates and Galen were neglected for those of Avicenna and Rhazes, established in 1443 two new chairs in the medical faculty. The occupants of these chairs were priests and were called "professors in ordinary of the second foundation." They were also called prebendaries because, being canons of the church of Saint Pierre at Louvain, they were paid by the church. Their duty was to explain "alternately during a month" the teachings of Galen and Hippocrates. Later they gave their courses at the same time from July 15 to August 31, and were then known also as "the professors of six weeks."[2, 5, 8]

This church of Saint Pierre, recently destroyed by the Germans when they sacked Louvain, was of interest to the doctor of medicine because

of its close connection with the early history of medicine in Belgium. In it was the famous triptych, painted by Dierick Boudts in 1468—the martyrdom of Saint Erasmus, the patron saint against intestinal diseases, representing the bishop, with an incision in his abdomen from which his intestines are being drawn out and wound upon a crank by two men.

On Saint Luke's day, 1428, there was instituted a series of weekly discussions, by the students, of medical problems. A professor directed the debates of the students at these discussions, which became of great importance in the teaching of medicine. Molanus says of them, "Permittuntur misceri jocosa seriis, sed nec turpia, nec diffamatoria, aut bonos mores offendentia."[2, 9]

Jean Stockelpot, a priest of Louvain, and professor in the faculty of arts in the university, who obtained his licentiate on August 10, 1432, was the first to receive the degree of doctor of medicine from the university on April 26, 1433, and Valerius states that, on May 10, 1433, "he demanded a fellowship in the college or faculty of medicine, 'non obstantibus statutis in contrarium factis aut conditis.'" Following this demand he was made lecturer, and in 1445 he became professor in ordinary in the university, and at the same time canon and prebendary of the church of Saint Pierre at Louvain. Jean Stockelpot was the first professor to be a prebendary of the church of Saint Pierre.[2, 5, 6, 10]

According to the papal bull of Martin V, the government of the university was autonomic, but subject to the Pope and the Duke of Brabant. Attempts against the autonomy of the university were made several times. The first attempt was made upon the death of a canonic professor in 1454, when the government of Louvain attempted to transfer a position of a prebendary of Saint Pierre belonging to the faculty of medicine, to the faculty of theology.[2] This the faculty of medicine objected to and prevented. On January 3, 1476, Charles the Bold, Duke of Burgundy, wished to make some changes in the organization of the university, but because they did not accord with the views of the Pope and the authorities of the university the changes were not made.[11] The faculty gave a proof of its independence in 1476 by refusing admittance to a Dr. Franco, whom the magistrate of the city had selected to succeed a professor, without consulting the faculty.[2]

In 1543 the chairs of the prebendaries were occupied by Arnould Nöot of Halle and Léonard Willemaers. One of these professors absented himself frequently from his lectures, and the other had an associate lecture for him, so that the criticism and censure of the students were excited against them, and because of the brilliant "free teaching" of Jeremie de Drivere (Dryver), or Hiermius Thriverius, the students petitioned the authorities to make the two prebendaryships one and give them to Thriverius. The petition was granted. The two prebendaries were forced to resign and their places were given Thriverius. Thriverius held this position until his death in 1554.[2]

Guillaume Bernaerts succeeded Thriverius, holding the professorship until 1557, when the civic authorities decided to divide the charge as the statutes prescribed. The new professors were ordered to lecture daily, to construe the most useful works, to finish their course at a definite time, and once every week or two one of them was to preside and the other to direct the students at a public discussion of the subjects taught. In addition, they were to give in turn anatomical demonstrations from one to four times a year, according to their ability to procure cadavers, teach of the foreign and domestic medicinal plants, their nature and virtues, and to instruct at the bedside of patients those who were to present themselves for the licentiate examination, teaching them the nature and cause of the diseases and the therapeutic measures to be employed. The civic authorities also decided that in the future a licentiate could not be a professor in the university, but must obtain the degree of doctor of medicine before he could hold a professorship, and that a licentiate in order to obtain this M.D. degree must submit himself for a period of one year to such proofs as this grade demanded."

A licentiate in medicine although he did not possess the legal title of doctor of medicine was, nevertheless, called such, and in 1565 the professors in the medical faculty unsuccessfully requested the university authorities to confer the degree of doctor of medicine upon a student when he became a licentiate because of the expense in obtaining the M.D. degree. At this time the cost to the student who obtained this degree amounted to 1700 florins (Brabant).[2]

Two years of medical study in the university were required before a student was admitted to the examination for the degree of bachelor of medicine, and four years of study before he could take the examination for the licentiate, and the medical faculty in 1435 passed a rule that the student must be eighteen years old in order to take this examination.[2]

It is said that the honorarium given a professor was so small he could barely exist upon it; Jacques Bogaert, who became professor in the university May 24, 1480, received an honorarium of 50 florins. On account of his zeal and talents, the civic authorities granted an extra honorarium to Jan Spierink (Spiringus), a canonic professor in the university and first physician to Philip, Duke of Brabant and Burgundy. He founded the medical library at Louvain, which was almost entirely destroyed by the soldiers of the Duke of Alva in 1578. Molanus says that the skill of this man saved the life of Adrien Boeyens, afterwards the Pope, Adrien VI.[2] On June 7, 1557, Guillaume Bernaerts was made professor and received a salary of 100 florins. Although there were many physicians of merit in the Netherlands at this time, they would not accept positions in the university on account of the small salaries offered them.[3] Rembert Dodoens, born at Malines, June 29, 1517, a graduate of the University of Louvain, one of the first physicians of his time, called the father of botany and horticulture in Belgium, a pioneer in pathological anatomy and physician to Emperor Maximilian II and Rudolph II, and appointed professor of medicine at the University of Leyden in 1582, refused the prior offer of the chair of medicine at the University of Louvain on account of the parsimony of the authorities of the university, and because of the rules governing a member of the faculty which interfered with that member's practice to such an extent as to make the practice of medicine outside of the university practically impossible. The authorities of the University of Louvain began by offering Dodoens 150 florins, raised it to 200, then 250. Dodoens demanded 300 florins in gold for his services. In 1558 Philip II created a new professorship, the duty of the incumbent who was appointed either by the civic authorities or the sovereign being to construe the Ars Parva Galeni. This chair was held successfully by three men, when

in 1577 it was abolished because of lack of funds.[3]

At this time there were two official professors, two canonic professors (or professors of the second foundation), and one professor extraordinary or royal professor (the chair being founded by Philip II). The salary of the royal professor was 100 florins until February 10, 1601, when it was raised to 140 florins.[3]

In 1624 a professorship was made by the States of Brabant with a salary of 200 florins. Adrien Rhodius was the first and last doctor of medicine to hold this position.[12]

Jean Wautier van Vieringen (Viringus), born at Louvain in 1539, one of the most celebrated professors at Louvain, became professor of medicine in 1571, and during his professorship the pest devastated Belgium (1574-1580), and almost 50,000 of the inhabitants of Louvain died of the disease during this period. Gemma, Varentius, Thibaut and Bruegelius, in fact all of the members of the medical faculty, excepting Viringus, succumbed to the plague.[2, 13] New professors were appointed and much discord arose in the faculty, due to the Duke of Parma, governor of the Spanish Netherlands, claiming the right to appoint Pierre Smenga to succeed Gemma. The authorities of Louvain maintained that the Duke had no right to make this appointment and they appointed Pierre Ricard to the chair. The two professors gave their courses in opposition to each other, and Viringus, the senior professor of the faculty, had no little trouble in keeping peace among the members. In 1593, after being ordained a priest, Viringus left the university, to the great regret of his colleagues and students.[7]

Before 1577 there was no special college of medicine in the University of Louvain. A professor in the medical faculty, Pierre Bruegelius, founded a medical college with part of his professional fees. "Qui perpetuam sui memoriam reliquit," says Molanus, "fundans ex honorariis laborum et studiorum suorum Collegium Medicorum."[2, 9]

On the occasion of the nomination of Professor Gérard de Villers in 1593 a lawsuit arose between the magistrate of Louvain and the government of the country, which lasted until December 14, 1599, when the supreme council of Brabant decided that before the magistrate appointed a professor he must inform the government or its representative, the governor general. This was the first time that the government interfered with an appointment to a place in the medical faculty, the making of which was vested in the civic authorities.[2, 7]

Once, in the absence of the chancellor of the university, the dean of Saint Pierre, on the insistence of the faculty of medicine, conferred the degree of doctor in medicine upon one Jean Franco of Eersel. The university, on learning of this infraction of its statutes, resolved that any faculty of the university which permitted itself to so forget the rules of the university would be liable to a fine of 300 florins, and that the title so given to anyone would be considered valueless.[12]

The University of Louvain suffered severely from the 43 years of war which was waged in Belgium. The disturbance of the political equilibrium disorganized the university. No endowments or foundations were made and the scientific and pecuniary interests of the professors suffered. Pope Gregory XIII, however, on learning that there were no funds to pay the salaries of professors, sent, on August 6, 1580, 2000 ecus in gold to be distributed among them.[12] It became necessary to strengthen and build up the university. Peace was declared in 1609, but as early as 1606 two commissioners were appointed to visit and investigate the university. The members of this investigation committee were Jean Drusius, Abbé du Parc, representing the ecclesiastics, and appointed by the papal nuncio on June 7, 1606, and Etienne van Craesbeke, advisor of Brabant representing the government and appointed by the Archdukes Albert and Isabella, who were the representatives of Philip II in the Spanish Netherlands.[2]

The great expenditures required to obtain the degree of doctor of medicine dismayed many aspirants, and both students and professors desired less ceremonial on conferring this degree because of the expense incurred. In 1614 the students petitioned the Archdukes Albert and Isabella as follows: (1) To have the University of Louvain follow the example of the universities of France and Italy and confer the degree of doctor only upon those who had passed a rigorous public examination. (2) To exempt the students from the great expense occasioned by the dinners and other ceremonies which were customary on receiving their degree of doctor of medicine. (3) To permit to the practice of medicine only those who had graduated from the University of Louvain.[2] This petition of the students very likely had some influence upon the action of the committee which was appointed in 1606. The result of the committee's investigation was known as "the act of investigation, and was made public in 1617 at a reunion "of all the members of the university." Under this so-called "act of investigation of the Archdukes Albert and Isabella" the University of Louvain was thenceforward directed by the state. The "act" was the new charter of the university, in which was specified the jurisdiction of the university authorities, the privileges of the corporation, the pedagogical interests, the interests of the colleges, the rights and duties of the professors in all the faculties, and the conduct and discipline of the students and functionaries. It was stated in the preamble of this act that all these dispositions had been taken in concert with the Holy See: "Juncta in primis sedis Apostolicæ authoritate."[2, 4]

The "act of investigation" established four chairs instead of two. Two of the professors in these chairs were appointed by the magistrate of Louvain and were called "Primarii," the other two were appointed by the government and were called "professors royal or Regii." Besides the so-called "official teaching" the act permitted "free teaching" by the doctors associated with the university. Each day's teaching was divided among the professors as follows: (1) The duty of the first professor was to explain "the institutions of medicine taken from the first canon of Avicenna," from 3 to 4 P. M., and in summer from 4 to 5 P. M. (2) The second professor had charge of a course in the theory of medicine, embracing the Ars Parva of Galen, the aphorisms of Hippocrates, and the general methods of practice. He lectured also upon purgation, bleeding, the pulse, and urine. His course was to be given from 10 to 11 A. M. (3) The third professor was to give a course in the practice of medicine, daily from 8 to 9 A. M.; "to teach all the diseases that might occur in the body from the head to the feet, according to the writings of the Arabian physician Rhazes." (4) The fourth professor was to give a course in anatomy every day from 2 to 3 o'clock and to give anatomical demonstrations upon cadavers whenever he could obtain them. In summer he was

to teach surgery and "everything medical pertaining to the art of surgery." The course of medicine was to be three instead of four years.[1] These new statutes had a great influence upon medical teaching in Belgium, increasing the prestige of the medical faculty at Louvain and attracting a larger number of medical students there.

The most famous Belgian in medicine during this century was Henri Joseph Rega, born April 26, 1690, who, appointed professor when 22 years old, was instrumental in building the amphitheater for anatomy and founding the botanical gardens at Louvain.[2]

"The first half of the eighteenth century as well as a large part of the seventeenth fill sad pages in the history of Belgium. The increasing weakness of Spain, the increasing power of the United Netherlands, the war of the Succession, the occupation of the country by Louis XIV and Louis XV and other political conditions weakened or condemned to inaction all the vital forces of the nation. But in spite of the numerous obstacles arresting its development the university continued to fulfil its honcrable mission."[4]

By the treaty of Aix la Chapelle, October 18, 1748, the Empress Maria Theresa of Austria became ruler of Belgium. Under Austria's rule the teaching of medicine did not advance at Louvain, although the Empress attempted to raise the standard there because the new laws were made by strangers, Cobenzl and Kaunitz, who treated Belgium as if liberty had never existed there and because these laws emanated from a single source, which rarely consulted the interests of the professors or the civic authorities of Louvain, Broeckx, in commenting upon the failure of the reforms made in medical teaching at Louvain, says: "They could have accomplished these reforms easily if they had instituted, as things are done in our days (1865), a committee composed of one professor in each faculty, directed by an agent of the government, this committee to give account annually of the standard of teaching, the subjects taught, and the improvements which could be introduced. Then they would not have hurt the patriotic feelings of the professors, by appointing strangers who were sold body and soul to the courtiers whose rule was absolute."[2] But with all her reforms the Empress did not succeed in reducing the student's expense in obtaining his doctor's degree, as both faculty and students had desired for a long time. The cost at this time of obtaining the degree of theology was 1,220 florins 11 sous (Brabant) of the doctor in laws 1,777 florins 19 sous (Brabant), and of doctor of medicine 1,738 florins 11 sous (Brabant).[3]

In 1780, the medical faculty consisted of two primary professors, four professors royal, and two professors in ordinary. The teaching was so divided that the two primary professors and the two professors in ordinary taught pathology and therapeutics and the professors royal taught botany, chemistry, anatomy, and "the fundamental principles of healing."[5]

Joseph II succeeded his mother as Emperor of Austria and ruler of Belgium. This Emperor, whom Faidherbe calls the "Philosophic Emperor," and Broeckx the "Regulator par Excellence" through his enterprises, almost closed the doors of the University of Louvain. Inspired by the ideas of a theorist who would make general reforms, and instigated by Count von Trautmansdorf, Joseph II undertook to turn the University of Louvain upside down. From the first he encountered desperate resistance: the greater number of the professors and almost all of the students opposing his unjust and dangerous projects.

In this conflict in the university, the faculty of medicine was divided into two factions; one made up of Jacquelart, van Bochaute, and Willem van Leempoel, agreed with the Emperor's ideas, while the other faction, consisting of van der Belen, van Gobbelschroy, van Rossum, Vornuck, and Michaux, stood for the rights and privileges of their Alma Mater. Irritated by this opposition, Joseph sent to Austria for professors for the medical faculty, and in 1786 installed one Melly as dean of this faculty without, however, succeeding in crushing the opponents of his projects. The fight continued, and on February 29, 1788, he removed Clavers, the rector of the university, and put in his place Professor van Leempoel, a member of the medical faculty, who had taken sides with his majesty. Furious at this new alleged outrage and menaced by Austrian and Hungarian troops, the greater part of the students studying medicine and theology at Louvain, left the university to obtain their education elsewhere.[14]

In Joseph II's decree, September 30, 1788, the following subjects were ordered to be taught by the faculty of medicine: (1) Special Natural History, (2) Botany, (3) Chemistry, (4) Surgery, Theory, and Practice, (5) Obstetrics, (6) Anatomical Demonstrations upon the Cadaver, (7) Physiology and Experimental Physiology, (8) Materia Medica and the Methods of Prescribing, (9) Pathology, (10) Clinical Medicine.[2]

By a decree of July 17, 1789, Joseph II transferred the faculties of law, medicine, and philosophy from Louvain to Brussels, where he founded the "College Thérésien." He had hoped by breaking traditions to lead the students to an institution which was governed by his reformatory ideas. But he did not succeed.[5]

In 1790 the medical department was reinstated at Louvain. Then followed the French revolution, which was fatal to the university. The following is a translation of a decree of the Administration of the Department of the Dyle, October 25, 1797:

Equality—Liberty—Fraternity.

Brussels the 4th Brumaire, 6th year of the Republic.
The Central Administration of the Department of the Dyle to the Municipal Administration of Louvain.

Citizens,

The Minister of the Interior having ordered us, we decree that teaching cease at the University of Louvain. The Citizens Vauthier and de la Serna, who will present this decree to you, are charged by us not only to direct the operations relative to this important measure, but also to insure a proper guardianship for the mobile and immobile property of this establishment. With full confidence in your patriotism and devotedness, we hope you will concur in every way possible in the prompt and complete execution of our decree,

Greetings and Fraternity.

The Administration of the Department of the Dyle. Signed, President Le Hardy, Faubert, Fourmaux, J. de Bériot, F. E. Bataille, Mallarmé, Dellecroix.[2]

Notwithstanding the wars which devasted Belgium and the ruins produced, the great prosperity of the University of Louvain had continued for three and a half centuries without interruption, "because

at Louvain professors of the highest merit were found who, animated by the love of country and science, concurred with the authorities to attain a goal, the advancement of science and the exaltation of the honor and dignity of their university." The motto of Belgium is, "L'Union fait la Force"—"Eendracht maakt Macht."

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A CASE OF THROMBO-ANGIITIS, WHOSE WASSERMANN WAS FOR A LONG TIME NEGATIVE, BUT IS NOW POSITIVE.

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This case of thrombo-angiitis was shown by me on April 23, 1913, before the New York Surgical Society (*Annals of Surgery*, Nov., 1913, p. 671), as one whose symptoms had been relieved and whose function was becoming restored in conjunction with the use of the Schnee four-cell electric bath. The now important features in this case are, first, that with a history of luetic infection in 1895, his Wassermann taken six times (once of the spinal fluid) in the year 1913, was always negative or doubtful (five of the tests were made by Dr. John A. Fordyce), and that recently, a year later, two examinations of the blood, one made by the Health Board and the other by Dr. John A. Fordyce in his private laboratory, have both been strongly positive; second, the influence on the symptoms of the treatment, (a) that by the use of the Schnee four-cell electric bath, and (b) that by the use of the antispecific remedies.

Male, age 36, moderate smoker. Onset of the disease 1901. For the previous nine years he had operated a heavy sewing machine with his feet. The first symptom was a cramp in the left calf coming on during walking. In 1904 left foot amputated (Pirigoff) by Dr. Jos. D. Bryant, with complete relief of the pain. The patient later used an artificial leg. From 1905 to 1910 he operated the same heavy sewing machine, using his right foot. His right calf then began to cramp and the usual symptoms of pain followed. In the fall of 1912 the patient, then in St. Vincent's Hospital, was suffering from terrific burning and worse, freezing pain in the remaining foot. In an effort of despair recourse was had to the Schnee four-cell electric bath, and it was found that this treatment, unless the current was too strong (best strength 10 ma. for 10 minutes) would always either arrest completely or ease the pain for a number of hours. With the use of the electric bath daily, beginning Nov. 10, 1912, the pain finally got under practical control and the patient began to use his foot with comfort (April, 1913). Accompanying the use of the electric bath the toenails, after a period of indolent growth, began to grow normally again, and some hairs sprouted on the dorsum of the foot. Thus the bath had apparently exerted a favorable influence on the nutrition of the foot. The baths were continued with a few short interruptions until Aug. 12, 1913. In the late spring and summer of 1913, the patient regained considerable activity, walking comfortably from one-half to three-quarters of a mile. For 7 or 8 weeks previous to stopping the baths, with the exception of three or four days around the end of July, there was practically no pain. Soon after stopping the baths there began to be a little recurrence of the pain again. In the meantime a sinus in the little toe had grown more extensive, communicating with bone.

The antispecific treatment the patient had had up to this time in the course of his illness, had been with iodide of potassium and mercury only, given irregularly, which seemed never to have given him any relief. During the taking of the electric baths the patient was given mixed treatment only for one week in March and then not again until July. In testing for the Wassermann reaction, Dr. Fordyce, who kindly contributed the facilities of his private laboratory to aid my investigations, suggested the giving of a six weeks' course of mixed treatment to be followed by a provocative dose of salvarsan, which therapeusis was carried out. The first dose of Ehrlich's remedy, neosalvarsan 0,45, was given Aug. 16, 1913. A Wassermann taken a week later was negative, as well as another taken nine days following the second dose of salvarsan, which was given on Sept. 5. A Wassermann was next taken a year later, on Aug. 25, 1914, when it was found to be strongly positive, and again on Sept. 14, when it also gave a strongly positive reaction.

The effect on the patient of the second dose of salvarsan (0,2 of the old), given on Sept. 5, 1913, was quite remarkable. Within the next ten days following its administration the sinus in the little toe entirely healed up, and has remained healed, up to the present time (Oct., 1914). The foot became warmer, the patient's activity increased, and he became possessed of a sense of well-being not before entertained. Following a third dose of salvarsan (old, 0,2) the slight remaining irritation in the little toe entirely left, and the patient went home from the hospital.

This experience seemed to demonstrate that a proper use of the antispecific remedies was what this patient needed. The antispecific treatment administered since beginning the electric baths on Nov. 10, 1912, has been as follows:

March, 1913 ..... Mixed treatment (one week)
July and first half of August, 1913..Mixed treatment
August 16, 1913.....Neosalvarsan 0.45
Sept. 5, 1913.....Salvarsan (old) 0.2
Sept. 17 .....Salvarsan (old) 0.2
Sept. 26 .....Old Salvarsan 0.25
Dec. 19 .....Neosalvarsan 0.45
Jan. 16, 1914.....Neosalvarsan 0.45
Aug. 25 .....Neosalvarsan 0.45
Sept. 14 .....Neosalvarsan 0.45
Sept. 28 .....Neosalvarsan 0.45
Between Sept. 20, 1913, and March 27, 1914, he received 13 injections of salycilate of mercury, ¾ to 1 grain each. Also three mercurial injections of 1 grain each have been given since Sept. 20, 1914. For five weeks during July and August, 1914, he took one or two doses of mixed treatment per day, preparatory to getting salvarsan.

The recourse to salvarsan in December, 1913, and August, 1914, was made because of recurring symptoms. In December, 1913, he had a slight cramp in the front of the right leg above the ankle when the foot was at rest and dependent, and a "drawing" of the little toe, neither of which symptoms seriously bothered him. He could easily walk 15 blocks, and could have walked further except for the discomfort of his artificial limb. Two days after taking the neosalvarsan 0,45 on Dec. 17, 1913, these slight symptoms entirely disappeared.

From December, 1913, to June, 1914, his right leg felt normal and served him usefully. Early in June of the present year the right calf and back of thigh began to cramp or pull, and there was a drawing sensation across the front of the right ankle when he walked. In walking about ⅛ mile he had to stop five or six times because of the cramps. The nutrition of the right foot, however, has remained good, and there has been no recurrence of the pain in it. The cramps were not benefited by the five weeks' course of mixed treatment last summer, given preparatory to salvarsan.

Early last August, at a time when he was taking the mixed treatment, there was a recurrence of the disease in the stump of the left lower extremity. An ulcer about 1¼ inches long with bluish edges developed on the front of the stump and associated with it were the torturing, burning, and freezing pains. There had been no direct pressure of the artificial leg on the stump at the site of the ulcer. Also in this extremity there had been cramps in the thigh for a number of days in January, 1914, and in February incident to taking a long walk, using his artificial leg, he had had cramps in the calf.

Now, on the 25th of last August, with the patient's right lower extremity affected with cramps on walking, and the stump of his left lower extremity the seat of ulceration and excruciating pain, salvarsan dosage was begun again, followed by injections of mercury. Two or three days after the first dose of this last series of salvarsan, the cramps in the right lower extremity ceased entirely, at least for walking short distances (1 to 1½ blocks), which was all the patient was able to do on account of his difficulty in using his now painful left leg. The right lower extremity has, since then, again felt normal. As regards the present status of the acute condition in the left lower extremity, as possibly influenced by the salvarsan and mercury recently administered, it can but be stated that the pain is now less, but that five days ago the patient had an attack of very severe cramps in this leg and thigh while endeavoring to walk (using artificial leg) a few steps, which practically held him bound. (Later note, October 12, 1914: For a week following October 2, the pain was again severe, and then lessened.) Thus the present painful condition cannot as yet be regarded as having received positive benefit from the recent antispecific treatment, but it would nevertheless seem indicated in this case, with the Wassermann now established as positive, that the antispecific therapeusis should be pushed.

As a result of a somewhat limited experience with the treatment of tertiary syphilis in cases of thoracic aneurysm, I am very much impressed with the seemingly marked beneficial results of giving salvarsan, when this drug has been preceded by a long course of potassium iodide and mercury. The giving of salvarsan alone in repeated doses to cases of aneurysm has seemed to be followed by an increase in the severity of the symptoms. Lesser, of Berlin (*Berliner klin. Wochenschrift*, March 16, 1914, p. 494), states regarding the treatment of late tertiary lesions of syphilis, that "especially in the diseased conditions of the internal organs one should be warned against beginning at once with salvarsan, since a resulting active reaction can be attended with considerable danger. Preliminary treatment with mercury and iodide should therefore always precede the first dose of salvarsan."

THE NECESSITY FOR BROADER CONCEPTIONS IN GASTROENTEROLOGY.

By CHARLES SUMNER FISCHER, M.D., PH.D.,

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It is a refreshing thought and encouraging sign that the gross mechanistic attitude toward digestive diseases, exhibited during the past decade, gives evidence of having reached its limit, and that it is beginning to be realized that behind and beyond the strictly organic features of these disturbances there may lie causative factors not directly connected with the alimentary tract—factors which determine and shape such disturbances, and which are apt to be obscured by the magnitude of the lesions for which they are responsible. The long accepted connection between chemicophysical insult and organic stomach diseases has become so petrified in lay and professional thought that the demand is made in advance for diagnoses that will satisfy these conditions. As a result of this tendency there has developed a revelry and debauch of ingenious mechanical and complicated physical procedure to determine certain concrete results of processes which at best are rarities compared to the great mass of our digestive troubles. Because certain surgical clinics upon which the material of a State or country is concentrated, can produce statistics of the frequency of such affections as duodenal ulcer, it is not at all demonstrated that the conditions are frequent when considered in comparison with the general nature of the cases encountered in office or clinic. Such statistics have oftentimes been misleading, and have done a positive harm, for they have aroused in the lay mind an unwarranted anxiety as to the possible outcome of the ordinary and common cases. This doubt, thus engendered, is occasionally so pernicious and so difficult to dispel, that it constitutes a certain argument for inadvisable surgical procedure. In other words, the end is supposed to justify the means. This constitutes a moral question, and must be decided by the moralists. It can be however remarked in passing that for those who have their ears to the ground and are willing to hear, there are certain vague echoings coming from the ranks of the general profession which would seem to indicate that all is not right in gastrology and that, if these tendencies

are not controlled or modified, there may result a certain disrepute.

It must be evident that the simple physico-chemical conception of gastric diseases is a limited one, and can be applied to but one phase of the subject, namely, to final results. This appears to be the tendency of the gastrological procedure of the day, whereas the whole spirit of modern medicine is one of prevention, to attack diseases at their source. This spirit is lacking in the average gastric clinic. Here every effort is made to determine the actual local conditions and the proficiency of the clinic is judged by the finesse of the operations employed. Very little attention is given to the broader aspects of the cases, involving as they do, a thorough investigation of the relations existing between the organic changes and the various sociological, neurological, and constitutional forces, at work perhaps for years, productive of those changes, for the great majority of our digestive diseases; those chronic conditions affecting the contentment and working capacity of the individual, are the result of causes which can never be ascertained by mechanical means. They lie far deeper than such measures can reach, and if gastrological science wishes to be far reaching in its usefulness, it must attack the problem from another quarter. A very respected authority recently made the remark that every successful gastrologist in the future would perforce have to be a surgeon, at least, a manipulator—which is tantamount to saying that the best method to correct an abnormality affecting a human primitive instinct, would be to amputate the instinct.

The secret of this whole situation in practical gastrology, lies in the bare fact that it is much simpler, requires less time, energy and knowledge, to analyze and manipulate than it does to investigate the real physiological, pathological, neurological, sociological, and psychological factors determining the production of the average run of cases. The work of the past has demonstrated that the great majority of the gastric diseases develop along pretty well defined lines, are permissible of fairly accurate grouping, and that the various final structural changes, attracting a momentary superabundance of attention, are but the results of certain universal tendencies prevalent in modern life. In most cases, very marked final changes are never reached, the processes stop midway, but from a simple occasional hyperchlorhydria to a fully developed hypersecretion with pyloric spasm and obstruction, from gastric hypermotility to possible duodenal ulcer, constitutes a slowly progressive development, the various stages of which have been construed into distinct entities, separate and apart from the underlying principles governing them all. As we are rapidly being emancipated from the hydrochloric acid idea in stomach diseases, so we are going to pass beyond these momentary fads and fancies to view these successive phases in the light of a critical survey of the whole subject. It will be the care of the comprehending gastrologist of the future to determine, if possible, the tendencies in each individual case, so that gross structural final changes shall never be attained.

It has been very noticeable during the development of the whole hydrochloric acid situation in the past that whatever may have been the nicety of distinction of this or that phase, emphasized into clinical entity by the enthusiastic conception of the individual investigator, that one and all, when it came to the question of causation, have been driven to the assumption that somewhere and somehow the primary results came from conditions affecting the organs indirectly. It has been tacitly recognized that whatever may have been the ingenuity of local treatment and manipulation, this could not be effective unless the general conditions were favorable, that oftentimes the local measures were beneficial only in so far as they exerted an influence beyond the local conditions. It is becoming more and more evident that a good proportion of our prevailing digestive troubles are not such in the strictest sense, that they, in the beginning at least, are but local manifestations of general conditions, and that the organs involved can best be served by no treatment whatever. "Truth is truth when it works." Nowhere is this happy pragmatism more apt than in its bearing upon some of the more recent gastrological manipulations, for there cannot be much of general value to procedures which require such a special setting as to be beyond the means of those who need them most, who are not blessed with abundant leisure and a well padded purse. Even where the latter are available, the difficulties of application are so great, their successful manipulation so problematical, the beneficial results obtained so fleeting, that in all probability their employment will in due course, as heretofore, become a matter of history. In this connection it would be well at times to remember the advice of Czerny, that no specialized procedure should be given to the public or the profession generally until it had been thoroughly tested for at least five years in hospital and clinic. Such conservatism is however not in harmony with the spirit of the times.

The pressing need of gastrology to-day is a greater harmonization of the subject itself with the general conditions of life of the individual. By this is not meant the relation between local organic states and the general organism, but rather that a greater regard should be held for the connection between the various functions of the digestive tract and the channels through which all such influences as instinct, tendency, acquired tastes, perverted views, and enforced environment operate. It will not be sufficient to indicate that such and such a local condition exists. It will rather be necessary to regard more closely the personal equation which renders these states possible, for most individuals are living under the same conditions, and are subjected to the same insults of life.

It would be refreshing then to be able to turn to some field of activity calculated to throw light upon these problems. For years liberal gastrologists have felt, and clinical experience has taught that in each individual case of chronic dyspepsia—using this term as a generalization—there have been certain nervous influences, certain tendencies, directing and shaping the local functional activities. These conceptions have always been more or less vague, but nevertheless have been insistent. Beyond determining, if possible, the priority of nervous phenomena or the functional phenomena, very little was done. The diagnosis of neurosis or organic disease depended upon this decision, but the conclusions drawn were in most cases uncertain and unsatisfactory. The natural bent of the investigator was many times the chief determining factor. We are in a position to-day to approach these problems with greater confidence. I refer

in this connection to the work done in the last decade by Langley, Eppinger and Hess, Petren and Thorling, Fulta, Newbergh, Nobel, Kahn, Bauer, Schiff and Ebstein, Polowsky, Hess and Konigstein, Herring, Lommel, Hamburger, Aschner, Westphal, Heyrovsky, Bergman, Rössle, Benecke, Stierlin, Kraus, Marburg, Schüller, Van Yzeren, Lichterbelt, Solis-Cohen, Hemmeter. So much of this literature which is widely scattered, is given here for those whose interest is broad enough to stimulate them to pursue the subject further. The investigations have not been especially directed to the digestive processes, but they deal with problems which have a very direct bearing upon the etiology of gastric and intestinal diseases, and thus should recommend themselves to the very serious consideration of gastroenterologists. The intense physicochemical attitude exhibited in recent years toward all alimentary diseases has developed anatomical conceptions which, important as they are, cannot explain the fundamental principles involved in the production of the organic changes. The functions have been more or less neglected, and it is in a redirection to these that the importance of the work cited above lies. It attacks the diseases at their source, and it renders it possible to follow their development as a result of tendencies inherent in the individual.

The criticism is made that the work done so far has been entirely experimental, that the results obtained are vague, that the whole subject is hypothetical. This may be true, but whatever of fundamental value has been obtained harmonizes so well with what observing clinicians have all along instinctively felt, that it is well worthy of serious consideration. In the conceptions of vagotonic and sympathicotonic dispositions we have something tangible, sign-posts which may lead to something definite. The real value of these conceptions lies in the fact that it is possible by them to trace and demonstrate the channels through which the various insults to the digestive tract of habit and environment operate. Knowing these in each individual case, it is obvious that we may be in a position to reduce the objectionable effects of such often unavoidable insults to a minimum. The days have passed when we may content ourselves with vague references to neurasthenia and hysteria. It has been fairly definitely established that an individual may possess a certain exaggerated reactional trend incorporated in his autonomous or sympathetic nervous systems. In the normal individual these two systems counteract each other. There exists a state of equilibrium. Should, however, the one system or the other be natively hypersensitive, there will result a certain disharmony which will reveal itself in functional disturbances of the organs supplied by these systems. In the case of the digestive tract, its secretory and motor functions are completely under their control, so that whatever may be the insults offered to the tract, the response or defense to these insults will depend in the last account upon the reactional trend of the controlling mechanisms. This is entirely confirmed by clinical observation, for we know that there is a fairly definite tendency toward the development of certain chemical and physical grouping of gastric diseases. There are a number of signs and symptoms by which the individual reactional trend can be recognized, and it should be determined in every case of secretory or motor anomaly, for without this knowledge no conception can be complete.

Functional change precedes and determines structural change in the course of normal evolution for purposes of adjustment to the environment. It may do the same in pathological development. Exaggerated secretory or motor gastric functions, if continued long enough, will result in the various abnormal structural conditions that we know. A large proportion of our chronic dyspepsias are not the result of conscious neglect, habit, or abuse. They are the result of conditions forced upon the individual by the exigencies of life. These can operate only through the channels mentioned. In these cases the ordinarily accepted local measures of treatment can only be palliative. Ultimate recovery will depend upon an adjustment between external influences and internal reactional weakness. Exaggerated local measures may do more harm than good, in that they concentrate the attention of the individual upon results and not upon the causative factors, and there can be no doubt that as this phase of gastrology becomes more and more incorporated in the broader conceptions of the subject, the various fanciful arrangements of diet and impressingly ingenious instrumentation will be largely eliminated.

The deleterious effects of hyperfunction have been sufficiently recognized for other organs. An overstimulated and palpitating heart will eventually succumb to structural changes. A continuous high blood pressure will result in arteriosclerosis. Excessive renal activity will end in anatomical lesions of the kidneys. In the same manner an organ so far removed from willful control as the liver, will respond to abuse in proportion to the strain placed upon the general organism. Cirrhosis will appear rapidly as a result of alcoholic excesses in those individuals whose nervous systems are subjected to exceptional tension. In all these conditions treatment is directed toward the channels through which the causes operate, to a reduction of the intensity of reaction to the environment. If this is so for organs which are absolutely autonomous in their functions, how much more so must it be true for the digestive tract, the activities of which are dependent upon individual tastes and desires.

The greatest need in gastroenterology at present is a return to the functions, not in the sense of finer discrimination of pathological variation, but in the broader conceptions of etiology. The gross anatomical has so occupied the professional mind during recent years, that this phase of the subject has been neglected. It has almost seemed a confession of ignorance to mention it. The time has passed however when reference to vague conditions, such as Stiller's universal asthenia, will suffice. In the more definite knowledge of the constitutional trends inducing visceral hypo- or hypertonicity, we possess potent methods of analysis which will have a very practical bearing, especially upon prognosis and treatment. It will probably not be possible to establish in each individual case the well marked signs of vegetative nerve stigmata, but it will be possible to determine the tendency to hypo- or hyperfunction dependent upon these systems. The vagotonia of Eppinger and Hess is the extreme form of inherent weaknesses present in many of the cases of so-called chronic dyspepsia. The dyspepsia is but the local manifestation of hypo- or hyperfunction which in turn can be traced to its ultimate cause. Here lies the possible solution for many vexed problems. Much light may be thrown upon such conditions as dyspeptic asthma,

pseudo-angina, cardiac spasm, pylorospasm, fatal acute indigestion, persistent anorexia, acute dilatation, gastric vertigo, nervous hypersecretion, nervous diarrhoea, and the whole gastric acidity question. In an indefinite way the hypothesis had already been practically accepted. The whole question of universal asthenia would depend upon these conceptions. What other interpretation can be given to the reflex theories of gastric diseases, due to chronic appendicitis, gallstones, etc.? Even the concrete problem of duodenal ulcer is involved, but as Rössle wisely remarks, no cause can be operative unless the primary favoring disposition is present in the individual. It is the determination of this disposition which is the all-important task, and the time has passed when reference to this phase of digestve diseases can be regarded with indifference.

In fifty per cent. of the gastric acid secretion is psychic secretion, then fifty per cent. of the causes of abnormal secretory disturbances of the stomach must lie beyond the organism. These causes can be operative only through the channels here mentioned. In the past this element has been regarded rather as an interesting phenomenon. In the words of Rosenheim, we knew "*herzlich wenig*" about it. In the light of the latest developments, it assumes an intensely practical interest, for it should be remembered that this part of the secretion may hold the balance of power in the determination of a given pathological condition, not only functional but organic as well. Should there be any doubt as to the value of these conceptions we have but to recur to experience gathered in any gastric clinic. A large proportion of the cases here encountered exhibit the common syndrome composing hyperacidity and hypermotility. It is the most frequent combination known in this vicinity. The majority of these cases will yield to a consistent course of bromides and hyoscyamus, frequent small meals, and alkalies. The alkalies here are merely palliative. The effective work is done by the drugs. The frequent feeding supplements the latter, not by hypernutrition as is usually supposed, but by enforcing upon the individual a certain relaxation at frequent intervals, thus relieving the tension under which he is existing.

The considerations here offered have passed beyond the stage of mere speculation. The results of the work cited above harmonize so well with the facts of clinical observation that a practical application of the same becomes imperative. It means that a most useful work of the gastrologist of the future will be to determine in each individual case the inherent weaknesses as evidenced in constitutional trends which render universal causes operative. In modern communities all are subjected to more or less the same insults. A certain proportion succumb to these insults—not because they have weak digestive organs (a stomach with hypersecretion and hypermotility can hardly be called weak), but because there is inherent in them a constitutional liability to react excessively to the ordinary irritations of life as induced by habit, accident, or environment.

It may be that further experiment and observation will modify the views now held in regard to the activity of the vegetative nervous system. Enough has been done, however, to stimulate interest and to demonstrate its value for gastroenterology. Nor is this limited to the neuroses. It explains, as no other theory does, the pathological development of many pronounced organic lesions, always excepting acute or chronic inflammatory ones. It shifts the attack upon the neuroses themselves from result to cause. It will eliminate the personality of the diagnostician from the differentiation between neurotic and organic lesion. If given stigmata are found, there can be no question as to diagnosis. Its value for prognosis and treatment will be far reaching, for it will enable us to foretell with a certain confidence, what the final stages of a given tendency will be, provided the causes are not removed. Treatment will be enlarged. It will be diverted from local meddling and machination to the broader conceptions of fundamental and unmotivated science.

The time has come for a division of labor in gastrology. There will be those whose personal bent will always compel them to immediacy and localism. It is a restricted field. There will be those also whose vision is more far reaching, whose interest in the subject forces them to a consideration of the causes of animal behavior from original tropisms, the development of the simple reflex arc, the establishment of habitual neural paths, down the line of evolutional progress to the final introduction of the psyche, this last not always to the advantage of the individual digestive comfort.

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MISTAKES MADE IN TAKING AND INTERPRETING BLOOD-PRESSURE READINGS.*

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The taking of blood-pressures has become so universal and its merits have been discussed so widely that further reference to it may seem unnecessary. It has assumed the character of a fad in which the laity is getting much interested. As in all such cases there is a tendency to take everything for granted and to ignore limitations, to overlook essential points, and to overestimate the value of the method.

It is interesting to note that such an eminent authority as James Mackenzie, in the latest edition of his classical work on diseases of the heart, criticizes the applicability of the method and questions the results. Another author of equal prominence, Ludolf Krehl, says ("Erkrankungen des Herzmuskels," 1913): "We have estimated blood-pressures, maximal and minimal, amplitude (pulse-pressure), and the product of pulse-pressure and frequency. One discovers thereby some interesting facts, and possibly more yet of importance may be learned. But for practical purposes, it seems to me, we cannot learn more at present by this method than by simply counting and palpating the pulse, observing respiration, and, above all, studying the whole individual." It would be tedious to quote all the modern authors who insist upon the limitations of this method, though they all recognize its relative value if used with proper circumspection.

It is not my intention to discuss here the various theories involved or to tire you with a repetition of the various methods used, the mercury-, the spring-, the diaphragm-, and the self-registering instruments, the importance of the size and proper adjustment of the armlet, the tactile, oscillatory,

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sensory, acoustic, graphic methods of determination, the difficulties in estimating diastolic pressures in aortic regurgitation, the meaning of pulse-pressure as denoting the difference between systolic and diastolic pressures, the mean pressure placed by various investigators close either to the diastolic or to the systolic pressure, and also the difficulty of finding the respective pressure in congenital arterial anomalies, in irregular pulses, and in those rarer cases where no brachial pulsation is audible, or a radial is impalpable. But I wish to emphasize facts often repeated by many observers and persistently forgotten or ignored.

Determining factors in creating blood-pressure are: the condition and force of the heart, the condition of the arterial wall, the resistance of the periphery, to wit, the contraction of the arterioles, the width of the capillaries and veins distal to the armlet, due to the play of the vasomotor nerves and also influenced by the tension of the surrounding tissues (subject to temporary changes), the physical condition of the blood itself, its relative viscosity, and finally the total amount of blood circulating, in plethora and anemia. It should be understood that a change in any or several of these factors may alter findings under otherwise normal conditions.

Blood-pressure varies perceptibly in the physiologic state with age, sex, time of day, before and after meals, defecation, micturition, menstruation, posture of the body, lifting of limbs (not only active but also passive), and also with atmospheric pressure. The psychic interest of the individual is of remarkable importance, and so is the temperature of the room. An undressed person in a cool room shows a materially higher pressure. Physiological differences are observed again in relation to work, to training, to individual development, to activity of the brain.

Let us add to this the fact that the blood is not evenly distributed in the body in proportion to the extent of vascular territories, but that by a most changeable vascular tone the blood-supply to the various organs is regulated according to their functional and nutritive need, and we may picture to ourselves the possible variations in health, if we endeavor to be exact at all.

Now let us consider some pathological conditions. With an increased pulse-rate, pressure may either rise or fall, as seen in cases of tachycardia and of increased tone of the vagus nerve. The rule is, normally, that an average pulse-rate will show the highest pressure. Pathologically a very weak heart, just short of complete failure, may exhibit a very high pressure, where peripheral resistance is increased and the weakened heart adds with each contraction additional, if small, amounts of blood to overfilled and distended vessels. This is Sahli's "high pressure stasis."

A high pressure may be due to a permanent, "healthy," compensation. An apparently normal pressure may be due to an ominous break of such a compensation.

Mental excitement of any kind, stimulation of sensory nerves, great pain increase pressure, and the same is true in the case of mental worry, and of all colics. Pressure disappears again after the attack is over, as in lead colic. I have not encountered yet a single case of increased blood-pressure during the intervals of a lead colic, and I have seen a great many sufferers of this class.

It has been stated and denied that arteriosclerosis is accompanied by increased pressure.. Right here is a pitfall for the careless observer. A soft rubber tube with a thick wall is less easily compressed than one with a thin wall. And we know now that the muscular layer of the arteries of some healthy persons is thicker than that of others; this seems particularly so in young athletes.

But now in arteriosclerosis we observe a pathological thickening of the wall, eventually with deposits of lime salts, even bony substance. And if we consider the fact that arteriosclerosis rarely extends over the entire arterial tree, that it is regional and may be confined to the vessels of the limbs only, or to those of the mesentery, or of the brain, or of the kidneys, etc., the determination will become so much more difficult. A pipe-stem brachial (with a normal radial) may simulate an immense arterial pressure, while in fact it is very low. In such cases the taking of the pressure is a somewhat dangerous proceeding. Infraction of the arterial wall, thrombosis and gangrene, also permanent palsies have been observed following such violent compression.

It is a fact that some arterioscleroses exhibit a high, others a low, or at least a moderate, pressure. This has been referred to the condition of the kidneys and some have imagined that disease of the kidneys is associated with a high pressure. But it is certainly not always the case. Of late the old accepted teachings as to chronic affections of the kidneys are being reconsidered and revised. Pathological findings were misleading and did not correspond to clinical experience. Widal, Castaigne in France, Krehl, Romberg, Volkard, Jores in Germany and many others are discussing the matter. There are ailments due to retention of nitrogen, others due to retention of chlorides and perhaps sodium, none of which ordinarily shows a primary high pressure, and a group of hypertension nephritides accompanied by sclerosis not only of the arteries of the kidneys but of the larger part of the vascular system. There are, besides, a number of chronic cases with a persistent albuminuria which are often practically harmless. In the latter, tension is not increased. In the course of time these groups become complicated by various changes in the kidneys, implicating the parenchyma as well as the connective tissue. In acute nephritis, however, blood-pressure rises high. At autopsy we view the ultimate results and little that would explain the clinical picture. It is the battlefield, the scenery of the stage after the play is over and the actors are gone.

In hypertension nephritis hypertrophy of the heart and great arterial tension are observed, frequently with only slightly marked changes in the kidney-tissues, with little edema and albuminuria. Its anatomical type is the "contracted kidney." The other types, nitrogen and chloride retention, are not primary kidney diseases, it would seem, but the former due to a metabolic disturbance, the latter to disease of the vascular intima.

It must be insisted on again that disease means in the first place disturbance of function, disturbances which may escape the anatomist as well as the bacteriologist. And to recognize such disturbances the study of the pressure in one brachial artery aids but cannot decide very much.

In certain affections of the heart as well as of the kidneys there appears a more or less extended edema, which to some degree will interfere with a proper determination of pressure, while the constricting cuff presses away the water in the tissues. It should be remembered that such an edema may

be difficult to recognize, because it may be present without showing any pitting on pressure. Very large quantities of water may be stored in the muscles and fat without appearing in corresponding amount in the subcutaneous tissue. After intravenous infusion (in the dog) about 68 per cent. of the water infused is discovered in the muscles and 18 per cent. in the skin, while, on the other hand, after feeding chlorides an average of 75 per cent. of it is found in the skin against 7.5 per cent. in the muscles (R. Magnus). Such an "occult" edema is discovered by the great loss in weight under the influence of diuresis and becomes evident by weighing the patient from time to time.

How far the direct effect of mechanical compression of an artery will alter real pressure by vasomotor reflex remains to be determined. That mechanical irritation of a vessel is apt to produce a marked local effect is observed when making an intravenous injection. As soon as the vein has been punctured it collapses, and when one has the misfortune to have the needle glide from the vessel one finds it difficult to insert it again. The pressure within such a vessel is certainly reduced to a minimum—locally.

The exclusion of an amount of blood from circulation (by constricting a limb) alters the heart-beat and affects pressure perceptibly. We make use of it in the treatment of angina pectoris, where it lowers (sometimes elevates) pressure and usually slows the pulse-rate.

The Katzenstein method of testing the function of the heart is based on the observation that on digital compression of both femorals blood-pressure in the healthy will rise by 10 to 20 mm. Hg., while the pulse-rate remains the same. In a weak heart, however, pressure remains on the same level or is lowered, while the pulse-rate is apt to increase. Also the absorption of very large amounts of water (intravenous infusion, excessive drinking) lowers blood-pressure normally.

Elastic constriction of limbs, as in the Bier hyperemia and by the Esmarch bandage, stimulates the depressor nerves with an irradiation into the vagus. Now it is quite noteworthy, and not sufficiently considered, that such a reflex action appears also where there is no evidence of heart disease, more promptly in some persons than in others. And in not a few the change in pressure becomes so pronounced that it is impossible to arrive at a definite figure of pressure. People with such a pronounced reflex irritability are often endowed with a greater nervous irritability in many directions, their psychic excitability adds to misleading findings, generally in the sense of depression. The first case in whom I ever observed this was that of a young overworked lawyer, a junior partner in a big firm, whose pressure in the left arm was first 120, on second trial 100, then 60—all systolic, of course—and when I looked up at him I perceived that he was about to swoon. After recovery, a long rest, and a journey, his pressure was found unchanging, normal, 130.

In the study of a long series of cases I have attached a separate "Tycos" apparatus to each arm and taken the pressures on both sides in quick succession. Very many cases were controlled simultaneously by at least two physicians who had some experience in this line. We found a large number of cases with a marked difference between the two arms, in a few cases not less than 15 mm. Hg. Though the true cause of such differences in a healthy person is unknown, it certainly proves that the heart has nothing to do with it. There must be a potent determining factor somewhere in the periphery, probably influenced by vasomotor (constrictor and dilator) nerves. At any rate, in comparing notes from time to time of the same individual, pressure should be taken always of the same arm.

Still, when we find a material difference between the two arms, we should always be on the lookout for a certain pathological condition; in one case I was enabled to diagnose aneurysm of the aorta by this very sign, other symptoms being ambiguous, and the diagnosis was confirmed by the *x*-ray.

I may be permitted to assert in this connection that the apparent difference in time in the radial arteries, the sensation on palpation as if the pulse in the one radial appeared later than that in the other radial, is in the great majority of cases an illusion. Simultaneous sphygmograms of both radials in such cases prove it, and one will find in the special literature on such cases that what I assert was observed long ago. Most authors believe the illusion to be due to the peculiar shape of the wave on the side of the diseased vessel. Here one obtains a slow rise and a slow, uninterrupted fall of the wave. But it does not hold good in all cases. Within the last three years I have seen about 25 cases of aortic aneurysm. Of 17 I have taken pressures and sphygmograms (mostly bilateral). The tracings were in about one-half the cases normal with a somewhat lowered apex on the side of the aneurysm. It is assumed that the sounds heard in the cubital artery (auscultatory method of Korotkoff) during compression above, between systole and diastole, are due to vibrations of the arterial wall, caused by the quickening force of the pulse-wave. On the side of the aneurysm one listens often in vain for those sounds. Evidently the undulating wave fails to cause such a vibration. The origin of the undulation I believe to be a local paresis of the arterial wall.

In all cases of aneurysm but one there was a marked difference in pressure between the two sides. And this only exception proves again that a difference of pressure must not be taken here for a fixed rule. There is no such thing as a fixed rule in the symptoms of any disease.

But what is it that imparts to the touch the sensation as if one pulse was earlier than the other? It is the fact of lower pressure on one side, a less pronounced impact from the pulse-wave and, according to a well-known psychophysical law of relation between stimulation and sensation (namely, perception), a strong stimulus is perceived earlier than a weaker one. It is the same with the doctrine that in chronic lung disease of one side the respiratory movement of the diseased side appears to lag behind that of the healthier side. In a large majority of cases a bilateral pneumogram has proven to me that this is an optical illusion, due to the diminished and therefore less conspicuous expansion of the diseased side.

Unusual values of pressures in perfectly healthy people are not quite so frequent as normal pressures in sick people. They call, of course, for a specially careful examination. They are often found rather low in young trained athletes and elevated in old people. In the latter high pressure is not necessarily due to arteriosclerosis or to hypertension nephritis. In old people fat tissue with its large number of capillaries has disappeared, the glands of the skin are reduced in number, all, or nearly all

of the glandular functions have lessened, and there is also a decrease in lung-circulation due to old-age emphysema. This means again a reduced number of capillaries. The skin shrivels and is dry, so that a cut in the skin produces only little blood—shivering old age! The flow of blood from the arteries into the veins is impeded by such a deficit in capillaries, the blood wells up in the arteries which by development of connective tissue in the place of plain muscle-fibers have lost much of their elasticity and become firmer (except in atheroma); an "old-age anemia" does not sufficiently compensate the condition and blood-pressure rises. But that is not a disease, it is a condition!

The influence of the variable width of peripheral vessels, due to continuously changing stimuli, must not be overlooked. According to the law of Poiseuille, the dilatation of a small artery will increase the flow of blood at the ratio of the fourth power of the radius of a vessel, while pressure itself increases in simple arithmetical proportion.

I approach now a question which presents a perplexing feature: the so-called diastolic pressure which is generally stated to be of predominating importance. How far systolic pressure will affect diastolic pressure is quite obscure. Diastolic pressure is defined as the minimum pressure occurring during a revolution of the heart. Can it be referred to the pressure prevailing within the heart during its diastole? Impossible! For that is, at least in its beginning, practically negative. The minimum arterial pressure is always decidedly positive. It can be due only to conditions prevailing in the periphery, in one peripheral artery, for, as I have very often found, the diastolic pressure in one radial may differ from that in the other by ten or fifteen mm. Hg., or from that in the two femorals to a similar degree at the same time. It would seem as if diastolic pressure did, aside from peripheral conditions, rather indicate the pressure prevailing at the valves of the aorta at the instant of their closure and represent the condition of the root of the aorta, not of the heart itself. Therefore aortic disease exhibits pulse-amplitudes, similar to those of aortic regurgitation.

We determine "systolic pressure" during diastole, or dilatation of the artery, its expansion with the pulse, and "diastolic pressure" during the contraction of the artery, or the artery's systole. Such an opposite activity of elastic and muscular fibres in the arterial wall while the pulse-wave with the blood itself passes through it, is bound to exert an influence upon pressure-values to an unknown extent. Otherwise the "diastolic pressure" (aside from its mysterious character) betrays peripheral conditions in a most interesting way. It points to certain alterations in the blood-current more clearly than any other mechanical contrivance.

We employ the sphygmomanometer for diagnostic and prognostic purposes with greater benefit, when we base either on frequently repeated determinations in the course of days or weeks. The data obtained are not of any value at all if all sources of error are not carefully avoided and concomitant symptoms considered. We shall then, and only then, gain most useful information, not quite so readily gotten without it.

Mention has been made that the state of the nervous system may affect blood-pressure, thus it would serve diagnostic purposes also in this direction. Psychiatrics and the doctrine of internal secretions receive some help from the method. Willi Schmidt has observed that for instance in pre-senile dementia, in hebephrenia, and catatonia the injection of adrenalin, which in the healthy raises pressure, will not do so, and that when an improvement occurs adrenalin injection will again raise the pressure.

One has expected too much from the method and disappointment is bound to follow. Surely, a single blood-pressure reading gives a meaningless figure and may be quite misleading. Rules based upon such readings prove absolutely nothing. Averages established have no more bearing on a given case than statistics would have under the same condition. The fad of generalizing by deductions from ever so many isolated observations made in so complicated and still quite obscure a matter as the meaning of a single pressure discovered in one brachial artery is detrimental to clinical medicine. Only by most complete study of each and every single case can we hope to arrive at useful results. To this complete study belongs the estimation, under proper precautions, of blood-pressure, which with available methods gives valuable relative, but never absolutely correct and reliable data.

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NEUROSIS AND PURPOSE.

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It is necessary to view the neurosis as a mode in life; to compare it with other expressions; to read its meaning in relation to those others and to life in general, but not to scrutinize it as a strange, isolated mental epiphenomenon; then to ascertain the direction of this, for no meaning is possible until a direction of the movement is defined and its termination fixed. Until this chiefest thing is seen, no real value can appear from an analysis. An American philosopher has advised thus: "Never break a thing open until one is sure of the terminal facilities." Unless there can be gained from the neurosis a view of its end or purpose, any breaking into it is inadvisable. The justifiability of this paper rests upon an attempt to isolate the neurosis as purpose.

For the moment drop purpose in relation to the neurosis and consider it in relation to life. The purpose of life is purpose; note the gap which strikes the mind, and the question, "Purpose for what or motive for what?" It seems impossible in an applied sense to define purpose or motive without an object. Even in an abstract way, some moral object stuff usually exudes at the attempt. If we substitute "striving" for "purpose," we again question "Striving for what?" Instantly material vestments hang before us, to be striven for. But that is not an answer. Back of the vestments must be something greater, for which they stand, something which they symbolize, a universal object, not a petty gewgaw of the moment but an everlasting and desired possession.

A definition of the conditions of purpose will make things more clear. No purpose exists individually; the social context is always given. No act, however apparently autonomous, which historically lacks the relation to others, which does not take into account the reality of the world as construed or having been construed by society. The ancient formula has no truth which gave life as an adaptation of the inner to the outer; just this it is not, nor has been. Growth has not come out of mere adjustment or adaptation. These words feebly ex-

press a result; they do not describe the real activity of the individual nor do they touch the purpose. Prehistoric man was seeking no adaptation when banging his hatchet against the durable framework of his animal contemporaries. A river channel as an erosion or the remains of water confluence from a subsidence of the earth's crust may show an adaptation; but this same river may urge no adaptability to those nations bordering it, for history has written the erasure by man of every material adaptative boundary. Had man's purpose been adaptation, he would now be embalmed in the deposits of ancient stratifications. Self-preservation—another hoary term—goes little further. It does recognize, implicitly, others. This the purpose of life, though fossilizing were avoided, the head measurements and culture of the Lake man would now present. Self-preservation is negative; it is defense, not attack, and attack alone means growth. It involves isolation, separation; it denies society. Civilization gives it the lie.

In both these interpretations of life something lacked. The term needed came not from biology but from the truest and most intuitive in his psychology of our philosophers in his expression of the basic purpose of life as "Will to Power." With this, man's relation to man instantly emerges; his attacking of reality, not adjustment to the reality; nor for overcoming reality in itself but out of the will to power, a power psychologically expressed in its relation to another man. Here is no formula of man versus reality but first as man versus man; not out of a self preservation but out of a striving for power which exceeds that of his fellow. Here is purpose as the first term and final term. Yet this can be read only in a social context. This is the sole disability affecting this equation; that it reads in the mass but not in the individual and this because we the readers are individuals and halt with a blurred vision when hurt. How we have built ornate systems of religion with ample moral assurances against just such self revelation is no part of this work to tell. Sufficient that some skulking depreciatory sense of wrong hangs at the heels of such an interpretation of life's purpose, something immoral, and the will to power, in morals as in armor, demands the best and most appreciative, which this is not. We are saved, as usual, by ourselves from a painful meeting with a naked purpose. Yet, whatever Peters we may be in our denials, the mark of this purpose is to be found and its sources discovered. In this field Adler of Vienna has been a pioneer and the fundamentals under question are those that have yielded to his examinations. Man conceives his personality largely as envisaged in an outer surface body. So valued is this that his Deities have been cast on the same mold. This is his last word of approval. Yet his life processes lie beneath. Latter years have seen these better translated. Single organs have been expressed, not in terms of a single function, but as composed of diversified and interlocking functions. Systems of organs have been defined bearing to one another clear relations. The rate of function has been found widely variable in the single organ and in the systems of organs. Follows the compensation theory which has shown in the absence or diminution of one function that a correlated part attempts to compensate for it. But back or this lies the work of Adler, who for the first time expressed the true picture of compensation in his "Organic Inferiorities," in which an organic inferiority pushes its rate of functioning above normal in a compensatory effort. The important factors in Adler's equation are the inferior function below the line and the compensation leading to function above the line or level of normal. This difference in level, then, is not merely compensation; it is more than the equivalency implied in this word. It is strictly an over-compensation, a going beyond. Adler's studies of function showed further, if the over-compensation failed in the organ directly involved or in the specific function of this organ, that the same movement was carried elsewhere in some correlated function. In all this a general biological mode in the presence of an organic inferiority, a general biological heritage. It remained within these limits organic, because the over-compensation in an organic way was efficient or reasonably efficient. Where the organic over-compensation failed, here Adler's theory carried out an admirable evolution. Into the background of consciousness given by the organic life, into this context of consciousness the uncompensated inferiority comes as a feeling differentiated in the general sematic sensory background. These sensations, long described by neurologists as feelings of insufficiency, incompleteness, yet never explained, adapt themselves to the framework of his hypothesis. Adler makes them the mental inferiority sublevel and constructs his superlevel of over-compensation in a corresponding range of mental attitudes. The organic pattern is used to construct his psychic model. Here is where the individual first touches society, for in society is afforded that matter without which he can not over-compensate, and this pattern is the parent. We know the range of the child's growth never keeps pace with the necessities of reality; each month brings a more difficult world and reveals more plainly the feeling of inferiority in this deficit. As parental care diminishes, this confrontation is more harsh. The parent stands at once as conqueror of this reality and as the most immanent of reality to the child. Overcoming or gaining the supremacy over the parent is then to overcome reality. The parent stands as the original object of the over-compensation, born of an inferiority sense but so far removed from its original organic substratum as to make its picture dim and not reasonable. Here is the strength out of weakness or Nietzsche's own formula "Good from Evil." Here is the core of Purpose, which is a pattern of life and upon this the psyche grows. This is teleology and without it structure is impossible.

Yet it is immediately apparent that such a purpose cannot find an abiding working out of reality. It is fictitious, viewed as a goal, a supremacy of this kind. Yet this fictitious goal is the goal of the child as it was the goal of man in the childhood of the race; nor in man or nations does it completely die unless they die, and in both a breath may blow it into life. Life, then, written in these terms of teleology varies as this purpose varies. At one stadium it fertilizes, at another it checks growth, and the differing lives must display these differing relations to this one purpose of supremacy; whether it persists as the goal, this fictitious supremacy, or whether it has been forced to make some working arrangement with reality, society. A closer psychological differentiation at this point, while to be desired, would not add to the exposition of the purpose.

It is then possible to arrive at a division by this teleological divisor. One group abandons the goal,

another pursues it. A simple separation of this type lacks in any fine distinctions. But it is worth while recalling that intricate classifications usually have rested upon superficial observations and rarely have touched the deeper generalizations which break groups into major not minor masses. However, a possible didactic tone must not blur the fact that the fictitious goal is never entirely abandoned. Vestiges of it constantly reappear, compromises are effected; only the needle in the one group swings toward the reality of society more constantly than it deviated in the direction of the fictitious supremacy of "Being All, Having All, Willing All." In the other group the goal remains supreme. Yet in this second group, with a like teleology, the course toward the fictitious supremacy varies in directness and in the degree of accommodation to society or reality. The more direct the course, the less is the accommodation; the more devious presents a closer approximation.

Although society cannot be credited with any understanding of this group, she has discriminated against them always and this because of their faulty accommodation to life. Possessed of differentiating criteria beyond this, we have in front of us a rapid distribution of this inchoate mass. Of these criteria the fictitious goal stands in front as first and now predicated as defining and dominating the group. The goal, the supremacy, is revealed only by the course leading to it, for it has, as a singular and distinguishing feature, a localizing beyond the consciousness of the individual; like the Covenanters it has sought the solitudes for worship; not of a God, however, but of itself as a God. To the individual, this purpose, this supremacy, this God is hidden. But to an Alexander, a Napoleon, a malefactor of great wealth, their goal, their ambition is cameo cut in consciousness. The object is in front of him and is not diffuse in its allness. Also at times Alexander sat at the feet of Aristotle, Napoleon lived keenly aware of Josephine, while our malefactors have each seen the limitation of their candle power. But the unconscious, fictitious goal knows no other than self; even self may be merged with God and Fate is their handmaid. With an unconscious goal, it is obvious that further knowledge has had to halt until some method of intrusion into the deepest part of the individual was attained. We have seen Adler's derivation of the psychic over-compensation out of an inferiority basis and this as universal. In his work in psychanalysis out of dream interpretations he arrived at a teleology, his own and not shared by Freud, in which the dream presented the unconscious formation as built out of the over-compensation and arranged in a movement toward the supremacy of the fictitious goal. The unsuspected ramifications about this goal, its intrusion into the center of psychic life, its domination of all activity were exposed. Out of its analysis the courses toward the goal so well submitted themselves to close analysis that marks were yielded which identified similar conscious courses and defined the variations of such paths covered in life and toward a goal revealed only by its approaches. In his admirable work "Uber die neurotische Charakter," Adler has given an ample and sound foundation for these concepts. These paths, discriminated against though not understood by society, become explicable as one follows them from the unconscious outward. Because they are the outer accommodations of the individual, because they are his "symptoms," it is now the moment for their scrutiny and a possible grouping on a basis differentiating their type of movement and their relative accommodation to society, using for this these criteria possessed of familiar marks out of their analyzed prototypes of the unconscious. All this that the purpose may be made recognizable, that the goal may be distinguished by the movement leading toward it.

Two groups go over the direct route to the supremacy, in which none or little accommodation is made to reality or society: the psychoses and the criminal mass. It would seem obvious that qualifications of both groups are in order at this point: yet there should be held in mind that here no denial is entered of determining etiological factors which appear, for instance, in general paresis, in psychoses associated with organic brain disease, in the infective-exhaustive group, or in the toxemias; nor that consideration has failed among the criminal mass, as in the feeble-minded delinquent, or the epileptic, or the alcohol group, or the "occasional offender," or the resultants of economic pressure so dear to the sociologists. The contention here is that whatever may be the etiology in this mass, it has served to exaggerate the movement toward the fictitious goal in a degree which has made their course direct and has annulled any accommodation to society.

A more definite objection will be made on the ground that the psychoses and the criminal mass are not related except in the popular mind. As modes they are as apart as the poles, but in this, as in other analogies, inner similarities are blurred by outer differences and, because the latter are to be seen and discriminated as visible attributes, separation rather than unification dominates. This is not to be overcome by insisting upon a common unseen goal, but by presenting both groups as exhibiting a like directness and a like maladjustment to society even though achieved by unlike methods.

The psychotic carries into his conscious life the reality of his unconscious. No other reality exists for him. His course is terribly direct; nothing stands in his way. He has no need of social verification; the data of experience do not encumber him. His fictitious goal of supremacy is a pillar of cloud by day, of flame by night. No trace is left of the conditioning inferiority on which his over-compensation was built. This may seem a possible interpretation of the paranoiac, or a maniac, or a precox subject, but where can it lie in the depressive phases? Here it lies concealed beneath the formidable expressions of sin or grief or deprivation, so formidable as to break all bonds, to destroy the deepest of obligations, to depreciate all others and isolate self with expressions of regret and accusation so false as to remove their possessor further from society. As Shaw says of the Christian martyrs, "pride is their besetting sin." Asceticism and vanity go together. The criminal has a like driving toward the supremacy, but in his unconsciousness there has been less elaboration; also it rises and falls. His urgency is the greater out of a better defined and more persistent inferiority feeling, yet one in which the over-compensation demands a social verification in acts, which, depreciative of property and person, appreciate and feed the supremacy. The firm construction of the psychotic supremacy fails, for it is characteristic of the criminal that a repetition of the act is demanded to maintain the supremacy. Only at the moment of the act does the reality of the supremacy erase the reality of society. Yet where the movement toward the goal is urgent, where no other mode of over-compensation can be equally effective,

this expression will repeat itself and one confronts the problems of recidivism. In single or multiple acts, however, his course has been direct, even though not sustained; his accommodation to reality, society, has been lost though only for the moment. Thus, with two divergent modes in the psychotic and in the criminal, based on differences in the unconscious formation, an outer course is made toward a common goal with a similar directness and a like maladjustment to society.

In the second group the course toward the fictitious goal is less direct, hence the accommodation to reality is more usual. Society does not discriminate against this group; yet they are marked off from the larger mass. To apply to them the term of Neuroses or psychoneuroses is an admittedly poor effort at description; yet it will have to stand, for here the group is not being considered in a nosological sense; it is in the aspect of purpose that the present formulation is attempted. The tolerance of society would indicate that the modes of this group are those of society, or like them, for to Society those not speaking her tongue are Barbarians. To define the situation further, it is recalled that society does discriminate against the psychotic because his supremacy has grown so massive and rigid as to carry his unconscious reality out into the reality of society; against the criminal, because open, urgent over-compensation of his inferiority, constantly required for his wavering supremacy, strikes monotonously at society as the object of his depreciation, his solitary mode of over-compensation. Hence, it is fair to assume in this second group a less rigid supremacy than the psychotic and a less massive inferiority than the criminal. A less rigid supremacy means, of course, a considerable and unsatisfied inferiority which constantly demands over-compensation in the movement toward the fictitious goal, yet with none of the terrific urgency of the criminal whose inferiority stands out as the greatest when read from his peculiar modes of over-compensation. With a less rigid supremacy than the psychotic, which cannot carry into consciousness, with a less urgent inferiority than the criminal driving relentlessly toward over-compensation, it is plain to see how this group have taken the easiest route of non-offense to society in developing modes which are not direct but devious, with methods not simple in their openness and immediacy, but complex because covered and disguised. So far as society is concerned, they seem to "pull through" in Mark Twain's words describing the Sabbath with Adam. They thus get by, because their methods are calculated to conceal the true movement toward the fictitious goal. These methods deserve a brief attention, for in them is lined the contour of the neurotic. They are, in the first place, archaic; they go back to childhood, infantile structure, when all were more supreme than since; and we dimly recognize them as they reappear in our neurotics and denominate them as childish, which, of course, they are. Only they are well fitted to carry supremacy under a cover, and the child, when a man, appears weak, timid, humble, anxious, or perhaps foolishly defiant and nasty and proud or critical; a nuisance in general, a martyr or a devil. A man, he may be as a woman; a woman, as a man. Adjectives die in such descriptions. Beneath or with these archaic unfitnesses some personal end is concealed, bound to appear if not too severely sought; it may again appear in garments of sober, mature gray, but the tinsel and color lie below always. And we tag them as selfish, a good word, but out of place here, where we have known the real fictitious goal as of a magnitude to make so simple a word as "selfish" blanch and tremble. On top or near the surface the neurotic carries a wonderful line of moral (sic) life insurance in the form of protections, otherwise called phobias, compulsions, etc. Usually these do not appear at first, although in one group of neuroses they give the dominant tone. Being the least social or the least fitted to society of all the contour marks, their necessary concealment leads to the most puzzling attitudes and reactions. Yet, all these marks only go to make up the contour and a bare part of that. But the relation of this contour to the body of the neurosis has been the immediate and important thing. The final relationship of the neurosis to life, to the social body has been defined in the terms of that purpose, supremacy, which never dies and is ever sacrificed to. In this setting the neurosis stands revealed as an unsuccessful endeavor to maintain the supremacy of the inividual in the midst of a harsh and resistant social body. The neurotic has failed where the psychotic has won and the criminal for the moment excelled.

The practical bearing of the neurosis, thus defined, is that a structure is placed before one in which the successive formative stadia are exposed. The final result is a complex reaction which presents for treatment. Holding to the line of purpose, the central object to be attained is the destruction of the fictitious goal by methods which shall bring it, with its material, into consciousness, and hence into adaptation to society where it cannot persist. To get the material requires intrusion into the unconscious. Psychanalysis is the method here, but not the psychanalysis of Freud. Their basic differences will be handled in a later paper. It is here sufficient to iterate in the final words, that no fairer chance is open for therapeusis than in a situation where the pathology is found to be identical with a false direction and restitution to normal is to be gained by erasing a false structure to permit a normal movement toward a goal which is adapted to society.

23 East Seventy-seventh Street.

PAINLESS PARTURITION.

By M. W. KAPP, M.D.,

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So much has been said recently regarding "twilight sleep" in parturition, its benefits and its dangers, that I feel it my duty to give to the medical profession my experience in the last three years with a method of producing a condition of shockless and painless parturition.

I have practised medicine, as a general practitioner, for twenty years. I have always had a good obstetrical practice. The dread and agony of the parturient mother has always worried me. Motherhood is such a sacred condition and it should be such a happy condition from its first moment through all its stages. With so many the dread of the hours of labor depresses them and without any question has its depressing effect upon the child. I feel that I have been able during the last three years to lighten the burdens of the mother very materially.

I use my method as freely in the most humble home as I would in the hospital. It requires no corps of trained assistants. The country doctor can use

it as readily as the city doctor who attends the "four hundred."

When I am called to a woman in labor and I am sure that the pains are real labor pains I wait until the expectant mother shows some signs of distress, if it is a first confinement. That is so she may know what labor pains really are. If it is a case of a mother who has had one or more children I do not wait for the pains to become even severe. I am presuming that the patient has been properly prepared for accouchement. I then give the patient (1/12) one-twelfth grain of heroin hydrochloride hypodermically. Within twenty minutes she will feel drowsy and no longer feel the sting of the pains.

At this time I sit down by the patient and explain to her the need of her bearing down when she feels the contractions. Between pains she will often fall into a light sleep. When I find she is progressing nicely I often go away and make a call or two, or at night I may lie down for an hour, leaving a nurse or someone with the patient who will call me if I am needed. If labor is getting well advanced I stay by the patient's side and watch every advance carefully.

The effect of one injection of one-twelfth grain heroin usually lasts about three hours. Some very severe cases need more heroin before the end of three hours. I simply watch my patient and if the pains are getting severe again I sometimes give another full dose. Again I may give only one-twenty-fourth or one-thirty-sixth of a grain. I aim never to have more than one-twelfth of a grain of heroin in action at one time. I have found that one-twelfth of a grain is the best average dose. I tried one-sixth of a grain several times and it spoiled my case by retarding the pains. One-twelfth grain inhibits the sensory nerves but does not affect the motor nerves. I have used as high as three and one-half doses in one case. I rarely need more than one or two.

I have used it in about one hundred cases all in general practice. I have no trouble with the babies being blue, at least no more than I ever have had. Any long case of labor may cause a child to be exhausted when born.

Heroin properly administered will hasten labor rather than retard it. It lightens pain so the mother if properly directed will aid in the expelling of the child. The use of morphine and scopolamine will retard labor almost every time. I have had no severe cases of hemorrhage while using heroin.

The mother usually rests very quietly after labor and has much less shock than by the old method. Many doctors seem not to appreciate the condition of shock after labor. I have sometimes used a little chloroform at the last part of labor, but that is not necessary if the heroin has been properly managed.

I have had a few cases of inertia of the uterine muscles in which heroin did not seem to do much good, but by using divided doses of pituitrin labor was properly completed.

I do not claim that my methods and my technique are the best or are correct. I write this so that others who have better facilities to develop the correct method may be urged to do so. It is by far the best method of lessening the fear and pain of the lying-in chamber that I have ever been able to find, and best of all I can use it in my general practice without fear.

The Freiburg method and the nitrous oxide and oxygen methods are good but they are only to be used in hospitals. I believe that if heroin were used with the same technique as the morphine and scopolamine treatment the results would be equal, and there would be no danger involved.

RECOVERY FROM BICHLORIDE OF MERCURY POISONING.

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As recovery from poisoning by bichloride of mercury is infrequent, the following case seems worthy of record:

A. H., A Cuban woman twenty-two years old, was taken very ill on Friday, July 24, after having taken two 7½ gr. bichloride tablets intentionally while under the influence of whiskey. She was seen by a physician on the following day and was sent to Freedman's Hospital on Sunday night, July 26. She had been vomiting almost continuously since she took the poison. She had intense pain in the abdomen and a profuse diarrhea. She had not passed any urine since she took the poison. The patient was catheterized but no urine was obtained.

Examination showed a woman of dull face, very taciturn, sullen, mind clear, teeth loose, gums sore and bleeding. Examination of the heart and lungs were negative. There was tenderness on palpation over the abdomen. There was complete suppression of urine. Blood pressure: systolic, 105 mm. Hg., diastolic, 70 mm. Hg. Decapsulization of kidneys was considered by Dr. J. B. Nichols, the visiting physician to the ward, but was deferred.

The patient was given hot packs for twenty minutes three times a day. Lithium citrate gr. v dissolved in water, four times a day for two days; piperazine 15 gr. to 16 oz. of water given during the day for six days; pituitrin, ♏ xv, hypodermically every four hours for four days, then twice daily for three days; rectal irrigations of hot decinormal salt solution twice daily; potassium chlorate and hydrogen peroxide were used as a mouth wash.

On the second day in hospital, the fourth day after taking the poison, the patient voided 2½ oz. urine, which on examination showed albumin and a few granular casts. She continued vomiting and complained of severe pains in the abdomen. Mouth and gums continued to bleed. She slept very little during the night.

On the third day the patient did not void urine, but we obtained two drams per catheter. Condition poor. No uremic symptoms evident.

On the fourth day the patient voided six ounces of urine. Hot packs discontinued; hot water bottles placed over region of kidneys. On the fifth day the patient was much improved, vomited only a little during the day. Diarrhea had ceased. Bismuth subnitrate, in large doses, was given after the vomiting had ceased.

On the sixth day the patient was able to take liquids and soft foods and retain them. She continued to void urine. After the sixth day, she grew gradually better and all the gastrointestinal symptoms disappeared. On the twelfth day examination of urine showed a trace of albumin, no casts.

The patient was discharged on the eighteenth day fully recovered.

Polycythemia Rubra.—H. MacCormac reports the case of a male aged 64 years, in whose family history there was nothing of importance. His health had generally been excellent. No previous illness. The present condition began six years ago, when his friends told him his face looked flushed and blue. About this time he had his first attack of articular gout; since then he has had several other attacks. He has also had sciatica. The rubicund condition of his face and extremities had become more marked. The small blood vessels could be seen very distinctly on his face and there was a general reddish blue color which was also well marked on the mucous membranes. Apart from a feeling of lassitude his general condition was fairly good. The spleen was very considerably enlarged. Blood count: Red blod corpuscles, 8,500,000; white blood corpuscles, 9000; hemoglobin, 130 per cent.—*Proceedings of the Royal Society of Medicine.*

Medicolegal Notes.

License to Practice Special Branch of Medicine or Surgery.—California St., 1911, p. 1437, provides for the board of medical examiners issuing a certificate to anyone to practice a special branch of medicine and surgery, who shall have at the time of the act going into effect, practiced it 35 years, 15 of it within the states and shall pass a practical examination, consisting of a demonstration in such special branch, and thereafter qualify by effecting a cure. It was held that this provision is based upon a proper classification, viz., ability acquired by experience, and shown by an examination, notwithstanding the persons to whom it applies had violated the law by practicing without a certificate. The provision of the act was held to show a legislative intent to admit certain persons to practice a special branch of medicine and surgery who have previously violated the law, not, however, because they have violated the law, but because of an acquired experience in given branches of medicine or surgery. The provision was held constitutional. Whether cancers, tumors, malignant growths and cutaneous diseases are so correlated that they may be classed as such a special branch was a question of fact under competent evidence.—Bohannon v. State Board of Medical Examiners (Cal.) 140 Pac. 1089.

Evidence of Shock from Fright.—In an action for personal injuries from being knocked down by an automobile, the testimony of a physician that it is almost impossible for any physician to state just the extent of an injury from a shock, because it sometimes shows up 10 or 15 years afterwards, that one cannot tell the extent or duration of it in the future, and that there are cases of shock from fright where the condition has become permanent, was held to be admissible to show what suffering will accrue from the injuries in the future.—Rugenstein v. Ottenheimer, Oregon Supreme Court, 140 Pac. 747.

Qualification as Medicine Expert.—In an action for personal injuries it was held that the fact that an expert witness was not a physician regularly licensed to practice in the state did not militate against his competency as an expert. The only object of license is to prevent an unqualified person from practicing medicine and surgery; but a man may be ever so learned and well qualified to give an opinion, and yet not be engaged in practice. The fact that the witness had been licensed to practice medicine in another state, and had been so engaged since then, was competent evidence for the consideration of the court in determining as to the qualification of the witness.—Rugenstein v. Ottenheimer, Oregon Supreme Court, 140 Pac. 747.

Right to Compensation from County.—A large number of cases of "infantile paralysis" having broken out in a county, the state board of health ordered a duly licensed physician, who was a member of the board of health of the county, to quarantine the disease. He did so, attending to about 250 cases of the disease. It was held that he was entitled to recover from the county the actual expenses incurred by him and the reasonable value of his services.—Shidler v. York County, Nebraska Supreme Court, 146 N. W. 949.

Right to Compensation from County.—A regularly licensed physician was under contract with a county to give medical attendance to the inmates of the poor farm and the prisoners in the county jail, for which he was to receive the sum of $5 per month. Smallpox became prevalent in the county to such an extent that it soon became epidemic, and the physician was directed by the chairman of the county board and board of health to quarantine all those afflicted with that disease in the county, to fumigate their homes, and take all necessary measures to provide for its suppression. He treated 132 cases of smallpox. His actual expense in connection with this service was $260, and he charged the county $726 for his professional services. The board disallowed his claim. In an action against the county he was awarded $790.35. On appeal by the county, it contended that the plaintiff could not recover because he was a member of the board of health. "It is easy to understand," the court said, "why the members of the board of health should receive no compensation for serving thereon, but it would be difficult to understand why a physician should be called upon to serve the county in suppressing an epidemic and contagious disease without compensation. Many cases are cited by appellant to support the contention that an officer must perform all the duties of the office for the compensation provided by law; however, those cases are not decisive of this controversy. The better rule is announced in Spearman v. Texarkana, 58 Ark. 348, 24 S. W. 883, 22 L. R. A. 855, where it is said: 'A physician who is a member of a board of health may recover reasonable compensation for purely professional services which any other physician might render, rendered by him under direction of the board of health without any express agreement for compensation.' " The judgment for the plaintiff was therefore affirmed.—Plumb v. York County, Nebraska Supreme Court, 146 N. W. 938.

Evidence as to Result of Injuries.—In an action for personal injuries alleged to have been caused by the sudden starting of a street car, it appeared that the plaintiff suffered a miscarriage four days after the accident. The defendant argued that the evidence did not warrant the inference that the injury sustained on the car caused or contributed to the miscarriage. The argument was that the miscarriage might have been caused by lifting the child onto the car step, or by weakness following two previous miscarriages, the second of which was followed by curettement of the womb, and that there was no definite evidence pointing to the fact, or the inference, that the sudden and unusual starting of the car was the proximate cause of the miscarriage. One physician testified that the injury produced the miscarriage, and others testified to the contrary. The plaintiff testified that her health was good before the injury, and that immediately after the injury she began to suffer pain until the miscarriage occurred. It was held that the question whether the miscarriage was caused by the injury was properly submitted to the jury, which found for the plaintiff.—Atwood v. Washington Water Power Co., Washington Supreme Court, 140 Pac. 343.

Liability for Medical Services to Employee—Right to Terminate Contract.—A building contractor, one of whose employees had received a severe bodily injury, called his own regular physician and surgeon over the telephone and instructed him "to come and take care of the injured man." When he gave this instruction he knew that the employee's injuries were of such a character as to render it necessary to immediately remove him to a hospital. The doctor at once responded, and took the man to a hospital. For the purpose of inducing the hospital authorities to receive him the doctor stated to them that the principal for whom he was acting would be responsible for the payment of the hospital bill of the injured man. It was held that the master was bound by such acts and declarations on the part of his agent. Subsequently, and while the patient was yet incapable of being removed or discharged from the hospital without great danger to his life or health, the master gave notice that thereafter he would not be responsible for care and treatment "from now on." It was held that the master had no right to thus terminate his liability. Under the circumstances, it was an implied condition of the contract that the master could only terminate his liability to the hospital by removing the patient, or when he could be dismissed by the hospital without serious danger to his life or health, or by showing that the injured man had means out of which the hospital could and should have collected its pay.—Omaha General Hospital v. Strehlow, Nebraska Supreme Court, 147 N. W. 846.

Liability of County for Operation on Prisoner.—It is held that, where a physician, at the instance and at the request of the sheriff of a county, performs a surgical operation upon one who is a prisoner in the custody of the sheriff, an action cannot be maintained by the physician against the county to recover the value of such services, where there is no law authorizing the sheriff to bind the county under such circumstances.—Nolan v. Cobb County, Georgia Supreme Court, 81 S. E. 124.

Action for Services.—In an action for compensation for services rendered to one run down by one of the defendant's cars, an instruction to the jury improperly allowed the plaintiff to recover for services rendered some time after the accident as for those rendered in "first aid." As, however, the plaintiff had a verdict for $476.67, which was the total amount of his demand with interest, it was clear that he did not recover merely for the "first aid" given, but upon the ground that he rendered all his services upon the employment of the defendant and its undertaking made through its authorized agent to pay him therefor, and the error was therefore harmless.—Sylvester v. New York, N. H. & H. R. Co., Massachusetts Supreme Court, 104 N. E. 437.

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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INTRACAPSULAR RUPTURE OF THE LONG TENDON OF THE BICEPS BRACHII.

INTRACAPSULAR rupture of the long tendon of the biceps has been considered an unusual occurrence and has received but slight attention except in some of the newer and more recently revised surgeries; but Fièvez (*Arch. Gén. de Chir.*, February, 1914) contends that it is by no means so infrequent as has been supposed and contributes an extensive study of the subject, also touching upon the medico-legal side of the question. Now that we also have a Workmen's Compensation Law, cases of disability from this source will undoubtedly come up for adjudication, hence this work is especially worthy of notice at this time.

He finds that intracapsular rupture of the long tendon furnishes a triad of symptoms which consist of: (1) Tumor of the long head, (2) abnormal perceptibility of the long tendon below the anterior border of the deltoid, and (3) the putting of this tendon into more or less strong tension during contraction of the biceps. The tumor is situated in the anterior brachial region, along the course of the long tendon. Its volume varies with the muscular development of the subject, is enlarged transversely from the short head to the cephalic vein, which it lifts forward, is continuous below with the biceps muscle and above with the long tendon. If the muscle is in repose the tumor is soft, depressible, mobile, and without adherence to the skin or deep parts. In passive extension of the arm it does not disappear but is somewhat reduced, and remains soft. In active contraction it grows harder, increases in size, and becomes a little more prominent. When the contraction is opposed it becomes hard, increases still more in size, and becomes immobilized. From these clinical characteristics it is evident that the tumor is composed of healthy muscle, heaped upon itself. The abnormal perceptibility of the tendon below the deltoid is the capital element of the syndrome. Normally this tendon becomes fleshy at the point of emergence from under the deltoid, and appears to the exploring finger as a spindle progressively increasing in size. In intracapsular rupture, however, three or four centimeters of the tendon are appreciable to palpation, frequently to view also, below the deltoid border; the tendon has the form of a well-rounded cord, more or less tense in repose, but rigid in opposed flexion of the forearm. At the moment of the accident the patient ordinarily perceives a cracking accompanied by a sharp pain in the upper part of the arm; this latter being the principal cause of the functional impotence occurring immediately in the injured member. On the following days, although the pain and functional impotence may retrocede quite rapidly, there appears occasionally a more or less extensive ecchymosis occupying the anterior region of the arm. A considerable number of these cases have been operated upon and surgeons have found an intracapsular rupture of the long tendon.

Before taking up the cause of intracapsular rupture, Fièvez calls attention to the fact that anatomists have often noted anomalies in the insertion of the long head, such as into the bicipital groove, humeral tuberosities, or the articular capsule. Whether this is due to congenital malformations or to pathological modifications following intracapsular rupture of the tendon can be settled only by reviewing the published accounts to see if, in these dissections, the relations of the tendon to the anterior border of the deltoid were normal or not. According to the published accounts intracapsular rupture of the long tendon is rare; but Fièvez, in examining 450 patients in a hospital service, found his syndrome present on an average of 1 in 45 cases, with the maximum of frequence in the male and in the right arm. In the dissecting room he found it once out of ten subjects dissected. He explains this difference in percentage on the ground that there are two forms of the affection—acute and chronic; this latter sometimes with a début and evolution so silent that it is hardly noted by the patient.

The stages leading up to rupture within the capsule were well shown in some of the cases dissected. In one, the tendon was frayed; in another, there was rupture of some of the tendinous fibers and progressive infiltration and destruction of its mass; while in a third, the lesion was definitely constituted, the tendon being ruptured near its superior insertion and reinserted into the capsule of the joint. In one cadaver both stages were shown, before rupture of the tendon on the left side, and after rupture on the right. Arthritis sicca, with ecchondroses, osteophytes, and intra-articular villosities, was present in all the cases. In the late cases there was also periarthritis and inflammation of the bursæ. Thus he believes that there is first an arthritis, with the formation of ecchrondroses and osteophytes, together with infiltration of the main body of the tendon within the joint. In the process of contraction of the muscle and in the various movements of the arm—abduction, adduction, etc.—the edges of the tendon are rubbed and the tendon gradually weakened so that rupture may occur upon severe strain if the process is not very far advanced, and on slight strain if the destruction of the tendon has been considerable. The first constitute the acute, and the latter the chronic, or medical, cases. While the biceps tendon is being weakened, and perhaps finally ruptured, the arthritis continues its destructive action, opening the capsule, causing thickening and perhaps per-

forating the subacromial or subdeltoid bursa. It is thus easy to understand the production of the syndrome of this lesion: The long head of the biceps has been detached from the glenoid tubercle and glenoid ligament, and the part of the tendon normally concealed in the joint, of which it constitutes an active ligament, has escaped through the bicipital groove. Thus is explained the presence of some centimeters of tendon abnormally perceptible under the deltoid border. Since the tendon has slipped, the muscle, due to the slight tonic contraction of its fibers, forms the tumor felt and seen, and finally there is increased tension of the cord during contraction because the tendon has been held by its synovial sheath which has been devaginated to the maximum and has become hypertrophied. Later the tendon becomes reinserted upon some portion of the capsule, usually in or near the bicipital groove.

Coming to the medicolegal side of the subject, there are three types of cases: those in which (1) the traumatism is severe, and seems sufficient to have caused the rupture of even a healthy tendon; (2) the traumatism is insignificant, the arthritis being manifestly everything in the causation of the rupture; (3) the traumatism and the arthritis may be considered equal factors in the production of the rupture. The question then arises whether the antecedent condition of the tendon and of the tissues in and around the shoulder joint should be considered in deciding the amount of damages to be allowed in cases of intracapsular rupture. The compensation law in France was passed in 1898, and in 1902 the Court of Appeals rendered the following decision: "The determination of the indemnity depends upon the salary effective of the worker injured, and the ability for work which the accident leaves him. The inferior condition in which the victim was before the accident is of little importance from the point of view of the determination of his actual condition." Discussion has been keen in France upon this point.

ANISOTROPIC FAT AND ITS EXCRETION.

For a long time considerable interest has been aroused by the discovery in the various tissues of substances resembling fat but differing from the latter and from lipoid bodies by possessing anisotropic properties, and presenting the appearance under polarized light of glittering droplets enclosing a black cross. Kaiserling and Orgler found these bodies in the diseased wall of the aorta and in the kidneys, and regarded them as the product of a peculiar form of myelin degeneration. They also isolated these bodies from the urine.

A. Lawrynowitz (*Zeitschrift für klinische Medizin*, Vol. 80, Nos. 5 and 6) has studied the question of the excretion of anisotropic fat in relation to its deposition in the tissues. He regards the so-called myelinosis of the kidneys as an expression of the general tendency of the organism to store up the esters of cholesterin whenever the metabolism of this substance is disturbed. From the diagnostic viewpoint the presence of anisotropic fat in the urine indicates in all probability a chronic parenchymatous degeneration of the kidneys. It is particularly in amyloidosis of the kidney that anisotropic fat is excreted in the urine. It has been found that the experimental introduction of anisotropic fat into the tissues is accompanied by a destruction of the parenchyma and a degeneration of the connective tissue. The author regards the deposition of anisotropic fat in the kidneys as a complication of nephritis, which complication moreover creates a vicious circle by giving rise in turn to a further degeneration of the renal cells. These apparently cannot tolerate the presence of anisotropic fat deposited in them, and accordingly break down and set free the unwelcome guest. Of course this sequence makes the ultimate prognosis much more unpromising.

It appears that the source of the anisotropic fat is to be traced back to cholesterin which in turn is derived from the food ingested. By dietetic measures therefore one may restrict the amount of cholesterin that enters the organism and thus limit the accumulation of this substance in the blood, which sequence is the rule in chronic inflammations of the kidney. In order to attain this object there should be excluded from the diet eggs, brain, cream, and other fatty substances.

"HEALTHY" LEAD WORKERS.

That certain individuals not only resist the deleterious action of race poisons but actually appear to thrive upon them is an observation occasionally made, and one which has no bearing on acquired immunity which is excluded by the conditions at hand. Thus often for some months a beginner in opium eating may have his somatic and psychic functions quickened, may take on weight, may be in a state of continual euphoria and accomplish great quantities of work with no demand for increase of dose. In the midst of an active outdoor existence, and upon a full diet, such subjects may even appear to be free from any unusual evidence of excretory obstruction. A thorough study of such cases, however, would doubtless warrant the conclusion that while no intoxication is manifest, a condition of latent poisoning exists and is demonstrable by various tests.

In recent years something of this sort has attracted much attention in the case of lead workers who as a class have benefited greatly by protective enactments. In the various lead trades the proportion of men in apparently perfect health is considerable and this fact may lead to wrong interpretations and laxity. It is known that the first evidences of lead poisoning appear in the blood picture and that the previously healthy worker may suddenly exhibit hematoporphyrinuria. Last summer before the Giessen Medical Society (*Deutsche medizinische Wochenschrift*, September 17) Schmidt dwelt upon the necessity of periodically testing the blood of all lead workers who seemed in good health. The number of basophile granulated erythrocytes gives an unerring criterion of the presence of latent poisoning and only in this manner can we arrive at a clear conception of the actual health of apparently healthy workmen.

Brain Fever.

In former generations the expression "brain fever" was so often and vaguely used by laymen and even by physicians that it is not easy at this late date to determine its exact scope. Old text-books made it synonymous with active hyperemia of the brain, but it should also have comprised meningitis, encephalitis, sinus phlebitis, etc. It would seem proper now, perhaps, to limit the term to cases of cerebral hyperthermia induced by puncture or other lesion of the nucleus candatus; this phenomenon sometimes follows surgical intervention. Last summer at a session of the Medical Section of the Jena Society of Naturalists and Physicians (*Muenchener medizinische Wochenschrift*, September 22) Berger described a case of frontal lobe puncture for diagnostic purposes in a woman with symptoms suggestive of brain tumor. The borings showed absence of tumor tissue, but there was a considerable escape of fluid from the subarachnoid space, with the ventricular cavity apparently unchanged. Next morning the hitherto afebrile patient was found to have a high temperature (nearly 39° C. at times) which persisted for six days, when it fell suddenly to normal. In the interim the patient felt well and meningitis could in general be excluded. The puncture had been directed so as incidentally to estimate the width of the lateral ventricle, and the author explains the occurrence of fever by the entrance of the borer into the caudate nucleus. Some of the borings contained grey matter resembling that which characterizes this nucleus.

News of the Week.

Health of the Canal Zone.—During the month of July the total number of admissions to hospital of the employees in the Canal Zone was 1,424, an admission rate of 366.57 per thousand; the rate for June was 381.09, and for July of last year 513.87. The death rate from disease was 4.12 per thousand. During August the admission rate was 367.59; that for August, 1913, was 543.71. The death rate in August was 3.26; that for the same month last year was 4.31.

For Uniformity in Food and Drug Laws.—The Chamber of Commerce of the United States of America, a body composed of representatives from about 600 local boards of trade, chambers of commerce, and trade associations, widely distributed throughout the United States, has taken up the study of the subject of uniform food and drug regulation. For this purpose a special committee was appointed in July, and its first meeting was held at the headquarters of the Chamber in Washington, October 8. The committee is composed of Willoughby M. McCormick of Baltimore, A. J. Porter of Niagara Falls, John A. Green of Cleveland, B. L. Murray of New York, and Theodore F. Whitmarsh of New York.

Foot-and-Mouth Disease.—Fourteen States are under quarantine on account of the prevalence of foot and mouth disease in cattle, and interstate shipments of cattle, sheep, and swine are absolutely prohibited from the States now quarantined. Stock cannot even be sent from one infected State into another. The quarantine declared does not prevent shipment of stock from unaffected districts to slaughter houses within the quarantined area.

Killed in or by Automobiles and Other Vehicles.—Forty-three persons were killed in New York City during October by vehicular traffic, according to the report of the National Highways Protective Society, twenty-five being children under sixteen years. Automobiles killed twenty-eight, trolleys eight, and wagons seven. In the State, outside of this city, automobiles killed fifty-three, trolleys fourteen, and wagons three. In New Jersey automobiles killed twenty-two, trolleys three, and wagons three. Twenty-four were killed at grade crossings in New York, and nine in New Jersey.

Killed by Wood Alcohol.—Upward of twenty Vermont farmers died last week as the result of drinking whiskey purchased at a village drug store. The district is under prohibition regulation and the men of the neighborhood get their supply for the Sunday booze at the drug store. The supply at this particular store was simply flavored wood alcohol, and the result is many deaths and several cases of blindness.

Physical Defects of Students.—An examination of the male members of the freshman class of Indiana University, made by the physical director, Dr. F. P. Holland, has revealed the fact that about 17 per cent. of the students are physically defective, the chief faults being flat chests and pes varus. Of the female students less than 11 per cent. were defective.

American Red Cross Surgeons.—The American hospitals at Gleiwitz and Cassel are doing such satisfactory work that the German Government is about to request that three more American surgeons be sent to Germany. In case that is done the Government will turn over another large hospital in Gleiwitz to American supervision. Commissions in the Russian army were given to the surgeons of the American Red Cross units assigned to service in Russia. The commissions given to the two senior surgeons carry the rank of General, while the four junior surgeons received the rank of Colonel.

The Virginia State Medical Society held its forty-fifth annual meeting in Washington, D. C., on October 28 and 29. The following officers were elected: *President*, Dr. Samuel Lile of Lynchburg; *Vice-Presidents*, Dr. Samuel B. Moore of Alexandria, J. T. Buxton of Newport News, and J. W. Preston of Roanoke; *Secretary*, Dr. Paulus A. Irving of Farmville; *Treasurer*, Dr. M. W. Peyser of Richmond; *Delegate* to the A. M. A., Dr. Robert C. Bryan of Richmond; *Alternate*, Dr. S. S. Gale of Roanoke. The meeting in 1915 will be held in Richmond.

Society for the Advancement of Clinical Study.—The annual meeting of this society will be held at the Academy of Medicine on Wednesday afternoon, November 18, at 5 P.M. This society has been organized for the purpose of maintaining a bureau of information which will furnish to resident and visiting physicians definite information regarding the clinical facilities of the hospitals and laboratories of the city of New York. For this purpose a bulletin board has been installed at the Academy of Medicine in charge of a special clerk, and on this all hospital clinics, both medical and surgical, are posted daily. These facilities will afford physicians an opportunity to witness operations and clinical demonstrations without resorting to extended inquiries at the various hospitals.

Extension Work in Public Health Education.—The Weekly Bulletin of the Department of Health says that the Bureau of Public Health Education is cooperating with a number of teachers in the training schools and high schools of this city in giving

their students an insight into the work of the Department of Health. The students use one of the bureau's monographs as a text book in their work in hygiene and in municipal government, following their book studies by a visit to the health exhibit on the fifth floor of the department building, 139 Center street. In addition to this, the bureau has arranged for extension lectures to the students in their school similar to the lectures given in the courses arranged for the Health Department's employees. Work of this sort is bound to lay the foundation for sympathetic and effective cooperation between the Department of Health and the public at large.

The Alvarenga Prize.—The secretary of the College of Physicians of Philadelphia writes that in the notice sent last week of the award of this prize, the title of Dr. Sheffield's essay should have been: "Idiocy and Allied Mental Deficiencies in Infancy and Early Childhood."

Dr. William Seaman Bainbridge of this city has been elected an honorary member of the Cincinnati Academy of Medicine.

Hospital News.—Barnes Hospital, St. Louis, was dedicated with appropriate exercises on October 27, by Bishop E. R. Hendrix of Kansas City. Addresses were made by Dr. George Dock and others. During the exercises a bronze bust of the late Robert A. Barnes, donor of the Hospital, was unveiled.

Dr. Norman MacLeod has been appointed superintendent of the Newport (R. I.) Hospital. He is the first medical man to occupy this position.

Dr. John M. Peters, superintendent for twenty-five years of the Rhode Island Hospital, Providence, was the guest of honor at a complimentary dinner and reception at the Turk's Head Club on October 28. Two hundred medical men and lay friends of Dr. Peters were present.

The following physicians have been appointed on the medical board of the New Haven Hospital: *Consulting Physicians and Surgeons*, Drs. William H. Carmalt, Thomas H. Russell, Louis S. De Forest, Gould A. Shelton, Frank H. Whittemore, William H. Hawkes. *Attending Physicians*, Drs. Charles J. Foote, George H. Blumer, Charles J. Bartlett, Wilder Tileson. *Assistant Attending Physicians*, Drs. H. Merriman Steele and Charles W. Comfort. *Attending Surgeons*, Leonard C. Sanford, Joseph Marshall Flint, William F. Verdi, John W. Churchman. *Assistant Attending Surgeons*, Drs. E. Reed Whittemore and Raynham Townshend. *Neurologist*, Dr. Max Mallhouse. *Laryngologists*, Drs. Henry L. Swain and Eugene M. Beake. *Assistant Obstetrician*, Dr. Richard F. Rand. *Pathologist*, Dr. Charles J. Bartlett. *Assistant Pathologist*, Dr. Max. R. Smirnow. *Chemist*, Frank P. Underhill; *Radiographer*, Dr. A. G. Bergman. *Ophthalmologist*, Dr. Henry W. Ring. *Dermatologist*, Dr. Eugene M. Beake.

Professor August Weismann, the well known biologist and author of the theory of heredity called by his name, died on Friday in Freiburg. He was born in Frankfort in 1834.

The Late Dr. Marx.—At a meeting of the Metropolitan Medical Society of the City of New York, held on October 27, 1914, the following memorial was ordered spread on the minutes, a copy to be sent to the family of the late Dr. Simon Marx and one to the MEDICAL RECORD. We, the officers and members of the Metropolitan Medical Society of the City of New York, wish to record our deep sorrow in the death on June 16, 1914, of our beloved friend and fellow physician, Simon Marx. We who have been associated with him in the medical calling for many years can best appraise those fine qualities of mind and heart which marked him out among men. As a physician he was gifted, learned, and industrious, commanding the respect of his associates by reason of his high attainments in that branch of medical science to which he had devoted the best years of his life. We mourn, however, not only the passing of a distinguished member of the medical fraternity of our city, but we feel stricken in the loss of one, whom all of us, without exception, cherished and honored as a friend, one to whom all of us could turn for counsel. To Mrs. Marx and her children we venture to offer this expression of our deep-felt sympathy in the great sorrow that has come to them, asking them to find some comfort in the circumstance that their loss is shared by an innumerable company to whom their husband and father was dear, alike as physician and as friend. Save for those nearest to him in his family circle, none can mourn Simon Marx more truly and unfeignedly than do we, his sorrowing associates in the high calling which his gifts enriched and his life ennobled. For the Society by the Executive Committee: Seymour Basch, Charles H. May, Gustav G. Fischlowitz, Henry M. Koles, Leopold Marcus, Seymour Oppenheimer.

Obituary Notes.—Dr. GEORGE STANLEY LYNDE of New York, a graduate of the College of Physicians and Surgeons, New York, in 1887, a member of the New York State and County Medical Societies, the New York Pathological Society, and the New York Academy of Medicine, and for many years a medical officer of the Department of Health of New York, died suddenly at the New York Hospital, on November 5.

Dr. DANIEL M. SHEEDY of Poughkeepsie, N. Y., a graduate of the New York University Medical College in 1888, formerly attending surgeon to St. Francis Hospital, of which he was one of the organizers, died at his home suddenly, from heart disease, on October 31, aged 49 years.

Obituary.

JOHN SHRADY, M.D.,

NEW YORK.

Dr. JOHN SHRADY, who died at his home in Stamford, Conn., on Wednesday of this week, was before his retirement one of the best known and most beloved physicians of upper New York. He was born in this city eighty-five years ago and was a graduate of the College of Physicians and Surgeons of Columbia University in 1861. After graduation he entered the medical corps of the Union Army and at the close of the war began practice in Harlem, where he lived an active professional life for over forty years. Six years ago he retired and made his home in Stamford. Dr. Shrady was a prominent member of the New York County and State Medical Associations from their foundation until their amalgamation with the older County and State societies, and served a term as president of the County Association. He was for a number of years editor of the *Medical Register*. He was a brother of the late Dr. George F. Shrady, for nearly forty years editor of the MEDICAL RECORD. Two daughters and two sons, Drs. Arthur M. and John E. Shrady, survive him.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

COLLEGES AND SOCIETIES—HARVEIAN ORATION—BANKS MEMORIAL LECTURE—REPORT OF ASYLUMS BOARD—WOUNDED AND REFUGEES—ARMY SURGEONS IN FRONT—UNIVERSITY VICE-CHANCELLOR—BACTERIOLOGY AT ST. MARY'S HOSPITAL—MANSLAUGHTER WITH HYOSCINE GIVEN BY QUACK, JUDGE'S CONDEMNATION AND THREAT.

LONDON, October 23, 1914.

WE are now in full working order in our hospitals and societies, most of the latter having met and begun the new session. On Monday both the Royal Colleges transacted business and we have had various functions to attend on every day at the institutions in which each has his own interest, and there are more to follow. The College of Physicians has the Harveian Oration which this year was undertaken by Sir Douglas Powell and at its conclusion the Bissett-Hawkins Memorial Medal was presented to Sir Ronald Ross for his distinguished services in the promotion of sanitary science. The College of Surgeons opened the demonstrations for advanced students and practitioners in the Hunterian Museum where Mr. Shattock showed specimens illustrating carcinoma. Mr. Colyer and Professor Keith followed in due course. Another exhibition is that of clinical cases shown by the Harveian Society. The Society of Tropical Medicine had previously had a paper by Sir David Bruce on African trypanosomes pathogenic to man and domestic animals. Next month Sir W. Osler will open a discussion upon "Enteric in War," and the prevention of diseases prevailing among troops is expected to occupy much attention during the session. The Royal Medical Society carries on its work in sections, some of which have already met.

Sir D. Powell's oration was the two hundredth and fifty-eighth since Harvey's time, but this did not discourage the orator who opened with the remark that year by year some advance in medical knowledge had taken place well worth reporting from its freshness and interest and its more or less dependence on his great discovery. Harvey might be regarded as the founder of physiology for, as had been shown by a previous orator, upon the discovery of the circulation of the blood, as upon a new *primum mobile*, rested all our knowledge of this and of pathology and not a little of what we know about the action of medicines. Yet it cannot be said that the idea of the circulation of the blood originated solely with Harvey, for the idea was floating about in the sentient atmosphere of thought by which he was surrounded.

Sir Douglas passed under review the functions of the blood in the tissues of living animals and pointed out that the circulatory and pulmonary mechanism were dependent upon it themselves. They were, therefore, subordinate to the continuous circulation of the vital stream which, so consistent in all its physical respects, so infinite in all its attributes and adaptations, dominated all the functions of life. Harvey, if he were living to-day, might with still greater conviction quote Leviticus: "For the life of all flesh is the blood thereof."

Sir V. Horsley delivered the third Mitchell Banks memorial lecture in the University of Liverpool, in the course of which he did not hesitate to point out that surgeons have not profited by Banks' teaching as thoroughly as they ought to have done, although they generally profess to follow it. Thus to make the removal of cancer of the breast complete Banks insisted on the removal of the axillary glands—a practice now usually followed. But to fulfill all known requirements by antagonizing all avenues of entrance of the disease it is as necessary to remove the supraclavicular glands and other tissues. Sir Victor said every such operation should therefore include: 1. Very wide removal of skin, breast, and margin of subcutaneous fat and fascia outside the gland edge, the pectoralis major, and the whole axillary contents—fat, fascia, and glands up to the edge of the first rib—in one mass. 2. Free removal of the supraclavicular fat, fascia, and glands. Few surgeons do this entirely and explantions are offered by some to justify the omission of some parts. Every such omission, Horsley said, was to him not only a violation of surgical procedure, but a grievous wrong done to the memory of Mitchell Banks.

Sir V. Horsley then took up the subject of hernia and showed that the operation he has been performing and known as his, completely fulfills the Mitchell Banks requirements.

Should a doctor confine all his interests in his professional sphere or should he rather take a share in all movements for the benefit of the public? There are many who advocate exclusive devotion to medical science, which they hold is amply sufficient for the most energetic worker and will reward all his zeal. As many, perhaps more, regard it as desirable if not even a duty of every citizen to promote his country's and his neighbor's welfare. Liverpool is grateful for the work done for it by the late Sir Mitchell Banks, which in no way restricted that for his profession. Discretion as to the work taken up and discrimination in the manner of doing would seem to suffice to produce harmonious results. Banks declared we must be more than prescribers of physic or dressers of wounds. "In my youth," he said, "I had it strongly recommended to me to stick to my profession and leave everything else severely alone. The life of a doctor was to see patients, do operations, order drugs, and collect fees. I thank God that I entirely repudiated this idea of my profession."

The annual report of the Metropolitan Asylums Board for 1913 has appeared and shows further extension of its functions in relation to the institutional treatment of the sick. It is responsible for the sick, debilitated, or convalescent children under the Poor Law, and provision has been so freely made that others have taken advantage of it. The Board, therefore, intends to exercise a closer supervision restricting these children's hospitals to cases requiring operations, non-tuberculous joint and bone disease, lateral curvature, and so on.

Since the casual wards have been under the Board its policy has been to keep the poor out of them as far as possible and distribute them among voluntary institutions to help them to return to ordinary life. The committee remarks that the man who makes himself a burden on the public deserves to be restrained by different measures more than many minor offenders who are dealt with. The use of antitoxin in diphtheria has continued and the intramuscular method is preferred. Deep injections in the muscles of the thigh were more rapidly absorbed than those in the gluteal region.

With refugees and wounded our hospitals and other institutions have been overwhelmed. The Red Cross and St. Johns Ambulance Association have

been strained to meet the urgent needs of fresh arrivals to pass them on to posts, private or public. Some 1,500 a day reached here last week and from 150 to 200 parties were sent out of London to various towns. One day 4,000 refugees were fed in a waiting room and in the evening another thousand arrived. Hospitals and other emergency buildings had to be utilized. Some Belgian doctors and nurses too came and took part in helping their compatriots.

Some 328 wounded from the siege of Antwerp were admitted in a couple of days into the London Hospital. Of these most were suffering from shrapnel wounds, some serious, but the majority slight. At St. Bartholomew's Hospital there were fifty or sixty more. Dr. Howarth, medical health officer for the city, superintended the management of detraining and conveying to hospitals by the motor cars of the Red Cross Society. Among the casualties no small proportion of the medical officers are numbered, knowing that they are facing the dangers as much as any rank in order to carry their help to the wounded.

Sir Wilmot Herringham presiding on Thursday at the meeting of the Senate of the London University received leave of absence to serve as consulting physician to health medical forces at the war so long as may be necessary. Sir Alfred Gould was appointed to act as vice-chancellor during Sir Wilmot's absence. A number of provisions were also adopted to prevent students engaged in military duties from being unduly prejudiced.

The bacteriological department of St. Mary's Hospital—always very active—reports having supplied 1,476,374 doses of vaccine for inoculation since the beginning of the war—an amount reckoned as equal to 160 gallons of the fluid. Another calculation has appeared, viz., that the typhoid bacilli alone if they could be placed end to end would stretch over a straight line one million miles in length, *i.e.* the distance to the moon and back twice over.

A man who kept a "home of healing" has been found guilty of manslaughter of a young woman who died under his treatment. Some interesting points came out in the trial. Dr. Wilcox, analyst for the Home Office, said he found in the body traces of some mydriatic alkaloid; the cause of death was paralysis of the stomach and exhaustion caused by the treatment. Asked if he would have sanctioned such treatment in the case, he said "certainly not," and on the judge asking would he in anybody's case he used the same words. Hyoscine (there had been evidence that this was the alkaloid used) was the same as scopolomine, very poisonous, five or six times as strong as strychnine.

The accused gave evidence on his own behalf and said he was an American and began using scopolomine in 1898, used it in morphine, opium, and alcohol habitués, at one time had charge of delirium cases for the city of Chicago, and out of 1,700 cases only seventeen died in eighteen months. His treatment was recognized by many physicians in America. Scopolomine could be used safely in delirium cases up to a temperature of 100 or just over. Higher it would increase delirium. In the drug habit he had given repeated doses of one-fiftieth of a grain, had put the patient to sleep in three minutes, had always been associated with physicians, and when twenty-six years old had the biggest drug business in America. Death from hyoscine would show the most culpable negligence. He knew more about it than any one hundred physicians on earth. He had advertised cures for consumption which cured 80 per cent. From 1886 to 1898 he was advertising a cure for rupture without operation.

In passing sentence the judge said the conviction would show that when ignorant persons undertake to deal in dangerous poisons, in spite of all the rhetoric, all the tall talk of cures and the wonderful system of treatment, and the unity of the infinite, and all that sort of stuff, a British jury, when people had been subjected to deadly poisons by incompetent persons, would go straight to the mark and say it was manslaughter. He was not about to punish prisoner severely, because he hoped this conviction would check such doings, and any who thought of following in the same line of business had better take note, because as far as he (the judge) was concerned next time the sentence would be heavier.

The sentence passed on this occasion was extremely lenient—only three months.

OUR LETTER FROM THE PHILIPPINES.

(From Our Special Correspondent.)

CHOLERA IN BILIBID PRISON—A DISINFECTING AUTOMOBILE—CARE OF THE INSANE

MANILA, September 20, 1914.

A SHARP little cholera outbreak in Bilibid Prison is very interesting as a contribution to the subject of "Carriers." The walls of the prison completely separate its inmates from the outside world under ordinary conditions, and protect them from ordinary infections. That none shall be introduced, all prisoners are quarantined for five days, and in the meantime are examined as possible disease carriers. No cholera carrier, as far as known, has gained entrance. But Bilibid is on low ground and was seriously affected by the present flood. On September 3 the rising waters stopped its sewers, rose above the level of its water closets and seats, put out the fires, and filled the space inside its walls with dirty water carrying the filthy washings of the low class native districts in the vicinity of the prison. The prisoners were necessarily drenched from working in the flood waters, which stood a foot deep in the cell houses and deep enough to swim in throughout the yards. This dirty water penetrated to all parts of the prison, and evidently got into the mouths of prisoners through swimming, handling wet articles, etc. High water was on September 3. On the evening of September 5 one man was taken down with cholera and on September 6 three more. One of these was a murderer awaiting death in the complete isolation of the condemned cells, but to whom the infection was undoubtedly conveyed in the flood waters by which they were partly inundated. On the 7th there was one case, but none on the 8th or 9th. However, one of the cases of the 6th slept in the same prison room with the kitchen force, which was found on the 8th to contain no less than 22 "carriers." These were promptly isolated, but more cases were expected from them as a secondary source. On the 10th four cases appeared, on the 11th four more, and on the 12th one. Since then no more cases have appeared, and it is thought that the outbreak is practically over, as the entire 2,500 prisoners have now been bacteriologically examined and "carriers" isolated. In all, about 3 per cent. of all the inmates of this prison were found to be cholera "carriers," which proportion does not differ materially from that so far found

to exist for the population of Manila as a whole.

One noticeable feature of the present outbreak has been the exceptionally low mortality. Of the 13 Bilibid cases, but three died, and of 183 cases which reached the acute contagious disease wards at San Lazaro only about 25 per cent. has died. Usually outbreaks here have a case mortality of in excess of 50 per cent., and some have resulted in death in 85 to 90 per cent. of all cases. The very large number of persons who are harborers of the cholera germs without apparently being affected, and the small proportion of those who die after developing frank symptoms of the disease would indicate the presence of a strain of cholera vibrios which is relatively slightly virulent and seems to have become adapted to a Philippine environment. The spread of cholera in the provinces has been threatened through laxity in handling the infection on the part of local authorities. Hence it has been thought best to handle all provincial cholera direct from Manila in all cases where the infection was not at once eradicated by the local authorities. To this end a cholera squad of some 25 specially selected men has been organized and put under an energetic Filipino medical inspector, who has so far had excellent success in promptly controlling outbreaks and destroying infections in the provinces.

A much needed facility in the Bureau of Health has just been installed in the shape of a disinfecting automobile, which accommodates the entire disinfecting squad of eight men together with the necessary disinfecting materials and apparatus. A vast amount of time had previously been lost through the use of mule carts, which consumed much time in going to and from places to be disinfected. This has been particularly noticeable lately, when cholera cases have been widely scattered and have occurred largely in the suburbs at considerable distances from the disinfecting stations. Any part of the city can now be reached by the disinfectors within ten minutes, which under present conditions and needs increases the working efficiency of the disinfecting gang by 50 per cent. The new disinfecting automobile will replace the mule cart service south of the Pasig. If it proves as satisfactory as is anticipated, the mule cart disinfecting service north of the river will be similarly replaced. Under present conditions there is a vast amount of disinfecting work to be done, and it means much to be able to rush the disinfectors to the place where needed with all the celerity of a fire engine.

A well organized movement is under way for the establishment of an institution for the care of the insane, of whom there are probably not less than 3,500 in the islands. The three institutions which now receive these cases can accommodate altogether but about 650, and none are modern or up-to-date institutions. They are merely places for incarceration and safe keeping rather than establishments for mental therapeusis. It is proposed now to take over the highly developed 600 acre experinemtal farm of the Bureau of Agriculture at Alabaug, erect the necessary buildings, and turn it at once into a sanatorium. Alabaug is a beautiful place, high, well drained, and with many improvements in the form of roads, piped water supply, and numerous buildings. It is about 17 miles from Manila, on the railroad and close to Laguna de Bay. It is understood to be regarded as ideal by the authorities of the Bureau of Health.

THE INTERVERTEBRAL FORAMEN.

To the Editor of the Medical Record:

Sir:—My book, "The Intervertebral Foramen," was reviewed in the May 9 issue of the Medical Record. In this work I attempted to give an exhaustive description of the normal histology of an intervertebral foramen and its adjacent parts. However, the foramen described and photomicrographs shown were from the cat, as stated in the text.

I have been in receipt of many letters and inquiries asking if these findings could be relied upon to be identical with those of the human. In order to answer this question scientifically I undertook a microscopic study of several different foramina and adjacent parts in the human being. These investigations corroborate those described in the original work. While no two intervertebral foramina have been found identical, they all appear to have a general structure very similar to the one described. however, the nervous structures in the human being, as a rule, occupy a smaller area of the foramina than is the case in the one shown in the cat. Therefore it would appear they are even *better* protected from bony pressure than is the one from the cat.

Harold Swanberg.

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Progress of Medical Science.

Boston Medical and Surgical Journal.

October 29, 1914.

1. The Relation of Industry to General Medicine. D. L. Edsall.
2. The Relation of Insurance Companies to Industrial Diseases. F. L. Hoffman.
3. Occupational Diseases as a Public Health Problem. H. Linenthal.
4. Some Fatal Surgical Errors. J. S. Horsely.

1. **The Relation of Industry to General Medicine.**—D. L. Edsall states that a very large part of the bad effects of industry can be controlled only by the employer installing proper preventive apparatus and other measures, but a considerable part of the bad effects can in most cases be prevented by the working people following certain advice, differing with the industry, that can easily be given them when the dangers are known. Also in a great many instances the manufacturers are more or less ignorant of the dangers to which they are subjecting their working people, and when these are pointed out to them are often willing to do a great deal to prevent these dangers.

3. **Occupational Diseases as a Public Health Problem.**—H. Linenthal concludes that diseases due to occupation may be divided into two classes: (1) The specific occupational diseases in which the relation between the disease and the industrial process is a direct one, and (2) those conditions of ill health not specific in character which are brought about by conditions of employment. The latter need further investigation and study. Such studies should be carried on in close co-operation by the hospital clinic, where great numbers of working men and women apply for treatment, and by the governmental authorities who visit the industrial establishments and are familiar with the industrial processes and with the conditions prevailing in the various industries. The specific occupational diseases present no special problem in public health. The methods which have been tried out and found effective by health authorities in the control of infectious diseases are all equally applicable in the control of occupational diseases.

New York Medical Journal

October 31, 1914.

1. Nerve Block, Public Health, and Tuberculosis. Sir James Grant.
2. Diseased Conditions of the Cecum. G. R. Satterlee.
3. Some Features of Pneumococcus Meningitis. A. Gordon.
4. An Improved Ether Inhaler. A. E. Gallant.
5. Implantation of the Generative Glands and Its Therapeutic Possibilities. G. F. Lydston.
6. Intranasal Operation in Tumor of the Hypophysis. T. H. Halsted.
7. Blackwater Fever. W. H. Deaderick.
8. Normal Horse Serum in Hemorrhage from Nose and Throat Operations. C. F. Theisen and N. K. Fromm.
9. Treatment of Ringworm of the Scalp. P. E. Bechet.
10. An Effective Method to Prevent Postoperative Nasal Hemorrhages. A. I. Schwartz.

1. Nerve Block and Tuberculosis.—Sir James Grant states that the relationship between nerve tissue and tubercle has long been a subject of inquiry. Sherrington, of Cambridge, and McDonald, of Sheffield, defined the chief constituents of the axis cylinder of nerve tissue as the salts of sodium and potassium which contribute to reflex action and functional nervous activity as a whole. In the treatment of cases of nervous debility and cerebral overstrain, the author has frequently observed sections of the body, particularly the limbs, in which no feeling or sensation was experienced on application of the neurotone charged by a dry electric cell. Suddenly, after several tests by the instrument, sensation developed to a high degree. This abnormal insensibility aroused a suspicion of block in some direction, the sudden disappearance of which led the author to infer that a solution of continuity had taken place in the constituents of the axis cylinder. The problem then presented itself: What change in the axis cylinder constituents interrupted the normal transference of the electric current? Sir Walter Foster, of Cambridge, defined clefts in the axis cylinder but left them entirely unexplained. The most remarkable deduction is that the noxious gases in the alimentary canal, the outcome of imperfect assimilation of food products, not only produce a distended colon, but also result in a chemical change in the saline constituents of the axis cylinder. The author believes that in tuberculosis the chief center of nerve block is in the distended colon, developing slowly and gradually and sapping vitality through a defective blood supply. The author has found that the direct application of the electrical current and massage improve in the above cases the gastric and intestinal digestion, and produce an increased general vitality and a rapid reduction of colonic distention. These are the outcome of the liberation of blocked reflex action and normal nerve power is thus re-established. The object of the application of the neurotone current to the extremities is twofold: to remove all direct nerve block and to arouse increased reflex activity in the terminals of the sciatic and saphenous nerves, which are regarded by the author as accessories to the histogenetic abdominal ganglia and factors in the elaboration of blood, the pabulum of life. Electrical massage should be applied two hours before or after a meal and strictly avoided in all cases of paralysis, for when organic change in nerve structure is in progress electricity is contraindicated.

2. Diseased Conditions of the Cecum.—By G. R. Satterlee. (See MEDICAL RECORD, September 5, 1914, page 440.)

3. Some Features of Pneumococcus Meningitis.—A. Gordon reports a case of this condition in a laborer aged twenty-eight years. There was an absence of cerebral manifestations during life, in spite of the presence of pus; an absence of cranial nerve involvement, in spite of pus at the base of the brain. The development of a tooth abscess preceded the onset of the meningitis. The thinness and viscosity of the pus were highly suggestive in view of the absence of marked cerebral phenomena throughout the disease.

8. Normal Horse Serum in Hemorrhage from Nose and Throat Operations.—By C. F. Theisen and N. K. Fromm. (See MEDICAL RECORD, September 5, 1914, page 441.)

9. Treatment of Ringworm of the Scalp.—P. E. Bechet states that the most valuable local remedies in this condition are iodine (with genuine goose grease as a base it is very efficient particularly in the early cases), and mercury in the form of ammoniated mercury up to ten per cent. strength, or oleate of mercury in ten to twenty-five per cent. ointment. Chrysarobin, in saturated solution in chloroform, painted on, and after evaporation of the chloroform, covered with several layers of collodion, is particularly useful in the chronic cases. Sulphur in twenty per cent. ointment with ten per cent. naphthol, is very useful. An ointment which is frequently used at the New York Skin and Cancer Hospital with good results when the parents are sufficiently impressed with the necessity of vigorous application, consists of red oxide of mercury ointment, a dram and a half; sulphur ointment, three drams; cold cream, one ounce. Needling as recommended by Aldersmith should be reserved for the more stubborn cases, as it is rather a severe measure depending on an inflammatory reaction and the formation of a kerion for its success. In the absence of inflammation one cannot be too vigorous in the application of any of the parasiticide ointments. This really constitutes the key to a successful result, a fact easily understood when one considers the location of the fungus.

Journal of the American Medical Association.

October 31, 1914.

1. Surgical Experiences with Pituitary Disorders. H. Cushing.
2. Two New Methods of Closure of the Pylorus for Pyloric and Duodenal Ulcer. A. A. Strauss.
3. The Results in One Hundred Operations Performed on the Diagnosis of Brain Tumor. H. Kuttner.
4. Studies in Liver Function. A. M. Chesney, E. K Marshall, Jr., and L. G. Rowntree.
5. Ninety-three Persons Infected by a Typhoid Carrier at a Public Dinner. W. A. Sawyer.
6. Blood Transfusion by the Syringe Cannula System. E. Lindeman.
7. Acute Myelitis, Secondary to Perirectal Abscess, Developing a Few Hours After Severe Fright. W. G. Spiller.
8. Occlusion of the Posterior Inferior Cerebellar Artery. A. C. Gillis.
9. A Case of Myasthenia Gravis. C. A. McKendree.
10. The Necessity for Restriction and Control of Sewage Pollution of the Great Lakes System. A. J. McLaughlin.
11. The Late Manifestations of Inherited Syphilis, with Especial Reference to Arterial Disease. H. F. Stoll.
12. Latent and Tertiary Syphilis in Diseases of the Nose and Throat. C. R. C. Borden.
13. A New Method of Reflex Elicitation. W. B. Swift.
14. Four Cases of Sudden Death in a Silo. E. R. Hayhurst and E. Scott.
15. Kala-Azar. A Case Report from China. A. C. Reed.
16. The History of the First Milk Depot or Gouttes de Lait with Consultations in America. H. Koplik.
17. End-Results Following the Yankauer Operation on the Eustachian Tube. J. L. Lougee.

1. Pituitary Disorders.—Harvey Cushing reviews the disturbing symptoms produced by these disorders when accompanied by an extreme glandular enlargement or when the secretory activity of the gland is embarrassed. These are essentially of a mechanical nature. The constitutional symptoms may not correspond with the size of the growth. The subject is rendered still more complex when one attempts to differentiate between the two lobes of the gland which have quite different functions. Another cause of complexity is the polyglandular nature of every gland disorder which in some cases may cause doubt as to which of the endosecretory organs was first at fault. The view now prevalent is that any derangement of the correlated glands excites disturbances in the others but with the qualification that the primary

disorder of any individual gland, either of oversecretion or undersecretion, causes its own peculiar group of symptoms. The insufficiencies of adrenal, parathyroid, and pineal glands, of the islets of the pancreas and the cells of the sexual organs give rise to their peculiar syndromes, and while one knows little of the reverse conditions, except in the thyroid and anterior lobe of the pituitary, the recognition of primary overaction of the other glands will doubtless be forthcoming. It now appears that functional hyperplasia of the anterior lobe stimulates tissue growth, especially of the bones and integument, and at the same time excites the reproductive apparatus as shown by the secondary characters of sex. Little is known, however, of the functional hyperplasia of the posterior lobe, which seems to be more concerned with tissue metabolism, for when rendered inactive by disease or compression, metabolic processes are checked and the symptoms produced somewhat suggest the phenomena of hibernation. The tendency toward a relative glandular inactivity seems to occur in most cases of pituitary disease, and commonly symptoms of glandular insufficiency come in time to be superimposed on those of outspoken acromegaly. The term dyspituitarism is used to designate all types, though in some cases hypopituitarism appears from the start. Many obscure symptoms, such as certain forms of obesity and leanness, polyurias, etc., undue drowsiness, delayed or precocious puberty, have been shown to be due to disturbances of the pituitary secretion. Promising results have followed glandular therapy and surgical procedures, and have been indicated in some cases to relieve pressure symptoms, etc. The author presents an analysis of 148 cases, 101 of which presented definite tumor symptoms and skeletal changes, and forty-seven of which lacked these local signs of the disease. Cases of abnormal sellas with hypopituitary symptoms need only glandular and not surgical treatment. The author's experience has not been especially happy with the lateral subtemporal route of Horsley or the frontal approach advocated by Hartley, Krause, and McArthur, though he has had but few operations as yet in which either was employed in cases in which there was no great deformity of the sella. The operations for tumors distending the sellar fossa have been much more encouraging, and the procedure the author has come to employ is a modification of the Schloffer operation, suggested by Kauffman, Hirsch, and others, and adapted to the author's own requirements. The operation combines all the advantages of the endonasal precedure of Hirsch, and affords almost double the room that operating through the nostril affords. In many of the author's cases a simple decompression was employed; in four cases on both sides, and in a number multiple operations were performed, such as the transphenoidal operation or sellar or subtemporal decompression.

2. **Closure of the Pylorus for Pyloric and Duodenal Ulcer.**—A. A. Strauss states that in sixteen dogs operated on by the submucous transplant method, the pylorus was water-tight under hydrostatic pressure and as shown by fluoroscope and roentgenogram. The free fascial transplant became organized with the mucosa and muscularis in every instance, producing sufficient contraction to hold the pylorus closed without producing any necrosis of mucosa. This the author believes is due to the fact that the connective tissue used is placed under a tension similar to what it would be in the anterior sheath of the rectus. The free transplant placed between the mucosa and muscularis has the advantage of not having overcome the powerful peristaltic contractions of the pyloric musculature, and is not subject to the formation of adhesions and inflammatory changes, as a transplant placed around the musculature of the pylorus would be. The method of shelling out the mucosa is safe, in that there is no danger of hemorrhage from large vessels, and less danger from infection, as in the methods by which the mucosa has to be divided. The silk-ribbon method, while it is very simple and produces a perfect closure, and while the number of experiments seem to show it to be a fairly safe method, has the objection of having a large foreign body buried. Of the two methods the transplant method is by far the one of choice. The rubber method the author considers dangerous and a failure.

3. **Operations Performed following the Diagnosis of Brain Tumor.**—By H. Kuttner. (See MEDICAL RECORD, June 27, 1914, page 1192.)

4. **Studies in Liver Function.**—By A. M. Chesney, E. K. Marshall, Jr., and L. G. Rowntree. (See MEDICAL RECORD, June 27, 1914, page 1190.)

5. **A Typhoid Carrier at a Public Dinner.**—W. A. Sawyer has traced the source of infection in ninety-three cases of typhoid fever in an epidemic at Hanford, Cal., to a typhoid carrier who prepared food served at a public dinner. The vehicle of infection was a large pan of Spanish spaghetti prepared by the carrier. This dish was baked after it had been infected, but this baking was shown by laboratory experiments to have incubated the bacteria instead of sterilizing the food. Certain customary methods of cooking are thus shown to be inadequate as a protection against infection. The incubation period in the majority of the cases in this epidemic of typhoid fever proved to be shorter than the time usually regarded as the minimum. The first case developed three days after infection. More cases showed their first definite symptoms six days after the infected food was eaten than on any other one day. The ways in which a carrier may transmit infection are so varied and so numerous that attempts at the control of mere channels of infection will not offer sufficient protection. Those who were suspicious of the raw salad at the dinner in Hanford and ate the freshly baked spaghetti turned from a safe dish to one which was heavily infected. The best protection against carriers will come through thorough investigation of the source of infection in every case of typhoid fever. When carriers are discovered they can be advised and controlled. The writer warns us that until we have a sufficiently large number of properly trained epidemiologists on a full-time basis among State and local health officials the danger from carriers will not be noticeably diminished, and the individual will find in antityphoid vaccination his best protection against infection from carriers.

6. **Blood Transfusion by the Syringe Cannula System.**—By E. Lindeman. (See MEDICAL RECORD, July 4, 1914, page 37.)

11. **Late Manifestations of Inherited Syphilis.**—By H. F. Stoll. (See MEDICAL RECORD, July 4, 1914, page 36.)

13. **A New Method of Reflex Elicitation.**—W. B. Swift concludes that the examination of over forty types of reflexes during and some after the passage of the electric current demonstrates that the general effect of electricity on the reflexes is that of a reinforcement which finds its special clinical value by elicitation of some of the absent reflexes unobtainable by any other method. The author therefore claims a new method of reflex reinforcement of sufficient value to be included among other routine and neurological examination methods in the following order: Pendulum leg, diversion of mental attention, constant movement during stimulus, the Jendrassik hand-grasp, and finally, when all other of the above-mentioned methods fail, the electrical reinforcement.

The Lancet.

October 24, 1914.

1. Advances in Knowledge Regarding the Circulation and Attributes of the Blood Since Harvey's Time. R. D Powell.
2. Shell Wounds in Modern Naval Warfare. B. Pick, R. A Rankine and J. Lambert.
3. Pyloric Obstruction in Infants. C. H. Miller.
4. Prognosis in Cancer of the Tongue. W. Trotter.
5. Further Notes Upon the Wounded in the Present Campaign. G. H. Makins.
6. Epsom and Ewell War Hospital. E. Owen.

3. Pyloric Obstruction in Infants.—C. H. Miller notes that this condition is more common in males. The symptoms commonly begin in the second month, and consist of forcible vomiting, visible gastric peristalsis, wasting, and constipation. As to the presence of a palpable pyloric tumor the author is rather sceptical. He has felt a hard cylindrical tumor in certain cases, especially during gastric peristalsis. But it is impossible to palpate deeply in many cases, and in some cases of wasting with a lax abdominal wall the author has felt a similar tumor. He regards the palpability of the pylorus rather as a sign of wasting than of pyloric hypertrophy. The medical treatment consists in (1) keeping the patient warm; (2) washing out the stomach, and (3) feeding with predigested milk. Drugs are occasionally useful. When there are much colicky writhing and abdominal tenderness the author gives tincture of opium, ¼ minim three times a day for two or three days. He has tried belladonna, but found it useless in this disease. The bowels must be kept open: an occasional dose of castor oil followed by gray powder will often be sufficient. Phenolphthalein is perhaps the most satisfactory drug to use regularly. In the very bad cases medical treatment only can be recommended. When such patients begin to improve and are strong enough to stand an operation a surgeon might give his opinion once more. If the condition remains stationary for long or begins to decline after an initial improvement a surgeon should be called in.

4. Prognosis in Cancer of the Tongue.—W. Trotter states that operations undertaken for epithelioma in which the diffuse stage has begun are particularly apt to be followed by early, rapidly growing, and diffuse recurrence even when the type of disease has been recognized, the growth is quite small, and the excision has been very extensive. It cannot be doubted, therefore, that in these cases there is a diffusion of cancer cells throughout the tissues around the growth to a distance far beyond the palpable induration and extending into regions which do not display the least abnormality to the naked eye. When, therefore, operations are undertaken for this type of the disease there is no chance of cure unless an extremely drastic procedure is adopted. A radicle extirpation of the tongue muscles down to and perhaps including the great cornu and body of the hyoid bone at the least on the affected side is essential, and there is a good deal to be said for total extirpation of the tongue and hyoid bone. The only serious dangers of even the most extensive operations are those due to sepsis, which takes two forms—infection of the lungs and infections of the wound. The former if at all severe leads to abscess formation and gangrene with an almost necessarily fatal result; the latter may lead to acute septicemia or to a cellulitis extending diffusely in the neck, with the risk of mediastinitis and of secondary hemorrhage. The best precaution, therefore, against lung infection is the abolition of the possibility of aspiration. Local infection can usually be prevented by adequate suture of the wound. Patients with clean mouths and who are habitually careful with them are little if at all less liable to serious complications than those who are careless and whose mouths are obviously septic. Edentulous patients give rise to no serious anxiety on the score of sepsis.

British Medical Association.

October 24, 1914.

1. The Influence of Enforced Dogmatism in Medicine. Sir Frederick Treves.
2. Note on the Use of "Dum-Dum" and Explosive Bullets in War. W. F. Stevenson.
3. The Soldiers' Feet and Footgear. C. Webb-Johnson.
4. Insects and War: Flies. (Part II.) A. E. Shipley.
5. Discussion on the Action of Radiations on Cells and Fluids. W. S. L. Barlow.
6. Discussion on Variability Among Bacteria and Its Bearing on Diagnosis. W. J. Penfold.
7. The Presence and Significance of Nitrites in Urine. J. Cruickshank and J. M. Moyes.
8. The Recognition of Hematic Infections of the Urine: Its Clinical and Experimental Value. E. C. Hort.
9. Aneurysm of the Aorta Due to Bacterial Infection. J. M. Morgan and J. H. Teacher.

1. Enforced Dogmatism in Medicine.—Sir Frederick Treves shows how a great deal of the science of medicine of the past was founded upon pure nonsense, or rather upon the fables evolved to satisfy the demand of the public for dogmatism in all that related to ill health. In this extraordinary product the physician himself believed. The tale had come to be accepted as true; it was a matter of sober study; it formed the basis of the education of every medical man, while its ridiculous gibberish became the speech of the cultured physician. The true science of medicine, the science based upon assured facts, was proceeding side by side with this phantasm, but its influence was slight and its movement almost imperceptible. The course of medical progress had been diverted from the firm road into a shaking quagmire, where men stumbled to and fro, talking, so far as the ears of truth were concerned, in unknown tongues. The people insisted upon a complete, infallible system of medicine where there was neither doubt nor wavering, and they obtained in response to their impossible demand a fabric of fiction which is unique in history by reason of its magnitude, its detail, its audacity, and the completeness with which it satisfied the demand that called it into existence. This vast work of invention had no more concern with the living science of medicine than has the cocoon with the living butterfly. It was the people who were the leaders of early medicine. That they led it utterly astray does not alter the fact that they led. The physician had to adapt what little he knew or professed to know to the attitude of mind they displayed. The channels available for the expansion of medicine were channels directed by the people's needs and expectations, while the very details of the art had to conform to the popular understanding. The whole of this spurious science has long been swept away. Medicine is now an exact science founded upon well-tested facts; its speculations are directed by reasons and justified by experience. While its confines have been enormously extended, while its ramifications have become almost bewildering and its potentialities amazing to contemplate, its principles have been consolidated, simplified, and reduced to a few great propositions.

3. The Soldiers' Footgear.—C. Webb-Johnson insists upon the following details in fitting a soldier with boots: (1) Fit the boot after a march, when the foot is fatigued and swollen. (2) Fit the boot over the thickest sock. (3) Have both boots properly laced, to see that the quarters are not too high and that the ankle-joint is free. (4) Fit each boot separately. (5) Make the soldier stand and walk in his boots before deciding which pair to give him. (6) If no ready-made pair fit, insist upon a special pair being made. (7) Give full instructions about the preparation and subsequent care of the boots. (8) Give a boot that is too large rather than one that is too small, for leather when wet shrinks.

On handing a recruit a new pair of boots he should be told to soften them before wearing them, and this is best done by well soaking them inside and outside with crude castor oil. It is important to keep the uppers supple by the constant use of oil or dubbing, and this is especially necessary when the boot is thoroughly wet. If this is not done regularly the leather becomes hard and brittle, and one of the commonest mistakes a soldier makes is to place his wet boots near a fire. It is on record that during the first winter in the Crimean war the British soldiers suffered from their boots getting soaked through and many were in the trenches without either boots or socks, as the leather of the boots shrank so much from the constant wetting that when once they were taken off it was impossible to get them on again. In the Balkan war the result of men being in the wet trenches for from twelve to twenty-four hours was seen in various forms. Many suffered from cholera and dysentery, but it is also stated that gangrene of the foot was not an uncommon occurrence, beginning in a painless way with mere discolored blistering over one or two toes, to death en masse of the leg as high as the knee. Depage considers that many of these cases were caused by the pressure of damp boots and putties shrinking as they dried. It is probable that a vasomotor disturbance very similar to this occurred in the Crimean war and was classified in the statistics as frostbite.

Berliner klinische Wochenschrift.

September 28, 1914.

Military Sanitary Service in Berlin.—Under this general heading Brettner begins a series of articles which had their counterpart during the Franco-Prussian war in the columns of the *Wochenschrift*. The activities of a single improvised military reserve hospital of 149 beds are given. On August 24 the wounded began to arrive, apparently from a garrison hospital, to the number of 128, the wounds having been received three days earlier. The nurses were untrained artisans who had been rejected for military service, and these received daily instruction at the bedside. The physicians in charge of reserve hospitals are chiefly civil practitioners who receive a stipend of 15 marke daily, and each must assume charge of from 60 to 80 beds. In most patients treated the wounds, whether from bullets or shells, were slight, healing in some ten days, and the recovered were at once sent back to the front. Wound infection was practically non-existent. The men were from the first able to talk over their experiences in the trenches, and when leaving the latter—during which period no shelter was too insignificant to be utilized. If wounded at night they hid in cellars or elsewhere until they could come forth in safety. Since these wounded were able to enjoy life they were well supplied with games and reading matter. They were furnished with baths, cigars, wines, delicacies—even caviare—and fruits, and regaled with music. From this article it readily appears that, contrary to the popular impression, reserve hospitals are designed largely for the slightly wounded, for these alone could stand the protracted transportation, and here also convalescence can be accelerated.

Present Status of Bloodvessel Surgery.—Jeger completes a serial article on this subject and after the discussion of vascular anastomoses of all kinds and the transplantation of organs which depend on proper vascular suture technique, he proceeds to discuss some of the more striking forms of surgical intervention in this province. Under the head of arteriotomy for the removal of emboli he cites the remarkable case of Bauer, who successfully removed one from the abdominal aorta. In regard to removal of emboli from the pulmonary artery (Trendelenburg) there has been one technical success, death having been due to an independent cause. Various improvements in technique will doubtless tend to make the prognosis of this intervention more favorable—for example, compression of the vena cava to render the artery empty. Under the head of aneurysm Halsted's operation of incomplete arterial constriction is mentioned. German surgeons are using a clamp to produce the same result. The work of American surgeons on suture of the thoracic duct is mentioned. A form of intrinsic transfusion is mentioned in which the blood stream in a smaller artery is infused into a larger vessel by means of a catheter. Bleichroder and Unger, the pioneers in this province, have diverted the femoral circulation back into the aorta, and thus have secured anemia of the limb concerned. Another intervention still in its infancy is the establishment of an Eck's fistula in man in cases of portal obstruction. While the typical operation has not thus far proved much of a success the outlook is better when two smaller vessels are concerned, as the splenic vein representing the portal and the renal vein the systemic circulation, and venous anastomosis between the superior mesenteric and ovarian vessels. In the surgery of aneurysms of the sacculated type the ideal is ablation of the sac and restoration of continuity in the blood vessel, if necessary by plastic substitution. Many surgeons are engaged on this problem and much experimental work has been done. The author, Matas, and others have obtained encouraging results, and since in aortic aneurysms it is not necessary either to sacrifice wholly the sac or to restore the exact caliber of the vessel, the principles which underlie Matas' successful operation for fusiform aneurysm may come eventually to prevail in the sacculated type.

Münchener medizinische Wochenschrift.

September ??, 1914.

Resorption Fever or Retention Fever.—Hamm claims that the old doctrines of sapremia and putrid intoxication are founded on the belief that the germs in the genital passages do not themselves enter the blood and cause metastases. As soon as this occurs we have to do not with simple intoxication but with superadded infection. In so-called states of intoxication there may be free drainage of the decomposed material from the genitals, which naturally complicates the situation. The source of the toxemia may in theory be the cleavage products of the putrefying debris of the fetal appendages or the secretions of the saprophytes which cause or at least hasten the decomposition. Many recent observers and experimenters have shown that the saprophytes can enter the blood and even cause pyemic abscesses. They are therefore not confined to dead tissue for nutriment. In other words, no absolute distinction can be made between saprophytes and pathogenics, nor between sapremia and sepsis. The pathogenic may behave as a saprophyte and *vice versa*, although as a rule the rôles are not interchangeable. All of this more recent teaching is itself old to-day because it has not been tested by the developments of the past ten years. For example, until recently anaphylaxis has not been investigated in connection with this problem. It is now claimed that the saprophyte can cause anaphylaxis and that in all probability the normal lochia may contain an anaphylatoxin in great quantities, in which case the latter would certainly occur in infected lochia, decomposed embryonal residues, etc. This leaves unconsidered the bacterial endotoxins which are not the same as the anaphylatoxins, but the author believes that the evi-

dence is against the occurrence of endotoxin absorption, and even of its formation—for from all we know at present bacterial endotoxins do not form save in living tissues. To demonstrate absorption of anaphylatoxin is a difficult matter and experiment makes it seem probable that when this phenomenon does occur the puerperal vagina may be the site of absorption. Leaving this aspect of the problem as unsolved the author returns to the old subject of putrid intoxication and claims that since it cannot occur when puerperal drainage is perfect any fever in childbirth not necessarily septic should simply be termed retention fever; for this word at once supplies us with an indication for treatment.

Pathology of Paratyphus Abdominalis.—Glaser shows as a result of carefully conducted autopsies on cases of typhoid sufficiently controlled bacteriologically and serologically during life that the distinction between fully developed typhoid and fully developed paratyphoid is academic. The parallelism is complete in all but the counts just mentioned. In one case of paratyphus the number of intestinal ulcers was strikingly large and involved not only the lower small bowel but the entire colon. The paratyphoid stools had all the appearance and odor of typical typhoid dejections, while a typical roseola was present. The diazoreaction was positive. Although the author controlled but two cases of paratyphus the relatively mild character of the latter as a clinical phenomenon and the comparative infrequency of autopsy material should not obscure the fact that there is a form of the disease every whit as deadly as true typhoid, from which it cannot be distinguished save by blood and bacteriological finds. The choleriform type of paratyphoid disease may also be very deadly.

Treatment of Intestinal Prolapse in the Field.—Riedinger states that the present European war should determine finally to what extent if any primary laparotomy should be undertaken in the dressing stations. After mentioning the circumstances under which the intestines protrude through abdominal wounds the author states that in the great majority of cases reposition is readily effected. When, however, this is very difficult or impossible the opening must be enlarged so that virtually laparotomy is performed. By using retractors and perhaps ablating some of the prolapsed omentum, the patient being in Trendelenburg's position, reposition may be effected without enlarging the wound. Naturally, injured intestines must be treated before reposition can take place. At the moment when the wound is dilated with retractors the peritoneal cavity should be inspected. If the prolapsed intestine is crushed at any point the afferent and efferent gut is ligated and fastened and the patient sent to the field hospital for immediate operation. All abdominal wounds must be dressed with a compress of gauze fastened with plaster and a roller for transportation.

Deutsche medizinische Wochenschrift.

September 24, 1914.

Psychiatry and War.—Bonhoeffer states that psychoses appear among troops, who are naturally believed to be picked men, and that the presence of these subjects in the ranks tends to disturb discipline. During the few weeks of warfare in Germany psychic disorders have been manifested in the field. A debile who had become disoriented in battle began to fire upon his comrades from a church. A vice sergeant major repeatedly disobeyed orders and finally lost his command. At court martial it was found that he was a paretic. A third officer, clearly in the twilight state, left his command and started home. Other cases are to be expected among the personnel of the medical service, for in the case of the wounded the attendants may become excited and some of them develop acute psychoses. Such men should be weeded out in advance, or as soon as they become excited. Much may be done while organizing commands and during musters in eliminating all subjects of psychopathic constitution; for these are likely to give way under severe discipline, forced march, etc., to say nothing of actual fighting. These men may pass successfully the ordinary physical examination, and there should be ways of isolating suspects. Any history of a psychosis should reject unqualifiedly, despite the present state. "War affects" are naturally the most powerful known, and the soundest minds are not proof against them. "Persistent affect tension" is combined with overexertion in campaigns; crazes like "spy fear" and fear inspired by rumors exist. It is not surprising that the psychopathic constitution is not proof against the strain and that the non-combatant suffers as much as the soldier. In regard to the nature of the psychotic outbreaks none of the latter are actually peculiar to soldiers. We see chiefly hysterical seizures, fainting fits, functional abasia—these follow a glimpse of the transport of wounded, etc.—phobias, hysterical vomiting, insomnia, twilight states. In the debile and epileptic we see affect and impulsive behavior. At a later period we see phenomena suggestive of exhaustion—apathy, prostration, depression, insomnia and hallucinations, especially of the senses, and worse at night. The subject hears imaginary shells burst, smells imaginary carrion. Quite striking is the hyperesthesia of many soldiers who jump at the slightest touch. Alcoholic abstinence delirium is seen chiefly among the older troops whom the first mobilization has deprived of the daily spirits. War probably inaugurates and certainly accelerates the development of paresis and dementia precox, while its relationship, if any, to manic depressive insanity has not been determined. The psychotic in war must first be isolated from his fellows and quieted with morphine-scopolamine preparatory to removal to some special destination. The affection may in the meantime be shown to be transitory, but under no condition is the subject to rejoin his company.

War Ophthalmology.—Axenfeld of Freiburg discusses the subject of the wounded who were foredoomed to arrive from the Alsatian battlefields so near at hand. The eye may be injured in a great variety of ways, direct traumatism counting as but one. Bullets which strike the throat, for example, may find lodgment in the orbit. The question of preventing sympathetic ophthalmia is all important, as is also in case of extirpation the securing of a proper stump for an artificial eye. In destruction of the eyeball, with hopeless blinding, the bulbus must be exenterated with the curette, while the eyelids are temporarily sutured until at some future time blepharoplasty becomes possible. Certain wounds of the bulb when seen at an early period may be successfully closed by ophthalmic surgeons of great technical skill, some plastic work often being involved. Small foreign bodies in the globules, as well as various injuries received in hand to hand fighting, help to make up the quota of ocular traumatisms. The enormous air pressure following explosion of shells has been known to cause intraocular hemorrhages with blindness. In any suspicion of foreign bodies an expert examination must be made with the *x*-ray and magnet needle. The author closes by hoping that in the future ophthalmic surgeons will be supplied for the field hospitals, for when the injured reach the reserve hospitals it is often too late to save sight.

Insurance Medicine.

Causes Influencing Mortality.—Weyth E. Ray, Medical Director Germania Life Insurance Company, says that insurance mortality results are of necessity primarily affected by medical selection. The personnel of the insurance force is largely a controlling factor. No better medical examiner was ever found than an honest agent; he makes a better examiner than a dishonest medical examiner. Ray considers that medical examiners should be appointed by the medical department, absolutely without any recommendation on the part of the agents. Honesty and integrity, with a fitness for the position, should be the greatest requirements. Then the force below should be backed up and thoroughly supported by the medical director. On the other hand, too critical a staff only embarrasses business. These conditions satisfied, it would seem an important matter to have the company decide what it wants to do. Some companies want a very low mortality, others do not, there being one feature of life insurance that is at times overlooked, namely, the philanthropic side. Too low a mortality is often a criticism on the medical selection, and puts the company in the position of business for profit rather than the protection of human life. What is to be desired is a mortality that is not too high, but high enough to furnish the business moderate protection. It does not do to select nothing but first-class risks. The result is the applicant who is denied becomes angry, also his friends, the premium is lost, together with the interest on it, the agent may resign and new business be lost, and the ratio of mortality goes up rather than down. It is wiser to select as carefully as possible and still maintain the ordinary mortality. In considering the question of new business it is certain that the larger volume of new business the lower will be the mortality, independent of selection. The section of the country from which business is received must be considered. Certain sections have a higher mortality than others. About four years ago it was noted that a very peculiar factor was at work in this country. If taken by states over the United States and a graphic table made indicating the lowest tax state on up to the highest tax state, it was found that where the state tax was the lowest there was the lowest mortality, and where the highest mortality was found the tax was the highest. In other words, the state was being paid for the honor of losing money. The type of policy is to be considered. If a company has the right type of policy, the lower the premium average the higher the mortality, ordinarily. Thus the company which has a large amount of term insurance, a large percentage of ordinary life, will have a higher mortality. In certain sections there exists a greater preponderance of these last-named policies as compared with twenty-payment life and endowment; there it will be found that the mortality will be higher ordinarily than in other sections. A higher average premium is needed. Not the size of the policy: the greater the size the higher the mortality, dependent upon self-selection against the company. The influence of age is very important. The company showing acceptance of risks beyond the average age will have a higher mortality. At forty-eight the mortality is lower than we have built our premiums upon, while after fifty it is considerably higher. After forty-five or fifty, selections must be made more carefully. The lapse ratio will also affect the mortality. The manner of acceptance of new business has great weight. Cases must be divided into two classes—decreasing and increasing hazard. Every single policy in use to-day, whether single premium, ten-year life, twenty-year endowment, is built upon one factor—100 per cent. mortality. That is the basis, and how is it possible to make it cover 125 or 150 per cent. each year? It has been pointed out by different men that twenty-year endowment and ordinary life is a terminable feature worth 12½ per cent., from the standpoint of mortality. Ray believes that no matter what the form of insurance, there must be extra premium if you are going to charge premium enough, that this extra premium must be charged on ordinary life, not endowment. However, as far as the medical man is concerned, it should make no difference what the policy desired by the applicant, but "what shall this man's mortality be?" It is not the medical man's affair to recommend to the company the type of policy to be issued to any certain applicant, but to simply write "125 per cent," or whatever it may be.—American Life Convention, March, 1914.

Medical Life Insurance.—Last spring the executive body of the State Medical Association of Texas established the Section on Medical Life Insurance. Dr. J. H. Florence, Houston, Texas, Chairman of the Section, in his inaugural address held that large benefits will accrue to the medical profession as a result of its cooperation with life insurance companies, judging from the fact that last year the insurance companies of the United States paid to the profession approximately six million dollars for services rendered. To-day there are twenty-four Texas companies with insurance in force representing the huge sum of one hundred and seventy million dollars, and it is estimated that not over 10 per cent. of the insurable people in that State carry policies. Such a combination of forces tends to promote public welfare.

Life insurance companies are more and more studying the conditions promoting public health. Many companies have established at their own expense bureaus or departments of public health for the benefit of their policyholders. The idea that this is from purely selfish motives will probably intrude itself upon our minds; whatever the motive we must admit the results will be eminently beneficial and far reaching. The profit to a company must accrue greatly from the saving in mortality. Realizing that the greatest efforts to guard the lives of the insured will be to our interest, every effort should be made to protect these lives from disease and death. In the East, the "Life Extension Institute" was established in December, 1913. Its efforts are directed not only to the benefit of life insurance companies, but still more so to the welfare of mankind in general, by the lengthening of human life through the application of modern science. While the death rate of preventable diseases is on the wane, diseases of the kidneys and of the circulatory and nervous systems are on the increase. These facts offer more reasons why any successful cooperation should be viewed with favor and bring lasting results.—*Texas State Journal of Medicine*, July, 1914.

Book Reviews.

ABDOMINAL SURGERY. CLINICAL LECTURES FOR STUDENTS AND PHYSICIANS. By THORKILD ROVSING, Professor of Clinical Surgery at the University of Copenhagen. Edited by PAUL MONROE PILCHER, A.M., M.D., Brooklyn, N. Y. With 136 illustrations and 9 plates. Price, $5.00. Philadelphia and London: J. B. Lippincott Company, 1914.

IT is with mingled feelings of pleasure and disappointment that we comment upon this book. We feel grateful to the editor who has enabled us to appreciate the charm of a personal visit to Rovsing's clinics; for the translation is so perfect, the style so easy and graceful, that one can readily imagine one's self actually in the presence of this eminent surgeon and teacher. These are clinical lectures, but there is nothing stilted, nothing pedantic about them. One criticism, however, seems apropos at this point. One is unconsciously annoyed by the habitual use of Latin terms and phrases—quite correctly, it is true—without the definite or indefinite article: *e.g.* "holds colon transversum," for holds the transverse colon. Nothing is gained by retaining certain Latin terms and phrases when all the rest is translated.

The first real disappointment came with the realization that none of the lectures is devoted to the subject of renal surgery, a field in which Rovsing has done such magnificent work; but that instead the first quarter of the book is devoted to elementary subjects, including the history and development of antisepsis and anesthesia. Our next disappointment came when we found that but a very limited portion of abdominal surgery is covered by the lectures. What we expected in a book such as this purports to be, according to the title, was Rovsing's ideas as to the interpretation of symptoms, methods of diagnosis, including differential diagnosis, the indications for and methods of operating in a series of conditions affecting all, or at least most, of the various abdominal organs; but we find merely incidental references to diseases of the intestines, appendix, gall-bladder, kidney, pancreas, and other organs except the esophagus, stomach, duodenum, and liver, the lectures in the latter case being limited to a discussion of echinococcus cyst and abscess of the liver, with a short lecture on jaundice. About one-half of the book is concerned with gastroptosis and ulcer of the stomach and duodenum. These subjects are considered from every angle. The lectures are usually based upon actual clinical cases and the steps in the diagnosis and differential diagnosis are brought out in a most interesting and instructive way.

It is interesting to note that Rovsing finds an unusually large field for surgery in gastroptosis and seems to have had remarkable success in the treatment of this condition; that he is a rabid partisan of the anterior method of performing gastroenterostomy; that he believes that most cases of hour-glass stomach are the result of sagging of its central portion with subsequent adhesion of the opposed peritoneal surfaces, and that ulcer forms secondarily upon the exposed ridge projecting into the lumen of the stomach; that in cases of gastric ulcer excision, when possible, is the best method; and that gastroenterostomy is disappointing, as a rule, except where there is obstruction.

The book is full of practical suggestions, many distinctly original, and cannot fail to interest the internist as well as the operating surgeon. We may be permitted to express the hope that another series of lectures devoted to the other abdominal organs may soon be made available through the cooperation of Rovsing and the editor who has done his work so well in the present instance.

A REFERENCE HANDBOOK OF THE MEDICAL SCIENCES, Embracing the Entire Range of Scientific and Practical Medicine and Allied Science. By various writers. Third edition completely revised and rewritten. Edited by THOMAS LATHROP STEDMAN, A.M., M.D. Complete in eight volumes. Volume Four. Illustrated by numerous chromolithographs and 977 halftone and wood engravings. Price, $9.00 net; half-morocco. New York: William Wood and Company. 1914.

SOCIAL medicine, medical biography, and the newer developments of biological study in relation to human problems all come in for a goodly share of attention in this volume, not to mention the topics that concern the everyday work of the practitioner. Among the longer articles may be mentioned those on epilepsy, enteroclysis, esophagoscopy and gastroscopy, the surgery of the esophagus, medical ethics, medical ethnology, eugenics, euthenics, evolution, excisions, the anatomy of the eye, the dioptries of the eye, injuries of the eye, tumors of the eye, enucleation and evisceration of the eyeball, eyestrain, medical fees, development of the fetus, food and drug control laws, food poisons, foods for the sick, disabilities of the foot, distortions of the foot, fractures, fungi, diseases of the gall-bladder and gall-ducts, the genital organs, gestation, ectopic gestation, gigantism, exophthalmic goiter, growth, gunshot wounds, gynecological examinations, the hand, diseases and deformities of the hands and fingers, and hay fever. The bibliographical references include works and articles published during the present year. The article on Evolution presents this subject in the light of the most recent researches, particularly as to the inheritance of acquired characters, the application of the principles of Mendelian heredity, and the statistical studies of Pearson and others. There is an interesting exposition of Eugenics by Charles B. Davenport. The distinction is made between "hygienic" and "eugenic" marriages, and a program for the state control of marriages is outlined. It is proposed that for those who violate governmental prohibition by bringing a child into the world the penalty should be sterilization of the male. But why penalize the male alone? This one-sided provision would at any rate have no biological justification if the female is insane or is capable of transmitting insanity and if her male partner is not only normal but belongs to an untainted stock. Medical ethics are discussed in a witty and unconventional manner by Abraham Jacobi, who shows that the "gentleman" in medicine has little need of ethical precepts which, however, may guide the inexperienced in an era of close competition. A large number of interesting data appear in the article on Medical Ethnology by Colonel Charles E. Woodruff. Individuals of the brunette "persuasion" may possibly derive comfort from the fact that in New York "the blondes furnish an undue number of paupers, insane, and chronic offenders against property." The articles on the eye comprise a series of 80 pages, that on Excisions takes up 47 pages, and that on Fractures is fully covered within the limits of 44 pages. Royal Whitman contributes eminently practical articles on the disabilities and distortions of the foot. Another series of regional topics which seem to be a conspicuous feature of the Reference Handbook, are the articles on the Hand. Frank Baker deals with the hand in folklore and superstition, paleontology, embryology, anatomy, and physical expression (the so-called "physiognomy of the hand") and discusses the various theories as to the origin of right-handedness. The articles on the Diseases and Deformities of the Hands and Fingers, originally written by J. B. Nicholls, has been revised and enlarged by Leonard W. Ely. Among the different types of hand illustrated in the numerous drawings may be mentioned the "preacher's hand" of hypertrophic cervical pachymeningitis, the "ape hand" of progressive muscular atrophy, and the "claw hand" of ulnar paralysis or of progressive muscular atrophy. The hand of the baseball player typifies an occupational deformity. An interesting diversion for the medical reader would be afforded by the systematic perusal of the large number of short biographical sketches which are scattered throughout this volume, and which in many instances are embellished with portraits. Of particularly timely importance is the article of 47 pages on Gunshot Injuries by Colonel Louis A. La Garde. The short articles on health resorts contain information which the physician is wont to seek, namely mode of access, climate, analysis of springs, and therapeutic properties. The volume is superbly illustrated with halftone and wood engravings, including colored plates on esophagoscopic views, mushrooms, and gangrene.

LES ANOMALIES DE L'URINE; leur Recherche simplifiée et leur Signification. Par A. ESCAICH, Pharmacien de 1re Classe. Price, 3 francs. Paris: Vigot Fréres, 1914.

THE principal characteristic of this book is the simplicity of the qualitative and quantitative researches given in it. It contains all that refers to the chemistry, physiology, and pathology of urine in a condensed form. An alphabetic index will facilitate the diagnostic difficulties of physicians and pharmacists.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Section on Surgery.

Stated Meeting, Held October 2, 1914.

Dr. C. A. McWilliams in the Chair.

A Case of Thromboangiitis, Whose Wassermann Was for a Long Time Negative but Is Now Positive.—Dr. William C. Lusk reported this case. (See page 833.)

Thromboangiitis Obliterans, Ulcer of Toe.—Dr. Frederick Theodore van Beuren, Jr., presented this patient, a Russian Jew, 30 years of age. He was admitted on July 7, 1914, to the service of Dr. Hotchkiss, Roosevelt Hospital. Some time during the past winter he froze his left great toe, but thought nothing of it at the time. Three months before admission he noticed a little crack on this great toe which he picked open with his finger nail. Since that time he had had pain in the toe and the crack had become a large sore. The pain had been continuous, worse at night, aggravated by raising the leg horizontally, and slightly alleviated by hanging it down. When he lay down and straightened out his legs, he felt throbbing behind the knees. For the previous three months, he said, he had been able to sleep only with his left leg over the edge of the bed. He had to quit work because he could not stand for any length of time without pain and he could not walk more than a block or two without severe pain in the calf. He denied any venereal infection; he drank a little beer; he never smoked more than ten cigarettes a day. His family history was negative. He appeared well nourished and in good physical condition, but he walked with a limp and his face showed an expression of pain and anxiety. His gums exhibited marked pyorrhea alveolaris. His superficial inguinal glands were readily palpable. The left leg was slightly edematous from the knee downwards. All the toes and adjacent metacarpal region were a purplish red color, but not cold and tender except for the great toe which was moderately swollen and extremely tender in the region of the superficial indolent ulcer, 1.5 cm. in diameter; this had a sloughy base and rather calloused margin and occupied the mesial aspect of the base of the proximal phalanx. Pulsation could be felt in the posterior tibial artery at the ankle joint, but not in the dorsalis pedis artery. His urine was normal. The Wassermann reaction was negative. During the first six days in the hospital he was kept in bed and his leg and foot baked one hour every day. He had so much pain, however, that he begged to be allowed to sit in a chair. His discomfort was so great and other treatment had proven so unavailing that it seemed justifiable to try femoral ligation for impeding the return circulation, a method suggested by Hesse and Oppel and as carried out by Lilienthal; the latter had reported last winter four cases with marked alleviation of the pain in three. On July 14 a 3½ inch vertical incision in the left groin gave easy access to the vessels and the femoral vein was occluded by chromic gut sutures. On removing the covering of the leg at the end of the operation moderate duskiness of the extremity below the knee was noted. One and a half hours later the edema and duskiness of the toes were slightly accentuated. The next day he had moderate pain in the toe and there was a bleb, 1 cm. by 3 cm., noted on the dorsum of the foot (possibly due to the external heat), but the duskiness of the leg had nearly disappeared and the circulation of the toes which was still pretty red returned fairly rapidly when pressed out. For the next ten days progress was favorable and he had no further pain; the edema of the leg and foot almost entirely disappeared and the toes were much less red. Tenderness around the ulcer disappeared, but the ulcer did not heal. On the twelfth day after the operation pain in the foot returned. July 30 he left the hospital; the swelling of the foot had returned; the ulcer of the toe had slightly lessened in size, and the bleb on the dorsum of the foot had broken, leaving thin epithelium exposed. The patient said that he felt better than before the operation. During August he was treated by baking and massage; at first he suffered considerable pain, but after a couple of weeks he began to notice a slight but distinct lessening of the pain. This improvement had continued and during the past few weeks he had again been able to sleep with the leg in the horizontal position and he could walk more than one-quarter of a mile without pain and his outlook upon life had become more cheerful. Inasmuch as his treatment before operation was the same as after it was perhaps fair to believe that some of the improvement was referable to the operation itself.

Cases of Thromboangiitis Obliterans.—Dr. Buerger showed four cases of thromboangiitis obliterans in which he pointed out some of the clinical manifestations and diagnostic signs of this disease. He called attention to the fact that in 1908 he had proposed the name thromboangiitis for a condition which had for many years been regarded as an endarteritic process (endarteritis obliterans). The patients demonstrated some of the remarkable features, such as the intense redness of the affected foot in the pendent position, to which the name of erythromelia might be applied. Dr. Buerger believed that this red condition was due to the chronic dilatation of the capillaries, a compensatory phenomenon indicating an attempt to make up for the impaired circulation. This manifestation was characteristic of the disease, although it might be present to a less degree in cases of atherosclerosis and diabetic gangrene. In one of the cases shown the rubor had persisted for many months, after the active symptoms of the disease had abated. Another of the symptoms was the marked ischemia in the elevated position, due to the fact that the blood was not able to reach the peripheral parts through the occluded vessels. Intermittent claudication was noted in the history of all of the cases presented. Indeed, it was found in a large percentage of the 200 cases observed. One of the patients gave the history of migrating phlebitis, which occurred in about 20 per cent. of the cases at some time or other of the disease. This migrating phlebitis might involve the superficial veins of the upper or lower extremities, might be one of the prodromal signs of the disease, might occur simultaneously with the affection of the deep vessels (arteries and veins) of the leg, and afforded the most excellent opportunity for studying the pathology of the disease. The superficial veins were accessible, could be excised, and histological studies could be made. In every case of migrating phlebitis it was wise, therefore, to excise a portion for pathological examination. Inasmuch as Dr. Buerger had demonstrated that a specific type of lesion occurred both in the deep vessels and in those affected with migrating phlebitis, and that the lesion was characteristic of the disease, a search for lesion in the affected veins was indicated in every case of migrating phlebitis. If present, it would signify that thromboangiitis was either already present, or might at any time affect the arteries of the lower extremity. Two of the patients demonstrated the fact that although ligation of the femoral vein might cause temporary improvement, the symptoms rapidly returned, so that they could not hope to obtain any definite result by such means. So far as the symptomatology and the diagnosis were concerned, the following was a brief summary of the important features upon which diagnosis might be based: (1) A history of intermittent claudication or pain in the calf of the leg or elsewhere in the foot upon walking in a Russian, Polish, or Galician Hebrew, practically always of the male sex. (2) The appearance of trophic disturbances in the form of ulcers. (3) The development of gangrene, usually dry gangrene of small extent, in most cases progressive; in other cases, leading simply to the loss of a phalanx or toe. (4) The development of vasomotor and circulatory disturbances, dependent upon the closure of peripheral vessels. (5) The presence of migrating phlebitis of the superficial veins of the upper or lower extremities. (6) The presence of certain objective signs, to wit: ischemia in the elevated position, marked rubor, or hyperemia, or erythromyelia in the pendent position; and the absence of the pulsation in the dorsalis pedis, sometimes the posterior tibial, popliteal, femoral, or even iliac arteries.

Transfusion and Splenectomy for Pernicious Anemia. Dr. Buerger reported the case of a young woman, 36 years of age, upon whom five transfusions had been done and the operation of splenectomy for pernicious anemia, the patient being to-day, five months after the splenectomy, in excellent condition considering herself perfectly well. The symptoms dated back to August, 1910, when she began to run down, symptoms of an intense anemia gradually developing. In January, 1912, the diagnosis of pernicious anemia was made and because of her wretched condition, in February, 1912, transfusion of blood was absolutely indicated. Her hemoglobin was 18 per cent., red blood count 800,000, white blood count 4,000. At that time she was

dyspneic, had generalized edema, her abdomen was distended with fluid, the liver was enlarged, palpable three fingers below the umbilicus. At the first transfusion her hemoglobin was raised to 36 per cent., and after this it rapidly rose, so that on May 6, 1912, two and one-half months after the first transfusion, her hemoglobin was 81 per cent., the red count 4,300,000. Her condition was excellent and she considered herself perfectly well. In September of the same year she still remained in excellent state, and in October her red blood count was almost five million (4,800,000), hemoglobin 81 per cent., and she said she had never felt better in her life. From this point on she remained in excellent health for about twenty months, after which she gradually began to decline, so that in January, 1914, it again became necessary to transfuse. During January, February, March, and April, 1914, it became necessary to transfuse four times in order to prepare the patient for splenectomy, which was done on May 1, 1914. Since that time her improvement had been so rapid that within two months after the operation she felt perfectly well again, and now, October 2, 1914, said she thought she was cured. Dr. Buerger said he did not wish to give the impression that the case presented was "cured," but desired to call attention to the fact that on two occasions it was possible to save the life of a patient suffering with pernicious anemia, once by means of transfusion alone, and then again, by two procedures, preliminary transfusions followed by splenectomy.

Tenoplasty for Ischemic Contracture.—Dr. BUERGER presented a case of ischemic contracture involving the right forearm of a boy, eight years of age, treated by means of plastic operation on the flexor tendons. The patient had sustained a fracture of both the radius and ulna eleven months before admission to the hospital, and, when the cast was removed five weeks later, inability to move the fingers and atrophy of the muscles of the forearm were noted. On admission to the hospital, July 10, 1914, the appearance of the hand was that of the typical claw hand or *main en griffe*, the fingers immobile, tightly clasped in the palm, the thumb adducted, the wrist atrophic, the muscles of the forearm wasted away. There was practically no active motion in any of the fingers. By means of a typical plastic operation done on the 15th of July, the eight tendons of the flexor sublimus and the flexor profundus group were each lengthened about 1½ to 2 inches, the tendons being split longitudinally in the classical manner. The palmaris longus was also treated in the same way. Cargyle membrane was placed between the tendons, and the wound closed without drainage. On the 9th of September a similar operation was performed in order to lengthen the deep flexor of the thumb and to overcome the adducted position brought about by the scar tissue. Dr. Buerger showed the case because an excellent result, both as regards cosmetic effect and the function of the fingers had been obtained. The hand could be held practically straight, the fingers could be completely extended and excellent motion in every one of them was present. In view of the fact that most operations for this condition were reported as unsuccessful, the case was of particular value in showing how valuable the procedure of tendon lengthening might be.

Dr. REGINALD H. SAYRE said that the result of the operation had been very satisfactory except that sufficient length had not been secured in the tendons to allow free motion of the fingers and the wrist. The operation of shortening the bones of the forearm did not seem, in the majority of cases, to give good results as a sufficient amount of bone was not removed to give play to the tendons, and if enough was removed to give this result marked shortening of the forearm was the result. Robert Jones had suggested a method of dealing with these cases which Dr. Sayre believed to be better than either of these open operations or intermittent massage. In almost all of these cases the chief damage was to the long flexors, the hand being in the *main en griffe* position. If the wrist was sharply flexed the fingers could be drawn slightly from the palm and retained in this position by a small splint. The patient's efforts to move the hand would in the course of a few days so stretch the flexor muscles that a straighter splint could be applied taking in not only the fingers, but the palm as well. After a short time a splint could be applied consisting of a palm piece and an arm piece joined by a strip of malleable iron which could be bent every few days forcing the hand further and further into a position of hyperextension. In this way, by putting into operation the principle of constant instead of intermittent stretching, remarkably fine results could be secured, exactly as was done in cases of congenital club foot. Dr. Sayre showed pictures demonstrating that cases could be treated in this way in a very satisfactory manner. He insisted upon the necessity of seeing fractured cases, and cases where a snug bandage had been applied, not later than five or six hours after the application of the bandage, and if there was any evidence of pain or swelling, that the bandage should be loosened until these symptoms were absolutely relieved. In experimental ischemia in animals it was found that if the pressure was relieved by the removal of the bandage not later than five hours after its application, recovery was perfect, but if the bandage was only slightly loosened, that ischemic paralysis resulted.

Purpura Hemorrhagica Treated by Blood Transfusion.—Dr. EDWARD W. PETERSON presented this patient, a boy two and a half years of age, who was admitted to the hospital on April 16, 1914. On April 12 he began to bleed from both ears, with some bleeding from the nose but not from the gums, mouth, or throat. A petechial rash appeared on his feet, legs, hands, and arms. Later large ecchymoses appeared on the forehead, under the eyes, and on the thighs and legs. The stools showed microscopical blood. The temperature and pulse were only slightly elevated; the boy was restless and irritable, and cried constantly. In the hemorrhagic diseases of the newborn, human blood serum and whole blood, injected subcutaneously, and blood given by transfusion had specific action in correcting the dyscrasia. In the purpuric diseases it would seem that this same line of treatment would prove beneficial. As yet it had not been tried in a sufficient number of cases to enable one to draw any definite conclusions as to its value. Other methods of treatment, however, being uncertain and unsatisfactory, it was determined in this case to do a blood transfusion. The seventeen year old brother acted as the donor. While waiting for the hemolysis and agglutination tests, which proved satisfactory, about 20 c.c. of whole blood was given subcutaneously. This transfusion was performed by the indirect "syringe-cannula" method of Linderman and proved most satisfactory and successful. The boy's appearance and disposition underwent an immediate change. The bleeding tendency ended abruptly and up to the present time had shown no disposition to recur.

Hemophilia Treated by Blood Transfusion.—Dr. PETERSON also reported the case of a girl, five years of age, with hemophilia; blood transfusion was tried, the mother being the donor, but with no success; a foreign donor was then tried. The patient did well for ten days and then she began to bleed from the gums and the nose. She became more and more anemic and three transfusions were given. Following this there were no further bleedings and she was discharged from the hospital two weeks later. She had since had a slight nose bleed.

Dr. WILLY MEYER said that his personal experience in the treatment of hemophilia by blood transfusion was not large. He reported the case of a patient with fibrosarcoma of the abdominal wall which was extirpated at the German Hospital. Recurrences occurred and, at this time, he did not know much regarding hemophilia. Several tumors were removed, the first from the suprapubic region. The parts were divided and he thought that he was going to get primary union. He left the dressings on for one week and then he found that the wound had suppurated. A coagulum was found in the wound. Upon investigation he found that this had been the experience of other surgeons. This was a true case of hemophilia. He then employed blood serum hypodermically and got good results. From three to five ounces of blood serum were injected hypodermically. After three or four weeks he did the major operation, a plastic operation with the silver filagree. No trouble whatever ensued and there was primary union. This proved to him what could be accomplished by this method.

Diaphragmatic Hernia Due to Stab Wound in the Chest.—Dr. MOSES S. KAKELS presented a man, twenty-three years of age, who on the night of admission to Lebanon Hospital, July 5, while in an altercation, suddenly felt a sharp sting over the left side of his chest and who almost immediately noticed his shirt full of blood. He did not experience much pain nor did he cough or expectorate any blood. He had no difficulty on deep inspiration, neither did he vomit at the time.

On admission he did not look acutely ill, though he vomited once, with no blood in the vomitus, shortly after he was admitted. There was a normal expansion of the chest; there was no pain on deep inspiration, no cough and the respiration was not accelerated. There was normal pulmonary resonance throughout with normal breathing and no râles were heard anywhere. The heart was normal and not displaced. The abdomen, however, was slightly distended, but there was no pain, tenderness or rigidity at any point. On his left side about two fingers breadth above the costal border in the linea mamillaris there was a small incised wound with clean cut edges about 1 cm. in length. This wound was surrounded by a firm mass which could be felt situated deeply under the skin. This proved at operation to be infiltrated blood. The wound was not probed but a sterile dressing was applied. The pulse and temperature were normal. The next morning his temperature rose to 101° F. and his pulse varied between 80 and 120. Rigidity below the free costal border was felt. This rigidity with the rise of temperature and pulse impelled the speaker to explore the abdominal cavity for some viscus injury. An incision was made over the left rectus muscle from the free costal border extending downward for a distance of about 12 cm. When the peritoneum was opened free and clotted blood escaped. On further exploration a part of the omentum about the size of a large hen's egg was found prolapsed into the opening in the left dome of the diaphragm close to the costochrondral articulation. The perforation in the diaphragm easily admitted the tips of three fingers. On further exploration no perforation of any of the abdominal viscera was found. At this stage of the operation the original stab wound was laid open by a transverse incision almost at right angles to the upper end of the primary incision. The cartilage of the ninth rib was found to be cut through the middle portion in a direction parallel to its long axis to the extent of about 3 cm. The muscles of the anterior thoracic wall were then stripped from the ribs and the eighth and ninth were cut through at the costochondral junction, the ribs elevated by traction of the diaphragm reflected back from the inner surface of the ribs. This gave a good exposure of the opening in the diaphragm which was about 3 cm. in length and was found to communicate between the abdominal and thoracic cavities. The opening was closed from above with interrupted chronic gut sutures. The ribs were then brought back into their original position and sutured in place with heavy chromic gut and the muscles also brought back in approximation. A cigarette drain was inserted at the upper edge of the primary incision down to the region of the kidney and a small rubber tissue drain at the lower angle of the skin incision. The skin was then sutured. The drains were removed after forty-eight hours. The wounds promptly healed without untoward symptoms and the patient was discharged on the fourteenth day after the operation perfectly well. From the situation of the wound of entrance and the opening in the diaphragm, the blade of the knife must have been thrust in an inward and backward direction and entered the space in the thoracic cavity between the reflection of the pleura and the origin of the diaphragm from the inner surface of the frame of the thorax without injuring the pleura or lung and then further penetrated the diaphragm, escaping a lesion of the abdominal viscera. As was well known the pleura never approached closely the lower border of the chest; at the sides, in fact, in the axillary line below the reflection of the pleura and the origin of the diaphragm, the space was about 5 cm. on the right and 4 cm. on the left. Had any of the organs of the thoracic or abdominal cavities been injured the outcome might not have been so favorable. It was a good rule in stab or bullet wounds of the chest or abdomen to immediately explore upon the slightest suspicion of hemorrhage or injury to underlying organs.

Bronchial Fistula.—Dr. WALTON MARTIN presented this paper. He said that by broncho-cutaneous fistula he meant a persistent passage between the lung (one of the air spaces or bronchi) and the surface of the body. In such a condition air might pass with the respiratory movements through the fistulous tract and colored solutions injected into the fistula were immediately expectorated. In using the term pulmonary fistula, the implication was that the tract had existed for some time, and its walls were well organized and the condition was persistent. These fistulæ might be caused by tuberculosis, actinomycosis, echinococcus cysts, gangrene of the lung, or carcinoma of the chest wall. A few cases had been reported of fistulæ resulting from abscesses having their origin in the mediastinal lymph glands, or the vertebral column. The decision whether or not a persistent cutaneous fistula communicated with a bronchus might be comparatively easy if the tract was short and straight; if, however, it was narrow and tortuous it was more difficult to diagnose. A small amount of aqueous solution of methylene blue injected into the sinus produced violent coughing and blue stained sputum was immediately expectorated if the tract communicated with a bronchus. In long standing fistulæ with much thickening of the tract this method was not harmful unless large quantities of the methelene blue solution were injected. By this means the diagnosis of a tortuous fistula was not difficult, but it was very difficult to recognize the extent of the fistula and the nature of its communication with the lung and the pleura. The *x*-ray examination of these patients was unsatisfactory owing to the thickening of the pleura and the changes in the lung. In a general way the fistulæ might be grouped into four classes: (1) Those showing a straight fistulous tract from the skin to the bronchus. A case reported by Walther before the Surgical Society of Paris, 1904, showed this condition. (2) Those fistulæ in which the tract was bulbous at the end, that was, flask-shaped with the belly of the flask in the lung substance, and the neck opening on the skin. This was the condition after the opening of an abscess in the lung when the pulmonary and parietal pleuræ were adherent. (3) Those fistulæ in which the tract was spindle-shaped, there being a small opening into the lung and a small cutaneous opening while the intervening portion was of considerable size. (4) Those in which the fistulous tract was dumb-bell shaped with the portion in the lung and near the surface being dilated with a narrow intervening portion. The fourth case in Dr. Martin's series was of this kind. The fistulous tract was partly made up of granulation tissue or was covered over by epithelium. A certain number of simple straight fistulæ closed of themselves or after cauterizing the fistulous tract. If, however, the fistula persisted, it was fair to assume that there was little chance to close the tract without an operation. If there was a bulbous enlargement in the lung substance, the sinus had a tendency to persist on account of the insufficient drainage; here the indication was to keep the widened fistulous tract well opened until the pulmonary portion contracted down and to keep the entire tract as clean as possible. In these cases the writer had found gentle irrigation with methylene blue of benefit. The violent coughing made it necessary to use it with caution. The drainage tube in these cases must be very gradually shortened. In the cases in which there was a considerable intrapleural enlargement of the sinus, it was necessary to do an extensive operation, usually a Shede-Delorme.

Dr. Martin reported the following cases:

CASE I.—This patient was 38 years of age and gave a history of metapneumonic empyema, thoracotomy, and persistent thoracic sinus for seven years. For the past three years the expectoration had been profuse and foul smelling. The sputum showed no tubercle bacilli. At operation a large cavity was found in the pleura and communicated with the lung. Methylene blue injected into the sinus was immediately expectorated. A Shede-Delorme operation was performed which was followed by a partial recovery, the patient being able to resume his work as a hod-carrier. He died four years later of pneumococcus meningitis.

CASE II.—This patient, 17 years of age, gave a history of empyema, probably intralobular with rupture into a bronchus, thoracotomy and persistent thoracic sinus. The injection of methylene blue was followed immediately by expectoration. At operation the seventh and eighth ribs were removed. A purulent cavity was found in the pleura and obliterated. The sinus then closed after about two months.

CASE III.—This patient was 47 years of age and gave a history of metapneumonic empyema, thoracotomy, and persistent thoracic sinus for six months. Under daily irrigations with methylene blue and two injections of Mostig filling the patient recovered.

CASE IV.—This patient, 27 years of age, also gave a history of metapneumonic empyema 16 months previously, of thoracotomy, and persistent cough with foul smelling expectoration. A culture from the pus gave a Gram-positive diplococcus. The eighth rib was resected. An abscess, probably pleural, was opened, but a sinus persisted. A second operation was performed four months later, a portion of the chest wall being resected together with a portion of the lung forming

the outer wall of the sinus. The patient succumbed about six hours after the operation from inhalation of pus and blood into the sound lung.

CASE V.—This patient was 44 years of age and had had an operation five months previous for empyema. Although the sinus nearly closed the patient had an elevation of temperature in the afternoon and felt ill. About four weeks later a persistent cough developed with mucopurulent expectoration. The thoracic sinus closed and then reopened. At operation, portions of the fifth, sixth, seventh ribs, and parietal pleura were removed, exposing a fairly large cavity with an opening into the lung at one point. The improvement after the operation was marked. The cough had entirely stopped. This patient was still under treatment.

Dr. DEXTER DAVID ASHLEY reported the case of a boy, twelve or thirteen years of age, who had a tuberculous process of the spine. After a seeming recovery from the disease he became quite an athlete. Last summer while canoeing he had some expectoration, became much reduced in flesh and complained of pain in his back. On examination a well developed psoas abscess was found. In about two weeks an abscess broke through the lung and then the psoas abscess entirely disappeared. A few weeks later a rise in temperature appeared, about 100° F., but the patient seemed to be well. The patient became much emaciated and discharged large amounts of pus through the mouth. Two weeks later he developed meningeal symptoms and died.

Dr. EDWIN BEER recalled an instance in which the empyemic sinus was swabbed with a solution of nitrate of silver; irritation was set up, with collapse, and death following.

Dr. DEWITT STETTEN reported a case seen at the German Hospital a few years ago. This was a case of pulmonary abscess and all therapeutic measures had failed. The patient died after operation. This case was reported by Dr. Kammerer at a meeting of the New York Surgical Society.

Is Thromboangiitis Obliterans an Infectious Disease?—Dr. LEO BUERGER presented this paper which was the result of a collection of clinical data and pathological material which he had been collecting since 1904. He stated that during the past eight years some 200 cases of presenile gangrene, a condition which the Germans described under the term *endarteritis obliterans* and for which he had proposed the term *thromboangiitis obliterans*, had come under his observation. The disease was one which, curiously enough, seemed to afflict almost exclusively the immigrant Jewish population, particularly the immigrants and their children from Poland, Galicia, and Russia. The speaker said it would be superfluous to present a record of all the facts and observations that he had gathered from this large amount of material but that he wished to present the conclusions which he regarded as significant from the standpoint of pathology and etiology. He believed they were warranted in thoroughly supporting the proposition that *thromboangiitis obliterans* was an infectious disease in which a specific type of organism was at work, and that although it had not been possible to demonstrate either bacteriologically or morphologically the presence of the offending agent, the pathological findings clearly indicated whether future studies should be directed in order that the causative factor might be discovered. The finding of a peculiar type of histological picture in certain of the veins and arteries led the writer to believe that the same determining cause which led to the thrombosis also evoked the changes in the media, adventitia, and perivascular connective tissue; and furthermore that although the mechanical conditions that obtained in the lower extremities and the arteriosclerotic changes might be factors, some additional agent, toxic or otherwise, was at the same time responsible for the production of the periarteritis and the thrombosis. From a report of eleven cases in 1909 Dr. Buerger believed the following conclusions were warranted: 1. The disease thromboangiitis obliterans was often associated with thrombophlebitis of superficial veins of the arms and legs. 2. Certain peculiar cutaneous nodosities were characteristic manifestations in many of the cases. 3. The disease of the superficial veins might be subsidiary, or it might dominate the clinical picture. Objective signs referable to these vessels should be regarded as extremely suspicious marks of the synchronous development of thromboangiitis obliterans. In the presence of migrating phlebitis or cutaneous nodosities one should carefully search for evidence of thromboangiitis obliterans, in the form of pulseless vessels, erythromelia, blanching of the leg in the elevated posture, cold and blue toes, pain in the calf of the leg brought on by walking, and other physical phenomena. 4. Migrating thrombophlebitis might give no symptoms, the signs referable to the deep vessels being of most importance. 5. Patients might suffer at one time from the migrating thrombophlebitis, at another from the progress of occlusive change in the deeper vessels. 6. Certain cases suggested the possibility that attacks of trouble in the surface veins might occur simultaneously with similar exacerbations of disease in deep vessels of another limb. 7. The morbid process resulting in the production of cutaneous nodosities and throbosed superficial veins was independent of varicosities, of infections, or of trophic disorders in the territory which they drained. 8. The vessels of the upper extremity might be affected by the lesion thromboangiitis obliterans. 9. Thrombophlebitis in the arm and forearm should arouse one's suspicions as regards involvement of the deep vessels of the legs. 10. Further studies should be directed towards solving the relationship between the two thrombotic lesions that have been described. Since 1909 the author had been able to gather data on twelve additional cases in which the superficial veins were involved and had brought the number of exsected veins to twenty-five. In these both the acute and the healed stage of the disease were found. From a consideration of the pathological picture the conclusion was reached that a specific characteristic lesion of thromboangiitis obliterans might affect the deep as well as the superficial vessels, and that it was from the lesions in the veins that they should be able to gain access to material for investigation of the causative agent. For the purpose of demonstrating the sequence of the various stages of the pathological process, from its earliest obtainable stage up to the "healed" or obliterated connective tissue stage and to make clear the argument in favor of his theory, the writer presented a series of selected histological pictures, pointing out the general appearance of the old lesions in the deep vessels, the acute type of the lesion in the deep vessels and arteries, the lesions as seen in the veins under the skin and how these latter were identical with the lesion of thromboangiitis obliterans, and finally why the findings pointed so suggestively to the presence of some microbial agent although none had yet been revealed. Although there were still many mooted points for investigation he believed that the correctness of the following points had been demonstrated: First, that thrombo-angiitis obliterans was a disease in which the acute inflammatory lesion and occlusive thrombosis of arteries and veins were the characteristic lesions. Second, that from the mechanical point of view and from the standpoint of symptomatology, the thrombotic occlusion was the most important phenomenon. Third, that the thrombosis was probably preceded, and certainly accompanied, by an acute inflammatory or exudative stage. Fourth, that the lesion involved deep veins in about 40 per cent. of the cases, the superficial veins of the upper and lower extremity in 20 per cent. of the cases. Fifth, that recent investigations of the veins showed that the acute lesions in the superficial vessels and in the deep vessels were identical. Sixth, that the histological changes in the veins pointed to the existence of an infectious process. Seventh, that they believed that future studies should be directed towards the discovery of the causative agent in the specimens cut out from the superficial veins when they were the seat of acute thrombophlebitis. In this way it was to be hoped that the etiology of the disease might soon be revealed.

Dr. CHARLES GOODMAN said that during the past twenty years he had had experience with about seventeen cases, cases that had been observed for various lengths of time, two over eighteen years. In almost all cases there was a history of cigarette smoking. The Wassermann reaction, with but two exceptions, was negative. Dr. Goodman was led to believe that the process as far as the arteries were concerned, was an ascending one. He had seen an obliteration of pulsation in the dorsal artery of the foot, a few weeks later that of the tibial, and finally in the femoral as far as the iliac. Many of these cases showed a retention of the calcium salts. Examination of blood serum seemed to indicate a disturbance of the efficiency of the suprarenal glands which suggested a form of treatment. Koge of Professor Ito's clinic attempted to reduce the viscosity of the blood by means of Ringer's solution. They tried the treatment at the Beth Israel Hospital

and obtained temporary amelioration of the symptoms in two patients and with no results in a third case. In 1902 the Spanish surgeon Satrustegui suggested substituting part of the venous system for the occluded arteries. Dr. Goodman's personal experience covered seventeen attempts. In three instances an exposure of the femoral artery showed that it was occluded and felt like a whipcord. In fourteen patients he performed an arteriovenous anastomosis followed by strong presumptive evidence that a reversal of the circulation in the limb was accomplished. There was an increased warmth of the limb in all the cases; also an improvement in color; pain was relieved; the superficial veins became filled, and pulsation was present below the anastomosis. The operation of course did not perform a cure in all cases, but Dr. Goodman believed that in carefully selected cases performed before gangrene set in, the condition could be averted and the life of the limb prolonged.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

TENNESSEE STATE BOARD OF MEDICAL EXAMINERS.

May 4 and 5, 1914.

ANATOMY.

1. Give the formation of brachial plexus and the principal branches of same.
2. Name the branches of the femoral artery and give its anatomical relations in Scarpa's triangle.
3. Describe the shoulder joint and give its blood and nerve supply.
4. What is origin, point of escape, and distribution of the seventh cranial nerve.
5. Describe the temporal bone and give its articulations.
6. Name the superficial and deep groups of the flexor muscles of the forearm.
7. Give the boundaries of the inguinal canal.
8. Describe the colon.

PHYSIOLOGY.

1. Give relations of chemical changes in muscular contraction to fatigue and give the chemical theory of fatigue.
2. Give briefly the theories of muscular contraction.
3. Give the neuron doctrine.
4. Give the general properties of the blood and its histological structure.
5. Give the neurogenic and myogenic theories of the heart-beat and describe the automaticity of the heart.
6. Define dyspnea, giving its physiological causes; hyperpnea, and apnea, giving their physiological causes.
7. Describe dichromatic vision and give the tests for it, also describe achromatic vision.
8. Briefly define diffusion, dialysis, and osmosis and describe osmotic pressure.

ANSWERS.

ANATOMY.

1. The *brachial plexus* is formed by the union and subsequent division of the anterior divisions of the fifth, sixth, seventh, and eighth cervical and the first dorsal nerves. The union of the fifth and sixth makes the upper trunk; the seventh forms the middle trunk, and the eighth cervical and first dorsal make the lower trunk. Each of these trunks is divided into an anterior and a posterior branch. The anterior branches, from the upper and middle trunks, make the upper or outer cord of the plexus; the anterior branch of the lower trunk becomes the lower or inner cord; the three posterior branches unite to form the posterior or middle cord. The plexus lies between the Scalenus anticus and medius. The *branches* are: (1) Above the clavicle; communicating, muscular, posterior thoracic, and suprascapular. (2) *From outer cord:* External anterior thoracic, musculocutaneous, and outer head of median. (3) *From inner cord:* Internal anterior thoracic, lesser internal cutaneous, ulnar, and inner head of median. (4) *From posterior cord:* Subscapular, circumflex, and musculospiral.

2. The *branches of the femoral artery*, are: Superficial epigastric, superficial circumflex iliac, superficial external pudic, deep external pudic, muscular, anastomotica magna, and profunda femoris (with branches: external circumflex, internal circumflex, and three perforating). The artery passes from the base to the apex of Scarpa's triangle, it has the femoral vein on its inner side, and the anterior crural nerve on its outer side; it is covered by the skin and superficial fascia.

3. The *shoulder-joint* is an enarthrodial joint formed above by the glenoid cavity of the scapula and below by the head of the humerus. Its ligaments are glenoid, coraco-humeral, and capsular. The glenoid surrounds the edge, deepens the glenoid cavity, and is continuous above with the long head of the biceps tendon. The capsular ligament, extensive and loose, arises above it from circumference of glenoid cavity behind the ligament, is attached below to the anatomical neck of humerus, and is pierced by tendons of two or three muscles. The coraco-humeral, or accessory, is a fibrous band which extends obliquely downward and outward from the coracoid process to the anterior part of great tuberosity, strengthening the capsular ligament. A *synovial membrane* lines the joint, and forms the bursa under the subscapularis. It is reflected round the tendon of the biceps, and lines the bicipital groove. The *nerve supply* is from the circumflex and suprascapular nerves. The *arteries* are branches of the anterior and posterior circumflex, and the suprascapular.

4. The seventh cranial nerve has its superficial origin in the medulla oblongata, in the groove between the olivary and restiform bodies; it leaves the skull through the stylomastoid foramen; it is distributed to the muscles of expression of the face, the muscles of the external ear, the Platysma, Buccinator, Stylohyoid, and the posterior belly of the Digastric.

5. The *temporal bone* consists of three parts—the squamous, the mastoid and the petrous parts. The *squamous* portion is the anterior and upper part of the bone, and presents an external and internal surface, and a superior and inferior border; the chief points on it are the zygoma, temporal ridge, eminentia articularis and glenoid fossa. The *mastoid* portion consists of an outer and inner surface, and presents mastoid foramen, mastoid process, digastric fossa, sigmoid fossa, mastoid cells and mastoid antrum. The *petrous* portion presents an apex; superior, anterior, posterior and inferior surfaces, and three borders; on it are the canal of Huguier, internal auditory meatus, aqueduct of Fallopius, jugular fossa, stylomastoid foramen, carotid canal, and styloid process. It gives attachment to the following muscles: Temporal, masseter, occipitofrontalis, sternomastoid, splenius capitis, trachelomastoid, digastric, posterior, auricular, stylohyoid, stylopharyngeus, styloglossus, levator palati, tensor tympani, tensor palati, and stapedius. It *articulates with:* Occipital, parietal, sphenoid, malar, and inferior maxillary bones.

6. FLEXOR MUSCLES OF FOREARM. *Superficial group:* Pronator radii teres, flexor carpi ulnaris, flexor carpi radialis, palmaris longus, and flexor sublimis digitorum. *Deep group:* Flexor profundus digitorum, flexor longus pollicis, and pronator quadratus.

7. BOUNDARIES OF THE INGUINAL CANAL. *In front:* the skin, superficial fascia, aponeurosis of the external oblique, and (for its outer third) the internal oblique. *Behind:* the conjoined tendon, the triangular fascia, the transversalis fascia, subperitoneal fat, and peritoneum. *Above:* the fibers of the internal oblique and transversalis. *Below:* Poupart's ligament and the transversalis fascia.

8. The colon is divided into ascending, transverse descending, iliac, and pelvic.

The *ascending colon* extends from the cecum to the under surface of the liver to the right of the gall-bladder, where it turns to the left, forming the *hepatic flexure*. It lies in the right iliac and right hypochrondriac regions. The peritoneum covers the anterior and lateral surfaces. Length, 8 inches. *Relations.—In front:* The convolutions of the ileum; *behind:* Iliacus, quadratus lumborum, outer side of right kidney.

The *transverse colon* passes from right to left, from the gall-bladder to the spleen. It forms an arch, convex anteriorly and below: the *transverse arch of the colon*. It is entirely surrounded by peritoneum, which is attached posteriorly to the spine, forming the mesocolon. Length, 20 inches. *Relations.—Above:* Liver, gall-bladder, large curvature of stomach, lower end of spleen; *below:* small intestines; *anteriorly:* anterior layers of great omentum, anterior abdominal wall; *posteriorly:* right kidney, second part of duodenum, transverse mesocolon, pancreas, and small intestines.

The *descending colon* passes from the end of the transverse colon by a bend, *the splenic flexure*. Between

the splenic flexure and the diaphragm, opposite the tenth left rib, is a fold of the peritoneum, the *costocolic ligament*, which slings up the spleen. The gut then passes downward to the iliac crest, ending in the iliac colon. The peritoneum invests its anterior and lateral surfaces. Length, 4 to 6 inches. *Relations.—Behind:* left crus, left kidney, quadratus lumborum, and psoas; *in front:* small intestines; *inner side:* outer border of left kidney.

The *iliac colon* is continuous with the descending colon at the left iliac crest, and ends at the inner border of the left psoas. Peritoneum invests its anterior and lateral surfaces; it has no mesentery. Length, 5 to 6 inches. *Relations.—In front:* Small intestines; when distended, the anterior abdominal wall; *behind:* left iliopsoas.

The *pelvic colon* extends from the inner border of the psoas to the level of the third sacral vertebra. Length, 16 or 17 inches; very variable. It has an extensive mesentery. *Relations.*—Passing over left brim of pelvis, it crosses the left external iliac vessels and left ureter, and passes to right margin of pelvis, resting on bladder in male and uterus in female; above lie coils of small intestine. It then turns back to midline on posterior wall of pelvis, and, forming a second bend, descends to end in the rectum.—(From *Aids to Anatomy.*)

PHYSIOLOGY

1. *Fatigue.* "If several successive stimuli are sent into a nerve of a nerve-muscle preparation, each succeeding one not taking effect, however, until the influence of the preceding one has passed off, after a time the contracting muscle becomes fatigued.....In fatigue thus produced, the structures present are the nerve, motor end organs, and the muscle; the nerve was excited by repeated single induction shocks. Fatigue in this case is due: (i) to the consumption of those substances, especially carbohydrates, which normally exist in muscle, and which are available for the supply of muscle energy, and (ii) to the accumulation of the waste product of contraction, such as CO_2 and sarcolactic acid. These seem to be the chief source of fatigue, for if the muscle is allowed to rest and is then washed with 0.9 per cent. NaCl solution which contains a little alkali, fatigue gradually passes off. Moreover, fatigue may be artificially produced in muscle by feeding it with a weak solution of sarco-lactic acid.....In conclusion, it may be stated that the chief seat of fatigue is in the nerve cells of the brain and spinal cord, but that it also occurs in the motor end organs; that, in ordinary circumstances, fatigue cannot be demonstrated as occurring either in medullated or in non-medullated nerves. The fatigue, which occurs in the muscular fibers themselves, is due to the using up of those substances present in the tissue which, when oxidized, give rise to heat and energy. As in normal circumstances these substances are readily replaced by means of the blood and the lymph, it may be concluded that, under normal conditions of nutrition, fatigue does not occur in the muscle fibres themselves."—(Lyle's *Physiology.*)

2. The *modes of action of muscle.* "We know the probable structure of cross-striated muscle, substantially, so far, at least, as appearances go. We know that it consists of two sorts of substances, one (anisotropic) doubly refracting polarized light, the other (isotropic) refracting it singly. We know that when the contraction occurs in cross-striated muscle the latter kind of material changes its place somewhat, while the former kind does not do so. We are sure that the metabolism of all sorts of muscle is, in part, the oxidation of carbohydrates and of protein, sarcolactic acid being a way-product, and carbon dioxide and water among the end-products. The more active the contraction of the muscle the more oxygen it consumes and the more carbon dioxide is liberated from it. We know that, as often happens in protoplasm, the chemism of metabolism gives rise to at least three sorts of kinetic energy: movement, heat, and electricity, for these may be measured and variously studied. If we start out with the fact that it is chemism undoubtedly which liberates these energies, we have the basis of the chief various theories of muscle-action. To one (Engelmann) it seems clear enough that the chemism gives rise to heat, which, by causing imbibition of sarcoplasm, brings about the contraction. Another "school" (Pflüger, Bernstein, Verworn, Fick) supposes that the chemism directly, i. e., without the intervention of heat, alters the two differing substances in such a way that the isotropic one swells into the anisotropic. A recent group of thinkers (Müller, Loeb) supposes that electricity is involved in causing the contraction. To others (e. g., Weber), the chemism seems to alter the natural elasticity of the myoids or fibrils, making them shorten and then lengthen. Numerous other hypotheses still less probable have been published at various times."—(Dearborn's *Physiology.*) Other theories are the thermodynamic theory and the surface tension theory.

3. The *neurone doctrine* teaches that the nervous system is composed of neurones; these neurones consist of a nerve cell and various processes; the peripheral nerves are the long processes. The neurones connect with each other by contact only, and are not continuous. The axon of the neurones is in contact with the dendrites or cell body of another neurone. The nerve conduction in the dendrites is away from the nerve cell, that in the axons is towards the cell body.

4. The *physical properties of blood:* Fluid, somewhat viscid, red; specific gravity, from 1055 to 1062; alkaline reaction; saltish taste; characteristic odor; variable temperature (average, about 100° F.).

The *constituents of the blood* are plasma and corpuscles. The *plasma* consists of water and solids (proteids, extractives, and inorganic salts). The *red corpuscles* consist of water and solids (hemoglobin, proteids, fat, and inorganic salts). The *white corpuscles* consist of water and solids (proteid, leuconuclein, lecithin, histon, etc.).

The *red blood corpuscles* are biconcave discs, about 1-3200 of an inch in diameter; they are non-nucleated, and there are about 4,500,000 or 5,000,000 of them in each cubic millimeter of blood. They are elastic and soft, and their shape is changed by pressure, but is promptly regained on the removal of the pressure. Their color is yellowish. They contain hemoglobin.

Their *function* is to carry oxygen from the lungs to the tissues.

The white blood cells are spheroidal masses, varying in size, having no cell wall, and containing one or more nuclei; there are about 7,000 to 10,000 of them in each cubic millimeter of blood. They differ much in appearance, and are divided into (1) small mononuclear leucocytes, or lymphocytes, (2) large mononuclear, (3) transitional, (4) polynuclear, or polymorphonuclear, or neutrophile, and (5) eosinophile. They are all more or less granular, particularly the last two varieties named. They are probably formed in the spleen, lymphatic glands, and lymphoid tissues. Their fate is uncertain; it has been asserted that they are converted into red blood cells; they play a part in the formation of fibrin ferment; they are sometimes converted into pus cells. Their functions are (1) to serve as a protection to the body from the incursions of pathogenic microrganisms; (2) they take some part in the process of the coagulation of the blood; (3) they aid in the absorption of fats and peptones from the intestine, and (4) they help to maintain the proper proteid content of the blood plasma.

There are also *platelets*, which are very small, colorless, irregular shaped bodies; they are about one-fourth the diameter of a red corpuscle. Their function is not determined; it is possible that they take some part in the coagulation of the blood. In number they vary from about 200,000 to more than 500,000 in each cubic millimeter of blood.

Plasma conveys nutriment to the tissue; it holds in solution the carbon dioxide and water which it receives from the tissues, and takes them to be eliminated by the lungs, kidneys, and skin; it also holds in solution urea and other nitrogenous substances that are taken to and excreted by the liver or kidneys.

5. "The *neurogenic theory of heart beat* supposes that the internal stimulus to the heart beat arises within the nerve cells which are present at the venous end of the heart, and that the excitatory wave is conducted by nerves."

"The *myogenic theory* supposes that the heart muscle itself possesses the property of automatic rhythmicality, and that this property is most marked at the venous end of the heart, and at the sinu-auricular and auriculo-ventricular junctions. The contraction wave is generated at the venous end of the heart in the muscle, and, in virtue of the conductivity of cardiac muscle, spreads over the muscle tissue of the auricles, and thence over the ventricles. In other words, the contraction wave commences in muscle and is conducted by muscle. The muscular continuity of the auricles and ventricles is brought about by the auriculo-ventricular bundle of His."—(Lyle's *Physiology.*)

"*Automaticity.*—Inasmuch as the heart continues to

contract in a perfectly rhythmic manner after removal from the body and apparently without the aid of an external stimulus, it is said that the heart-muscle is automatic or spontaneous in action. Strictly speaking, however, this is not the case, for the reason that all movement, that of the heart included, is the resultant of the action of natural causes though their true nature may be beyond the reach of present methods of investigation."—(Brubaker's *Physiology.*)

6. *Dyspnea* means difficult breathing, and denotes any increase in the force or rate of the respiratory movements.

Dyspnea may be caused by: Stimulation of sensory nerves, increase of carbon dioxide or diminution of oxygen in the blood.

Hyperpnea means exaggerated respiratory action.

Apnea means cessation of respiratory action; it is often used for the term asphyxiation. It is due to prolonged and rapid ventilation of the lung. Asphyxia is suffocation, due to depriving the lungs of oxygen. It is caused by preventing oxygen from reaching the lungs; by obstruction of the respiratory passages; by inhaling a gas without oxygen, or one which strongly tends to displace oxygen from the hemoglobin, as carbon monoxide; or by interfering with the change of gases which should take place between the air and the blood.

7. In the *dichromatic*, color vision is represented by two fundamental colors and their combinations with white or black; the *achromatic* are totally color blind, and only see the white-gray-black lines.

The most common form of *dichromatic vision* is red or red-green blindness.

Tests are made by means of Holmgren's skeins of wool. "A number of skeins of wool are used and three test colors are chosen, namely, (1) a pale pure green skein, which must not incline toward yellow green; (2) a medium purple (magenta) skein; and (3) a vivid red skein. The person under investigation is given skein 1 and is asked to select from the pile of assorted colored skeins those that have a similar color value. He is not to make an exact match, but to select those that appear to have the same color. Those who are red or green blind will see the test skein as a gray with some yellow or blue shade and will select, therefore, not only the green skeins, but the grays or grayish yellow and blue skeins. To ascertain whether the individual is red or green blind tests 2 and 3 may then be employed. With test 2, medium purple, the red blind will select, in addition to other purples, only blues or violets; the green blind will select as "confusion colors" only greens and grays. With test 3, red, the red blind will select as confusion colors greens, grays, or browns less luminous than the test color, while the green blind will select greens, grays, or browns or a greater brightness than the test."—(Howell's *Physiology.*)

8. "The term *diffusion* has long been applied to the regular mixing of the molecules of two gases when brought into contact in a confined space. More recently it has been applied to the mixing of the molecules of two solutions when brought into contact. If, however, the two solutions are separated by a membrane, permeable to the solutions, diffusion will still occur. To this form of diffusion the term *Osmosis* has been applied in the case of water, and *Dialysis* in the case of diffusible substances. All bodies can be divided into two groups, *crystalloids* and *colloids*. To the former group belong bodies having a crystalline form, which readily go into solution in water. All such bodies are diffusible (dialyzable), their power of dialysis, however, varying considerably. To the second group belong such bodies as have no crystalline form (amorphous). These are generally bodies with a large molecule, which form colloidal suspensions in water, and are only slightly or not at all diffusible. An exception to this second group is hemoglobin, which has a very large molecule but is crystalline and is diffusible."—Kirkes' *Physiology.*)

"*Osmotic* pressure may be defined as the pressure exerted by the molecules of the substance in solution against an enclosing wall, in consequence of which there is an osmosis of the surrounding solvent towards it. The reason for this pressure lies in the fact that, when the molecules of a substance are separated a certain distance, as they are when in solution, they repulse one another as do the molecules of a gas and in their flight strike against the outer layer of the solvent. The pressure of the molecules of a substance in solution is therefore comparable to the pressure of the molecules of a gas. Three methods may be employed for measuring the force of the osmotic pressure of different substances, viz.: 1. Physical. 2. The determination of the freezing point. 3. By calculation."—(Brubaker's *Physiology.*)

(*To be continued.*)

BULLETIN OF APPROACHING EXAMINATIONS

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION.†
Alabama*	W. H. Sanders, Montgomery	Montgomery...Jan. 13
Arizona*	J. W. Thomas, Phoenix	Phoenix...Jan. 5
Arkansas	W. S. Stewart, Pine Bluff	Little Rock
California	C. B. Pinkham, Sacramento	Los Angeles...Dec. 8
Colorado	David A. Strickler, Empire Building, Denver	Denver...Jan. 5
Connecticut*	Chas. A. Tuttle, New Haven	New Haven
Delaware	J. H. Wilson, Dover	Dover...Dec. 15
Dist. of Col'bia	Geo. C. Ober, Washington	Washington...Jan. 12
Florida*	E. W. Warren, Palatka	Palatka...Dec. 2
Georgia	C. T. Nolan, Marietta	Atlanta...June
Idaho*	J. F. Schmershall, Jerome	Lewiston...April 6
Illinois	C. S. Drake, Springfield	Chicago...Jan.
Indiana	W. T. Gott, Crawfordsville	Indianapolis...Jan. 12
Iowa	G. H. Sumner, Des Moines	Des Moines...
Kansas	H. A. Dykes, Lebanon	Topeka...Feb. 9
Kentucky	J. N. McCormack, Bowling Green	Louisville...Dec. 16
Louisiana	E. L. Leckert, New Orleans	New Orleans...June 3
Maine	F. W. Searle, Portland	Portland
Maryland	J. McP. Scott, Hagerstown	Baltimore...Dec. 8
Massachusetts*	W. P. Bowers, State House, Boston	Boston
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor...June 8
Minnesota	T. McDavitt, St. Paul	Minneapolis...Jan. 5
Mississippi	S. H. McLean, Jackson	Jackson...May 11
Missouri	J. A. B. Adcock, Jefferson City	St. Louis...Dec. 14
Montana*	Wm. C. Riddell, Helena	Helena...April 6
Nebraska	H. B. Cummins, Seward	Lincoln
Nevada	S. L. Lee, Carson City	Carson City...
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord...Dec. 29
New Jersey	H. G. Norton, Trenton	Trenton...June
New Mexico	W. E. Kaser, East Las Vegas	Santa Fe...
New York	H. H. Horner, Univ. of State of New York, Albany	New York, Albany, Syracuse, Buffalo...Jan. 26
N. Carolina	B. K. Hays, Oxford	Raleigh...
N. Dakota	G. M. Williamson, Grand Forks	Grand Forks...Jan. 5
Ohio	Geo. H. Matson, Columbus	Columbus...Dec. 8
Oklahoma	J. W. Duke, Guthrie	Muskogee...
Oregon	B. E. Miller, Portland	Portland...Jan. 5
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia...Dec. 1
Rhode Island	G. T. Swarts, Providence	Providence...Jan. 5
S. Carolina	H. E. Boozer, Columbia	Columbia...June 8
S. Dakota	P. B. Jenkins, Waubay	Pierre...Jan. 12
Tennessee	A. B. DeLoach, Memphis	Memphis, Nashville, Knoxville...May
Texas	W. L. Crosthwaite, Waco	Waco...
Utah	R. W. Fisher, Salt Lake City	Salt Lake City...Jan. 4
Vermont	W. Scott Nay, Underhill	Montpelier...Jan. 12
Virginia	J. N. Barney, Fredericksburg	Richmond...Dec. 15
Washington*	C. N. Suttner, Walla Walla	Walla Walla...Jan. 5
W. Virginia	S. L. Jepson, Wheeling	Charleston...April
Wisconsin	J. M. Beffel, Milwaukee	Madison...Jan. 12
Wyoming	H. E. McCollum, Laramie	

*No reciprocity recogoized by these States.

†Applicants should in every case write to the secretary for all the details regarding the examination in any particular State.

Extradural Hemorrhage Causing Aphasia.—V. Z. Cope reports the case of a male, aged 29, who was struck over the left temple on August 4, 1913. He was unconscious for a time and had not regained full consciousness when he came under the author's care on August 5. On admission his pulse was 50 and respiration 20 and he was drowsy but could be roused. The knee-jerks were slightly exaggerated and the pupils were equal and reacted normally. There was slight swelling and bruising over the site of injury. In the absence of localizing symptoms no operation was considered advisable. For some days the condition improved, so that he could answer questions sensibly, but it was noticeable that after giving a sensible answer his speech would tail off into a jumble of disconnected nonsense. Nine days after admission his right pupil became larger than the left and early optic neuritis was found. The pulse still remained 50 to the minute. Operation was undertaken on August 15. The skull was trephined over the anterior branch of the left middle meningeal artery. An ounce or more of old-blood-clot was found outside the dura, extending down to the skull base, and two depressed pieces of bone were removed. The dura was not opened. No drainage. Recovery was very rapid after operation. Speech was soon quite perfect and pulse normal. The patient was discharged from hospital just a fortnight after operation.—*Proceedings of the Royal Society of Medicine.*

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THE PUBLIC AND THE PROFESSION: A CRITICISM.*

BY D'ORSAY HECHT, M.D.,

CHICAGO, ILLINOIS.

IN the vast scheme of the eternal unfitness of things, audiences for whatsoever purposes foregathered have these many years been put under the painful necessity of listening to addresses characterized by the length and doubtful strength that beget lassitude. That we have them with us still—I mean the audiences—is cause for not a little wonderment and satisfaction. Coming down through the ages of speeches and speakers, their survival must be owing to qualities of inherent graciousness and acquired toughness, both of which I think I perceive in my audience of this evening, and behind which I shall need to take refuge.

It should not be outside the scope of my remarks at this point to reiterate how deeply I feel the honor at being permitted to preside over the deliberations of an association which, in an ever enlarging sphere of activity, has these forty years exercised an influence for good probably beyond the fondest forecast of its founders. Apart from its rôle in the diffusion of scientific knowledge, its participation in human welfare movements, its endorsement of higher educational standards, its interest from time to time in setting ethics right side up—apart from these, I say, this association has been at great pains to facilitate and foster those social contacts of which Lowell somewhere has said: "They are as wholesome for the character as solicitude is needful for the imagination." Whatever else social contacts may achieve, they have provided us with an *esprit de corps* which is not the least enviable of our possessions.

In this connection some words of respectful appreciation seem due my fellow officers and fellow members for their innumerable expressions and acts of friendliness and loyalty during the term of my incumbency. It is because I lack so many of the qualifications which my predecessors in this agreeable office enjoyed that I am especially beholden to them for their help. The gentlemen of the profession of Cincinnati have placed us much in their debt, for they have made possible this occasion and surrounded it with all those genuine and wholehearted measures of hospitality that should make this meeting memorable to us all.

It is well-nigh a truism that as a people we here in America work intensively, breathlessly, in our solicitude for success, for the most part quick material success. Now, if such success were contingent upon mere work, or even overwork, meaning energy well-timed, well-measured and reasonably confined to the task at hand, it would bring with it no penalty. For I am quite firmly of the opinion that the modern business man, for instance, does not collapse because of the kind of work he has to do, nor the amount of it. The nervous bankrupts who crowd our consulting rooms or find a more agreeable retreat in sanatoria are not properly objects of pity, as disciples of work. Their type has come about in part from not knowing how to work, but in much greater part from a perverse attitude of mind engendered by the artificialities of our social institutions. Curiously enough, our countrymen delight in the convulsive efforts of their daily lives. These seem to them particularly illuminating and satisfying, and they point with unfailing pride at the over-tension now so much a part of human activity as a redeeming physiological quality rather than the bad habit it really is. Even in our leisure, as in our labor, a "bottled lightning quality," to which James has alluded, is constantly with us. Captains of industry dine in rooms—designated as clubs—adjoining their offices; women make frenzied shopping tours the order of the day; railroad officials offer eighteen hour speed trains, with rebates for delays; motor cars are housed behind mortgaged dwellings; golf is reenforced by a single sandwich and timed hole for hole by a wrist watch; the dinner coat is donned down town to save time. Whatsoever the end, it is consummated in a hurry, and if you ask the most bustling of women and hustling of men how well they keep up with their schedule, they confess to never being quite caught up.

Now, if we are to believe the psychologists, and I think we may, who have shown that "invention and imitation taken together form the entire warp and woof of human life in so far as it is social," then clearly it is the emulative spirit in the masses, the pervading influence of "everybody's doing it," to use a vulgarism, that is robbing us of so much of our inner and outer serenity. The advantage of this somewhat incidental reference to an ample fault in our American makeup is the opportunity it affords to gently remind an unsuspecting profession that on many sides it, too, is beset with those tricks of tension that create the illusion of energy, and for which we pay in the end with inefficiency. There is no blinking the fact that some of these tricks have their origin in the anxiety of the physician for the future, his concern for an income that shall in the declining years suffice for his own real needs and perchance those of his family. To insist, however, that more than a small share of our excesses on the side of hurry, breathlessness, impulse and enthusiasm have to do with mere money-getting is to miss the root of the matter. No doubt some of our display of tension is traceable to a failure of complete adjustment in the face of the rapid and radical transformations that have characterized

*President's address, Mississippi Valley Medical Association, Cincinnati, October 27-29, 1914.

the course of American medicine in the past decades. But for the real reason of our style of work and play as a profession we shall have to go to social psychology and find with Royce and James and Baldwin that it lies with us as individuals, with our bad habits, "bred of custom and example, born of the imitation of bad models and the cultivation of false personal ideals." That these may have added something to our stock of versatility, but nothing to our thoroughness or the sum-total of our real achievements, seems quite certain. The quiet habits of study, the methods of examination, the experiences that ripen into clinical wisdom and the broad conceptions of certain fundamental scientific truths so indispensable to the working program of the conscientious clinicians of yesterday are rejected, put into the discard, by the great mass of physicians of to-day. They seem to feel that they must master the discoveries in the science of medicine made in their own time, in their own way. And so the days find them wading up to their knees in the problems of the laboratory and up to their necks in the mysteries of research. The evenings are spent in dutiful attendance at the meetings of the medical society, and the nights under an avalanche of medical journals. There is nothing wholly disadvantageous in a schedule so comprehensive as this, but it carries its own penalties, and they are not few.

On the side of our everyday personal use of the microscope and test tube, for example, there is a lamentable show of indifference, due quite as much to our habit of haste as our slothfulness. In either instance it has brought, together with the growing burden and complexity of clinical diagnosis, increasing popularity to the organized clinical laboratory. This sort of institution, now come to stay, is entrusted with the most elementary analyses and encouraged, nay urged, to suggest the final diagnosis of disease on the slender evidence of a single positive or negative finding. Especially has this fault grown to dignified proportions in serologic work, where the temptation is always great to confine the clinical diagnosis to the test tube. A not dissimilar tendency is shown in the scant personal study of radiograms. I am sure that much unreliable radiologic opinion is vouchsafed on the strength of the hurried reading of a single Roentgen plate, often to the embarrassment of the radiologist and clinician, and to the detriment of the patient. In fact, it is to the discredit of our teachings in recent years that clinical medicine has availed itself of so much help from the methods of the laboratory. I would not be misunderstood as to the position and function of the approved general clinical laboratory, with a clearly defined policy of its limits in matters of interpretation. For whosoever has knowledge of the very great technical difficulties encountered in modern tests, to say nothing of their hidden philosophy, is sure to give to the dependable laboratory both material and moral support. But I fear for the general practitioner whose innocent lapses have led to the establishment of highly commercialized laboratories, and whose alliances in this direction are not always happy ones. At least, one's confidence in these institutions is not particularly strengthened by their announcements that for a reasonable fee one gets the best messenger service, the neatest specimen containers, the most perfect syringes, all loaded and ready for action, in rooms set aside especially for treatment purposes. Nor is it particularly gratifying to know that there are urinalysis mills that grind out monthly reports on urine on the theory that the albumin discovered in time, and always indicative, to them, of Bright's disease, will increase the life expectancy of every individual so afflicted.

As an instance of over-tension of very doubtful value, I would cite the bread and butter physician's restless pursuit of research. Now, research, I take it, is an organic part of medical science, a field open to workers with a capacity to create and discover. It is, and should be, the lifework of students, a few of whom may become attached to university clinics or clinical research hospitals, whose fitness is determined by a certain cast of mind, reinforced with the years of special training. In the truest sense of the term it is a non-clinical department of medicine in which the observational faculty, the chief asset of the physician, plays a subordinate rôle. To its votaries it may bring fame, seldom fortune. Obviously, then, the motive for the many physicians apprenticed to pseudo-research is not to be apprehended in any pecuniary gain. Aside from the genuine fascination which the creative faculty is sure to have for some men of academic type, there comes to my mind the thought that the many amateurs in research recruited from the heterogeneous mass of clinicians are attracted to it by the glamour of the name. Dilettantism is the inevitable result, to be deplored if not despised. And if proof of its prevalence were needed, I might quote a brilliant worker in the field of internal secretions who recently told me that in one year some twenty-four hundred contributions had been made to the literaure of the polyglandular disorders, but he discreetly refrained from any comment, even bordering on their real value. Conceding that most of the work done in the name of research is corroborative rather than creative, the regret lies not so much in that plain fact as in the reflection that it diverts physicians from the paths of the clinic, paths quite as congenial, and, in respect of their talents and equipment, infinitely more promising.

Of the medical society as a nocturnal outlet for our intensity, as a forum in which the practitioner at the end of a busy day may imbibe and impart knowledge, I would say a word. The founders of every medical society who build "for that unity and friendship which is essential to the dignity and usefulness of the profession" have our unbounded respect and admiration. But I ask myself how many societies are necessary to the growth of such an ideal? The theory of the humanizing, socializing value of medical gatherings stands approved, but how many such gatherings does it take to make one human and social? The educational value of the special society is conceded, but I am interested to know how many special societies are essential to keep us well educated? The cultural advantage of the academy is apparent, yet how many academies will it take to keep us cultured? The society "that is a clearing-house in which every physician of the district is to receive his intellectual rating, and in which he finds out his professional assets and liabilities," has a perfectly good claim to existence, but does it require more than one good society to take a stock inventory of any physician? The society conceived in the spirit of fraternity but nursed in an atmosphere of politics is not without merit, but I cogitate on the number it will take to transform me from one kind of a genuine friend into another kind, perhaps not so genuine. Finally, not knowing the answer in all cases, the decision is made to join them all. I be-

come a meeting fan. Nightly attendance gets me brainfagged and befuddled, puts me in a state of mental disequilibrium. All mixed up together in my mind are the men I have seen and the things I have heard. Under the conditions nervous tension is accelerated, but vision impaired and comprehension dulled. One may be likened to the motor with an engine racing at top speed and the clutch thrown out; the power is there to make us vibrate, but not to let us move. This medical society madness instead of manifesting itself as a phase of the theory of relaxation, as indeed, it should, presents itself as a symptom of the gospel of intensive work, which it should not. There probably will be no escape from it until a new type of physician shall arise, whose function it will be to give us by night, as well as by day, refreshing rather than exhausting exercise for the mind, and at all times more ease.

Bearing on our habits of stress, witness, in conclusion, the making of our ephemeral literature and our anything but ephemeral manner of cultivating it. As the designation would tend to imply, I have not in mind the truly great books that we turn to in pleasant leisure; nor the medical classics we cherish for their inspiration; nor even the monographs that have value for their solid contents and the systems for their completeness. I think of the stuff that Osler once aptly called "bastard literature," put out in tons to advertise the nostrums of commercial houses, and never entirely failing of its purpose to impress a credulous profession and victimize a gullible public. When we have read as much of that as comes to our notice, we reach for the textbooks announced by even respectable publishers as authoritative, to find them too often perpetrated by medical scribes not yet dry behind the ears in clinical experience, to say nothing of their erudition. Next we turn to the increasing bulk of journals in all departments of medicine, written in all languages and coming from all quarters of the earth. Particularly delectable are the many abstract journals, *Ergebnisse, Centralblätter*, and the like. They aim to make us genuinely cosmopolitan, and would succeed admirably but for the unfortunate way we have of seldom consulting the abstracted matter in its original form. And just before the hour of retiring we take up Archives, Bulletins, Transactions, Reports, that deal with problems so entirely beyond our understanding that we can only look wise or bored and appease our vanity by cutting the pages, but not necessarily turning them. Of course, there are men with nimble minds who read avidly and without harm to their poise and perspective, but these aside, I find it rather difficult to determine which readers as a class are deserving of the more pity, the ones deeply submerged in the world's best medical thought, with minds so overtaxed and demoralized as to incapacitate them for independent thinking, or those remaining much on the cover page, with a fickle taste for the pabulum underneath, and their minds never even given to contemplation. It may prove difficult to estimate how much or how little a man can read with comfort or profit to himself, but Professor Minot expressed a wholesome point of view when he remarked, "Let us never forget that in contemporary education the moribund ideal is slavery to books; the nascent ideal mastery of facts!" One step in our emancipation from such slavery may be realized if we maintain a healthy skepticism toward every advertised book and periodical that comes from the medical press. Another, when we ourselves possess some higher wisdom in a branch of medicine, and learn to distinguish between the creators and compilers, the producers and popularizers. Still another, when our book reviewers turn honest and give us their real version of a work instead of testimonials of affection and esteem for the writer, with a few platitudes and stereotyped phrases thrown in for good measure. Such are a few of the points expressive of over-tension which it has seemed worth while for me on this occasion to bring to your attention. In doing so I have sought to avoid the critical spirit that craves expression in either the carping censure of the Philistine or the drastic tone of the Reformer. If I have not succeeded, it is because the task requires more scholarship and a more academic mood than it is my privilege to own.

If, however, we are agreed as to the main facts, we may occupy ourselves for a moment with the remedy. It has been suggested that the gravitation of the big problems of disease toward the large scientifically conducted hospitals, and the concentration of new discoveries to the "institutes" will relieve the medical body politic of this annoying degree of ataxia; that the better cooperation between the scientific investigator and practitioner will reduce the sum of misguided efforts and consequent stress. I am sanguine enough to think it may, but only in small part. Our clinician will still have his rightful and busy place. If there are any who think of the practitioner and the clinic as figures of the past, I commend the address by Mackenzie on "The Teaching of Clinical Medicine." In speaking of advances in our knowledge of diseases of the heart, he says: "The inception of all this work, the carrying out of the principal investigation and the great bulk of the discoveries were due to general practitioners, unhelped by any of the hospital and laboratory contrivances which are considered essential to research." Far from having his usefulness curtailed, far from becoming the "vestigeal remnant of a past state of things," the practitioner will return to the halls of the clinic, to the examination of the man. There the tasks, however, must be met with a new working ideal, disburthened of hurry, anxiety, and unrest. Just as the money ideal in our profession is undergoing change, and it is no longer the size of the income, but the academic rank of the physician that will give prestige, so will the working ideal have to change. Calm methods will set a new fashion for calm, and even though the number of practitioners so disposed will at first be few, their example will encourage imitation of the habits that in the end will rank as good. There must be a show of far greater nonchalance toward the "cult of the passing hour," and a larger regard for fixed and abiding truths. The argument gathers force when put in the words of the essayist who said, "Not discovery, but rediscovery, is the key; make the comparison in what field you please; contrast the kaleidoscopic glimpses of travel with the reperusal day by day of a familiar landscape, the fluttering from one new book to another, with the life-probing problem of some mighty classic, the patter of shifting acquaintance with the slow, calm pace of proved friendships, the caprices of unfixed passion with the loves that embrace a lifetime: The attestation to the worth of permanence is universal." In a better inward self-adjustment—the secret lies.

In the time remaining the part of my theme relating to the public can only be touched upon in its very minor aspects, and not without some misgiving.

It is as a healing art that medicine has always

enjoyed the confidence, such as it is, of mankind. Its noble ancestry, its honorable lineage, its rôle in Egyptian and Greek culture; its prestige under Hippocrates, and five hundred years later under Galen; its position during the dreary, benighted centuries that faded into the dawn that gave us Vesalius and Paré, may have occupied the attention of scholars and historians, but had no interest for the mass of the people. Not until we scan the events and activities of the eighteenth and nineteenth centuries do we find the lay mind much concerned about our achievements, and then only in respect to our triumphs over human suffering. The possibilities of alleviating physical pain have always appealed to the imagination of man, and in more recent years those indispensable accessories to the surgeon's craft, the anesthetic, the anodyne, and the principles of asepsis, have won both his approval and admiration. Of that great blessing rained upon humanity by the control of epidemic disease little need be said. With smallpox bridled, yellow fever practically extinct, typhoid fever reduced, diphtheria robbed of its terrors, meningitis and malaria controlled, tuberculosis better understood, bubonic plague and tropical diseases intelligently combated and cancer intensively studied—the world has indeed become a better place to live in. And yet—as the scope of our science has enlarged, as its spirit has deepened, as our gifts to humanity have been more numerous and far-reaching, we observe the curious and ofttimes painful phenomena that our efforts are not always less hampered by the public and the judgment passed upon us not always less malign. There are thoughtful persons who seem reverently disposed toward the memories of Carroll and Lazear, whose acts of heroism in the form of self-inoculation with the parasite of yellow fever were performed all for humanity's sake. Then there are others—I shall not call them unthinking persons, delusional would be more to the point, who, in larger social groups, under the guise of sanity, capitalize themselves as antivaccinationists and antivivisectionists. The latter especially are even now spasmodically engaged in pseudo-formidable campaigns against the very types of animal experimentation that have resulted in the greatest benefactions to man. Except for the genuine regret we feel at having to take our perfectly good and valuable time in refuting their statements, these coddlers of dogs and other household pets are undeserving of serious attention from the self-respecting gentlemen of the profession. If it be argued that the righteousness of their cause is to be seen in their increasing numbers, the fact should not be lost sight of that here, as in all similar anti-movements, the factor of sheer social imitation is responsible for the gain.

Moreover, I think we need concern ourselves but little when the great and more often the near-great of other walks of life take issue with us over problems, the nature of which they cannot know, but presume to attack on a theory of common-sense. I have in mind the recent utterances of a "great personality" in American life on the question of eugenics. He grows either exasperated or melancholy when he sees good able men devoting their time to fighting shadows. Contrasted with this remark I quote a sentence from a distinguished scholar in genetic science. In an address on heredity, delivered at the Seventeenth International Congress of Medicine, Professor Bateson said: "It is this knowledge which has given to genetic science a position paramount among the branches of physiology, showing that in accurate genetic analysis a means is given out not merely of elucidating the interrelations of parent and offspring—the immediate subject of our investigation—but of contributing also to a right interpretation of various special problems of pathology and authropology, perhaps, also, to a true understanding of the course of human history and certainly to the direction and control of the destinies of mankind."

The harm done by the ill-advised meddling of dilettantes in questions of the kind and importance of genetics is best illustrated by the eugenic marriage laws now on the legislative books of some of our States as the direct result of a campaign of poularized eugenics. More eloquently and conservatively than anything I could say in regret of such previousness, has been said by Bateson in reference to the so-called "Mental Deficiency Bill." He remarks: "This bill we recognize as, in principle, a wise beginning of reform, but, on the other hand, we cannot hear without disquietude of the violent measures that are being adopted in certain parts of the United States with similar objects. It is one thing to check the reproduction of hopeless defectives, but another to organize a wholesome tampering with the structure of the population, such as will follow if any marriage not regarded by officials as eugenic is liable to prohibition. This measure, we are told, is actually proposed in certain States. Nothing yet ascertained by genetic science justifies such a course, and we may well wonder how genius and the arts will fare in a community constructed according to the ideals of State Legislatures." In the light of this commentary, may we not with much justice ask a well-meaning yet too eager public to restrain itself from efforts at the consummation of principles that at present give nothing more than promise? If its enthusiasm for the work of our profession must find an outlet, may it not be more profitably directed at the education of the commonwealth, still so far behind our great philanthropists in initiative, and generosity? Let its energies be directed toward the suppression of organized opposition to the advancement of science; let them learn the significance of the labors of our Carrolls and Reeds, and Gorgases. Let our public feel the impulse not alone to give these men and others of their kind honorable mention and medals, but ample pensions for themselves and their posterity; and, finally, let it give to all the truly great of earth not only pedestals in a National Hall of Fame but abiding places in our national consciousness.

104 South Michigan Avenue.

A PLEA FOR A RESEARCH INTO THE POSSIBILITY OF THE CURE OF DEMENTIA PRECOX BY THE USE OF SERUM CONTAINING THE DEFENSIVE FERMENT.

By BAYARD HOLMES, M.D.,

CHICAGO.

Immunity is a result of a defensive ferment reaction on the part of the organism. It is brought about in some manner by the blood in its effort to excrete the toxic albumin by the production of a catabolizing ferment which acts upon the toxic albumin to produce an excretable peptone, polypeptone, and aminoacid out of each individual molecule of albumin. Each toxic albumin is molecularly

individual and unlike any other albumin in its molecular construction and arrangement. The formula of albumin is ordinarily written $C_{720}H_{1134}N_{218}S_5O_{248}$ and its molecular weight is given as anywhere from 15,000 to 16,750. It is at once obvious that the possible combinations of so many elements into a single molecule gives abundant room for an almost infinite number of distinct and separate albumins that differ in structure, form, and function from every other of the albumin molecules. Even with only twenty atoms the possible combinations as shown by Abderhalden require nineteen figures for their expression, namely, 2,432,902,008,176,640,000.

The ferment which arises in the body as the result of poisoning with a toxic albumin is perfectly adapted to the catabolizing or wrecking of that albumin molecule and that alone, just as the key of a Yale lock is adapted to throw the bolt of its own lock and no other. In another respect also the ferment resembles the key of a lock in that the key is not used up by the process of unlocking and is perfectly good for the unlocking of any number of identical locks. So is the ferment adapted to catabolize or wreck any number of identical albumin molecules without producing any change or loss of energy in itself. This catabolizing process is necessary to the solution, destruction, and excretion of the toxic albumin and it is nature's primeval remedy. It began in the lowest forms of unicellular life. All albumin molecules are large and colloid, that is to say, they are unable to pass through a dializing membrane or escape from the blood through the secreting and excreting apparatuses of the body. The wrecking of the toxic albumin molecule is the prime function of the ferment; such ferments, however, which have been called defensive ferments by Abderhalden, remain for a long time in the body of the organism in which they are once produced. The end products of this catabolizing process of the albumin molecule are crystalline. They are usually reckoned as peptones, polypeptones, and aminoacids and they are in condition of solution which makes them easily excreted and easily passed through the dialyzer.

Each defensive ferment has the power of wrecking one particular albumin molecule and do this over and over again, but most remarkable of all is the fact that it can do this as well outside the body in a test tube as in the body in the circulating blood and tissues where it is produced. On this fact is based the Abderhalden reaction.

These defensive ferments are themselves albuminous in structure and colloid in form. On this account they do not pass through the dialyzer and probably for the very same reason they remain a long time in the body of the organism or individual where they were generated even after all the toxic albumin which roused the blood to their production has long been excreted and out of the way.

Another remarkable phenomena has lately been demonstrated by the method of Abderhalden. It has been shown quite conclusively that a defensive ferment produced in the blood of one animal and recognizable in the blood serum of that animal by the Abderhalden reaction may be transferred to the blood of a second animal by the injection of a small portion of the serum of the blood of the first animal. It can now be transferred from the second animal where it is recognizable by the Abderhalden reaction into a third animal with the same result and so on almost indefinitely. These experiments have been performed by Abderhalden and Grigorescu by Arno Lampe and A. Fauser* of Stuttgart and the ferments remained in the blood and could be recognized there as long as the animals had been kept under observation. These researches seem so suggestive to Fauser, who used the blood of dementia precox cases and injected it into rabbits, that he felt bound to report the result of his observations without further delay. This phenomenon has been termed the passive transmission of defensive ferments and it offers the greatest therapeutic advantage both by eliminating other toxic or disease-bearing qualities which the blood of the patient might carry and having ready at all times an abundance of ferment containing blood to be used on the spot or safely transferred to almost any distance. Fauser recognized the defensive ferments against the albumin of testicle or ovaries, of thyroid and of brain cortex in the blood of his dementia precox patients, and after the injection into the passive animals even in the second and third stages of transmission the same ferments were recognized for a long time and without any apparent diminution in quantity and potency in the serum of the blood of these passive animals.

It has occurred to me, as it has doubtless occurred to many others, that recovery from dementia precox which we believe to be a toxemia depends upon the production in the patient's blood of a defensive ferment against the toxic albumin of the primary disease. It is my firm conviction that dementia precox now, with the help of the Abderhalden reaction, so uniformly recognized by the evidences of pluriglandular dysfunction, is the clinical manifestation of a toxemia by an unknown toxic albumin of a metabolic, parasitic, or other unknown origin. It is a toxemia like that of general paresis, the source of which we have at last discovered in the toxic albumin produced in the tissues of the body by the *Spirochæta pallida*. Very promptly after this discovery a remedy has been contrived in the use of neosalvarsan serum. The toxic albumin which initiates the toxemia of dementia precox and is followed by a train of pluriglandular dystrophies is the great psychiatric x of the present day. The search for the defensive ferment against this x is an object worthy the efforts of an army of research men. This defensive ferment is responsible for the waking up and temporary improvement of many cases of dementia precox and for the recovery of a few. The reason that so few remain permanently cured appears to depend upon the rapid disappearance of this ferment from the body. When it is gone the patient relapses and becomes clouded and shut in by the toxemia of the disease.

Let us suppose that we have a case of recovered dementia precox or one in those brilliant moments of improvement that sometimes last for weeks and months. We have made the Abderhalden reactions and found that the serum of our patient's blood contains defensive ferments against the albumin of the genital glands of his sex, the thyroid, and the cerebral cortex (g, t, ct). Now let us inject a few cubic centimeters of the serum of the blood of this patient into the pleural cavity, the peritoneal cavity, or the subcutaneous tissues of a large animal, a horse, a goat, a sheep, or a dog. According to the experience of Abderhalden and Grigorescu, of Lampe and Fauser, we have a right to expect

*Fauser, A.: *Münchener medizinische Wochenschrift*, July 21, 1914. Vol. LXI, pp. 1620-1621.

that the serum of the blood of this horse or other animal will after a few days furnish ferment-containing serum against the human albumins *g, t, et,* and contain also any other ferments that were in our patient's blood that we had failed to recognize.

Cases of dementia precox do recover, and although the recovery may not be complete and since our experience shows that they are not apt to be permanent, it would be very desirable to maintain in a passive animal, such as the horse, a stock of ferment-bearing serum against the hypothetical and problematical toxic albumin *x*. In my own experience I now believe I could demonstrate two cases of recovered dementia precox. From each of these I would propose to remove a portion of blood sufficient for a complete Abderhalden study and also for the serum necessary for the injection of one or two animals. The first portion of the serum would be tried out in the dialyzers against the various albumins, fundaments, or *Substrate* in the laboratory. The second portion of the serum should be injected into the horse; the third portion into the goat or sheep or some other animal.

According to all analogy these passive animals would furnish blood in a short time in which we could recognize the defensive ferments found by the previous examination in the blood of the recovered patient, and presumably there would be remaining in the blood unrecognized by us all the other ferments which we had failed to recognize in the blood of our patient for the lack of the necessary fundaments, especially the fundament *x*.

Having made this demonstration the serum of the blood of the horse or other animal should be tried out against the disease by injecting suitable quantities of the horse serum bearing the defensive ferment against *x* into such patients suffering from dementia precox as furnished blood that gave a reaction similar to the reaction of the recovered patient from whom the horse had received the primary injection.

Our present knowledge of immunity and anaphylaxis is sufficient to guide us in the safe administration of such horse serum for therapeutic purposes. Doubtless experiments would be necessary to determine the dose and its frequency, but we fortunately have a guide in the presence of the secondary ferments, namely, those against the genital glands, the thyroids, and the brain, for the administration of the unrecognizable ferment against the toxic albumin *x* upon the presence of which we place our hopes of betterment or cure.

Such an undertaking as I have here suggested is entirely beyond the resources and facilities of any private individual, however devoted he may be to the needs of the suffering hundred thousand of helpless dementia precox patients. Such a research requires large laboratory facilities, well-trained and optimistic laboratory research men, and a suitable biological farm where the animals may be kept under definite and favorable conditions. This research requires the cooperation between a large number of workers with experienced, optimistic clinical psychiatrists.

30 N. Michigan Avenue.

Nerve Transplantation in Laryngeal Paralysis.—G. Serafini and O. Uffreduzzi have demonstrated in animal experiments that it is possible to restore functional power to the distal segment of a severed superior laryngeal nerve by transplanting the free end of this segment to the pneumogastric nerve at the level of the original injury.—*Il Policlinico.*

THE RELATION OF GYNECOLOGY AND UROLOGY TO GENERAL SURGERY.*

By HOWARD LILIENTHAL, M.D.,

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In the presence of any of the strictly clinical branches of medicine success is measured in terms of the percentage of cure or relief. That this statement may be perverted by sophistry does not make it any the less true. A novice who has successfully performed two nephrectomies may proudly announce 100 per cent. of cures, while his more experienced colleague must acknowledge failure in say six of his first hundred cases. Yet, other things equal, the average individual would probably choose to be the hundred and first patient rather than the third.

For the purpose of this discussion we shall adhere to the consideration of urology and gynecology in their relation to their parent tree, surgery—and I believe that no one here to-night will dispute the fact that the connection is quite as intimate as my metaphor indicates.

Surgery is but a branch of Medicine, and like all other divisions of the profession, it begins with theory and principles. No matter what subdivision is to be later followed, these must first be mastered.

The next step is the study of what may be called *practice;* the learning of technical methods and details as applied to conditions as they are supposed to exist.

Last comes *experience*, that lifelong repetition in endless variety of the application of theory and practice to individual cases.

Early in a man's career he will probably discover a growing proficiency in the treatment of those cases which come to him in the greatest numbers, the patients being referred by others who have been relieved. This will naturally lead to more work and continual improvement in the same lines so that almost before he knows it he has begun to specialize.

Further study under the direction of a Master will now complete the normal evolution of the specialist. And one who has passed with credit through these various stages will never become narrow, no matter how closely he confines himself to his chosen calling.

It seems to be that there is no valid reason why a general surgeon should not practise gynecology and urology, provided he honestly feels that he can do the work required of him *as well as it can be done by the average gynecologist or urologist.* There are no flag-signals to warn him back where the ureter crosses the pelvic brim. If he is a true surgeon he is not only familiar with the anatomy and physiology of the part where he is operating, but he will have a working knowledge of the neighboring regions which he may be forced to invade.

Also, one who has become a specialist by the normal evolution which I have described may legitimately continue to practise surgery in general and to keep abreast of its progress. Such a man should certainly not be looked upon askance merely because though known as a specialist he chooses a wider scope.

But now let us look at another side of the question and consider the claims of a specialist who has had little experience in general surgery or even of

*Read before the Medical Society of the County of New York at its regular meeting, October 26, 1914.

one who though broadly trained has for years stuck close to his own particular line, not keeping up with the progress outside his own path. Here I think we must consider gynecology and urology separately.

First, Gynecology. This is not only a division of general surgery, but its boundaries are so vague that it appears very doubtful whether it is essential to have any special knowledge or attribute not possessed by all educated surgeons. In the non-operative part of the work, perhaps, a technique and diagnostic skill may be developed as a result of daily and long continued practice; but this is aside from the matter of gynecological surgery, and it can quite as easily be acquired by practitioners not trained at the operating table.

Gynecology is no more separate from surgery than is kelology, the science of hernia, or omphalology, the science of the navel. It merely takes in a larger region of the body.

In order to make intensive study possible, gynecology may be permitted to exist as a distinct service in a hospital just as diseases of the chest or of the stomach may be assigned to a group of men who are interested in these subjects.

With urology the case is somewhat different. This may be roughly divided into what I may call minor and major urology. The term *minor* being used for want of something better and not to signify a matter of little importance.

A surgeon who has not perfected himseslf in the technique of observation and operation with cystoscope and urethroscope would be a loser if with insufficient preparation he were to attempt this part of urological work. One may have taken a so-called "course" in cystoscopy, for example, and he may have catheterized a few ureters. Then comes a case of granular cystitis in which kidney observations are important. The problem of finding and catheterizing the ureters in such a case is not so easy and may tax the patience and the eye and hand of the elect.

To the occasional cystoscopist such an experience will bring nothing but embarrassment and humiliation. But, on the other hand the so-called pure urologist who ventures without ample preparation into the domain of major surgery is liable to feel in addition to mere embarrassment the qualms of conscienece which come from the knowledge of insufficient preparation and the fear that an unsatisfactory or even a fatal result might not have followed the efforts of one more schooled than himself.

Surgery has become far too big for any man to know it all, and so specialism is inevitable and as proficiency is attained in higher and higher degree we shall probably see more and more differentiation.

That portion of genitourinary surgery which deals with the local treatment of the urethra, the bladder and its appendages, and the ureters and kidneys may be designated as minor urology. And there should be included certain operative procedures seldom requiring general anesthesia. As thus described, urology may be regarded as a legitimate specialty for the prosecution of which a great surgical experience is not necessary. If a trained surgeon has the inclination and opportunity to add technical urology to his accomplishments there is surely no reason why he should not do so. But if after years of exclusive specialism he takes once more upon himself the responsibility of a major operation let him be sure that the march of progress has not left him too far in the rear.

Operative surgery in all its branches is an art and the surgeon has the feelings and sometimes the temperament of an artist. The personal element is a strong one. He is not unaffected by adulation, and, alas, with all his virtues he is prone to small vices akin to envy and jealousy.

It may hurt his pride to admit to a patient that he needs help in arriving at a diagnosis or in carrying out a treatment; yet the man of noble spirit, he who puts pettiness behind him, will welcome a division or even a shifting of responsibility when he does not feel the self-confidence so necessary to peace of mind.

The law expects a surgeon to possess and to exercise in every case what is known as "ordinary care and skill" and the interpretation of this goes farther and demands that the degree of skill required shall be judged by the standards of the community. Therefore more would be expected of a metropolitan surgeon than of a country practitioner who rarely operates. Work done in a special branch should be judged not by the work of a general man, but by the work of the average specialist—regardless of the standing of the operator himself.

But the best standard of all is that set by one's own knowledge of right and wrong. A conscientious surgeon will not treat any case unless he feels that he can do full justice.

Conclusions: 1. Operative gynecology should not be undertaken as a specialty except by those who have been fully trained in general surgery.

2. All general surgeons should be trained in gynecology.

3. Diagnostic or minor urology may be undertaken by any qualified physician.

4. Major urology is only for the fully trained surgeon.

48 East Seventy-fourth Street.

THE ASSOCIATION OF FOLLICULAR TONSILLITIS WITH ACUTE GASTRIC FEVER —A CLINICAL STUDY.

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THE clinical association of tonsillitis with gastric fever is an every-day occurrence. It occurs so frequently that one may believe that the pathological condition is common to both—or that these conditions are interrelated.

The condition is seen in the infant as well as in the older child. It occurs as a sequence to a deranged stomach, following overfeeding or the feeding of food which cannot be properly assimilated.

An interesting feature is that while there are active symptoms of a deranged stomach, with fever, acetone breath, flatulence, colic, and usually constipation, there will usually be an accidental discovery of some pin-point tonsillitis involving the lacunæ of the tonsil. Cultures taken from the tonsil will show the presence of the staphylococcus—never the Klebs Loeffler nor the streptococcus. In some cases the *Micrococcus catarrhalis* is found. The cervical glands are never enlarged. The temperature is usually quite high, between 103° and 104°. There is seldom pain on swallowing or any evidence of disturbance in the throat.

Many of these cases subside without any local treatment. The throat manifestations improve just as soon as the gastric symptoms subside, so that one

is forced to believe that both conditions are one and the same infection.

When there is a recrudescence we again note the same symptoms, *to wit*, first: the general gastric disturbance in which pyrexia, acetone breath, meteorism, anorexia, and usually constipation exist. In addition thereto the local evidence of a benign follicular tonsillitis. I have seen such recurrence of both conditions several times in a year, and am forced to the conclusion that both manifestations are part and parcel of one and the same infection. Whether or not the bacterial infection originates in the mouth and tonsils first, is difficult to determine. It seems to me that the gastric derangement is responsible for the fever. The toxin lowers the vitality and permits the migration of the ever-present staphylococcus, *Bacterium coli*, or *Micrococcus catarrhalis* from the surface of the tonsil to the deeper structures and this in turn gives rise to the local evidences of the follicular type of tonsillitis.

What I wish to impress with this note is that the frequent occurrence of gastric fever demands a careful inspection of the tonsils and when such tonsils show evidence of hypertrophy they should be treated as diseased tissue which may be a focus for future malignant infections.

Loss of appetite, or rather a refusal to eat, will be noted; all symptoms pointing to a gastric derangement will be present, and still the predominating symptom will be the patches or follicles on the tonsils, causing pain on swallowing.

Too much importance cannot be placed on the *necessity for throat inspection in every child that refuses to eat.*

Cause—Hyperacidity.—An excess of hydrochloric acid is usually one of the causes of this condition, due to a functional disturbance of the stomach. As a rule such disturbance is solely due to improper food whereby stagnation occurs. Stagnation results in irritation and consequent inflammation.

In severe cases owing to the enlargement of the tonsils vomiting will occur. This vomiting is not gastric in origin but is due to the impinging of the tonsil on the pharynx, thereby irritating the pharyngeal wall with resultant nausea and vomiting.

Another important point is the noncontagious character of the throat trouble. Children even though they be in close or direct contact need not fear contagion.

Prognosis and Course.—The prognosis is good, children invariably recover. The course of the disease depends on the severity of the infection, but as a rule an attack subsides by the end of from three to six days.

Treatment.—An alkaline laxative such as a 3 to 5 grain dose of compound jalap powder should be given and repeated every three hours until a thorough evacuation has been produced. During this eliminative treatment water should be given liberally, but no food.

Locally, for the throat tincture of iodine diluted with an equal quantity of water should be applied once, with the aid of a cotton swab.

Food.—After the bowels have been thoroughly cleaned then chicken soup or milk from which the cream has been skimmed or weak tea may be permitted.

For the after-treatment one or two drops, depending on the age, of tincture of nux vomica may be given before meals.

155 West Eighty-fifth Street.

THE SEXUAL SIGNIFICANCE OF RECENT FASHIONS.

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Human wearing apparel has, of course, a very distinct sexual significance. And probably, were we able to trace the connection, we should find a very definite relationship existing between the prevailing fashions of any period and the maintenance of sexual balance in communities as a whole.

We are given a hint of this by the fact that whenever revolutionary methods of living, which influence sexual equilibrium, have taken place, there have been accompanying changes in fashions. These changes, if viewed in long perspective, show that with the steady progression toward higher civilization and culture, there has been tendency in the fashions of men's garments to become more practical, unattractive, and somber. At the same time there has been no corresponding change toward simplicity in woman's apparel. On the contrary, female costumes, at least during the last few years, have been tending decidedly toward suggestiveness rather than modesty.

The most revolutionary changes in methods of living that the world has ever seen have taken place during the last century, particularly during the last twenty-five years. Even in the last decade there have been pronounced changes. And during this last period there has been a peculiarly persistent tendency toward suggestiveness in the prevailing feminine fashions, without any corresponding change in male attire.

No one can doubt that the well dressed man of today, with the creased angularities of his garments concealing the last vestige of anatomical outline is a far less attractive animal sexually than the highly colored Colonial gallants of a century ago. Personal adornment was quite as much a masculine foible as a feminine frailty in Colonial days. But why, one may well ask, has woman continued to gratify her natural instinct to adorn, while her consort has retrograded in the opposite direction? Perhaps the answer may be found in the disturbed sexual equilibrium that has resulted from changed economic conditions, which in turn have influenced the peculiar twists in fashions.

The sexual influence of dress is a subtle one which stimulates by suggestion rather than by direct appeal. To be most effective there must always be a restraining element of modesty. This fact is likely to be overlooked by the courtesan, particularly the one whose wiles are waning and who strives to force attention by overstepping the bounds of decency. Her very frankness often defeats her purpose where veiled suggestion would have succeeded. Instinct and experience teach her that such is likely to be the result, to be sure; but stress of circumstances often force her into adopting methods not sanctioned by calm judgment.

The fashions in women's clothing that have prevailed for several years have shown a somewhat analogous tendency to over-frankness, or suggestiveness. But these fashions cannot be attributed to any deterioration in the attractiveness of women as a class. The very suggestion of such a thing is repugnant. Yet, as I shall point out in a moment, there is every reason to believe that at the present

time there is a pronounced disturbance in the civilized world's sexual equilibrium—an inequality in the supply and demand, if you please. And it is quite conceivable that the recent modes are one of the results.

The fashions to which I refer as having a decidedly suggestive tinge made their appearance about six years ago. At this time the hobble-skirt in only mildly suggestive form at first, made its appearance. On casual inspection these peculiarly inelegant creations appeared rather retiring than obtrusive, although they did give somewhat too much opportunity for exhibiting attractive pelvic symmetry and femoral curves. This unobtrusive quality obtained only during the static periods of the wearer, however. When she moved about, particularly when it became necessary for her to move quickly or attempt unusual altitudes, there was a decidedly suggestive clinging of cloth, with occasional revelations of hosiery, that made the costume far more suggestive than the older and more graceful full skirt.

Practicality, or convenience to the wearer, cannot be advanced as an excuse for this peculiar freak of fashion; for these costumes were neither convenient nor practical. And yet they persisted—persisted and withstood the supreme test of open ridicule by the entire male population. Moreover, the argument that the wearers were ignorant of the suggestiveness of their peculiar garments is untenable; for this feature of the hobble-skirt became the object of special comment and criticism in every walk of life, from gutter to pulpit. The answer to these criticisms was precise and unequivocal. Skirts were shortened, contracted, slit up the side (or front, or both) and made diaphanous in a manner that dispelled any doubt as to their meaning.

The frankness of this action, and the persistence of these fashions, offer pretty conclusive evidence that there is a sexual significance behind it all—an expression of sexual maladjustment as the result of the suddenly changed economic conditions of recent times. The nature of the sexual impulse as we now interpret it in the light of helpful frankness, Freudism, and studies of the internal secretions, suggests this.

The gist of these studies may be summarized in the general statement that the sexual impulse plays a tremendously important part in the physical and psychic life of every individual. That it is not a force which lies dormant to be conjured up at will, but one that is always acting, exerting a positive if frequently an intangible influence.

There is nothing novel in this conception. On the contrary it is as old as civilization itself—was an old theme long before the days of the phallic worshipers along the Nile. But until very recently there has been an inclination to avoid the facts. For a puritanical prudery has so dominated our Western civilization that anything like frank statements in print about sex questions have been tabooed except in certain ultra-scientific publications. Even in medical classrooms a frank discussion of the significance and influence of sexuality was frowned upon as indicating an "unwholesome tendency," if not actually a vicious taste. The dominance of the Puritan preacher was felt even in the realm of seekers for truth. But when studies of the internal secretions made it apparent that the sexual apparatus is an active factor in body metabolism, and that the sexual organs are something more than mere appendages for procreative purposes, the conception seems to have appealed to laymen with all the farce of novelty.

In point of fact the only really novel feature of the subject is the mystery of the internal secretion. There is certainly nothing new, to physicians at least, in the knowledge that the sexual apparatus influences many phases of metabolism and deportment at other times besides the transient periods of tumescence and detumescence. For there has always been a well defined impression that "all strong emotions, however non-sexual, tend to overflow into sexual channels," as Havelock Ellis concisely expresses it.

It requires no very great acumen to discern that the young woman who is disappointed in her love affair, and who plunges into the profession of nursing as a life work, is often governed largely by a sexual complex; or that the "settlement worker," unhappy in her marital relations and anxious to help other unfortunates, is transmuting sexual energy into channels that act as sexual equivalents. For it is pretty thoroughly appreciated that although sexual energy is a constantly accumulating force, it is a force that may be sublimated, or transmuted in one of a thousand ways besides that of actual sexual intercourse.

It should be borne in mind, however, that the effect upon the individual may be very different when the method of discharging accumulated sexual energy is other than the one designed by nature. Sublimation, transmutation, and so-called "sexual equivalents," are not actually the equivalents of normal coitus in their ultimate effects upon the system. And therefore we must regard as abnormal any method that relieves the accumulated sexual energy except the orthodox physiological one, whether that method take the form of religious ecstasy, homosexuality, or hurling bricks through British window-panes.

The important part, from our present point of view, is the fact that although the constantly accumulating sexual energy may be partially transmuted in various ways, this transmutation is usually incomplete. And, this being the case, we are pretty certain to find various indications of this disturbance of the normal sexual balance.

We know that any great change in mode of living is a disturbing factor to sexual equilibrium. Thus we find that as a race evolves from the primitive stage it departs in certain ways from the sexual habits of primitive life, which ways are in turn a departure from the still more primitive sexual life of the lower animals. Crowding people into cities undoubtedly influences their sexuality in something the same way that restraint and captivity affects the sexual instinct in animals.

In the last half century, particularly during the last twenty-five years, a revolutionary change in our modes of living has taken place—a tendency to abandon the countryside and huddle into cities. A somewhat similar change took place in ancient Greece and Rome, but these changes were comparatively slow. In America it has taken only a little more than the lapse of one generation to change from a nation in which something more than 90 per cent. of the people lived in the country, to one in which less than 50 per cent. are rural dwellers.

Yet even in Greece and Rome, where the changes in methods of living took place gradually with far better chance for sexual adjustment, there developed all manner of perversions, which may be attributed,

partly at least, to the enervating "cooping up" process. And it is inconceivable that our sudden changes are not producing maladjustments of a somewhat similar nature, directly or indirectly.

The most conspicuous direct effect of this sudden increase in the proportion of city dwellers is to lessen the number of marriages, and to postpone to a later period of life the marriages that do take place. Thus many men and women who would have married at twenty or twenty-three, a century ago, do not marry at all, or postpone marriage until considerably later in life. There is a difference in this time-element of at least five years. But during those five years there is no cessation of the sexual functions, which are ungratified in the natural way at this period of life—the very period at which the call for such gratification is most insistent.

Obviously the hardship entailed by this arrangement falls more heavily upon the women than upon the men. For a "double standard" does exist, and flourishes just as much now as ever before, with the net result that man is enabled to maintain his sexual adjustment, legitimately or otherwise, whereas woman cannot, or at least does not, do so to the same extent. So we see that the feature of city life which prevents or delays marriage, is an important factor in the accumulation of women's ungratified sexuality.

But this direct effect of city life upon sexual life is supplemented by others less direct, although quite as effective in actual results. Crowding into cities produces high-tension living, with the attendant results—"the general tendency to quick and sensitive reactions which marks all urban life under modern conditions." As an index to this we have the increasing army of neuropaths, psychopaths, and neurasthenics.

This heightened tension and increased sensitiveness unquestionably affects the sexual life of the individual and the community, but the effect is frequently precisely opposite in the two sexes. Thus in the male neurasthenic there is not only a tendency to impotency, but a distinct lessening of the sexual desire. In the female neurasthenic, however, there is not a corresponding loss of sexual desire, and, of course, no loss in potency. So we find that this condition, which has become a vital factor in modern communities, acts as a direct disturber of sexual balance because of its utterly different effect upon the two sexes.

In this connection, also, it should be remembered that we now have an increasingly high percentage of high-strung, nervous, active-minded men who are driven by engrossing business activities; while at the same time we have developed a correspondingly large class of nervous, idle women. High-tension business activities afford a means of sexual deflorescence which may act as a sexual equivalent. Idleness, on the other hand, tends to stimulate rather than depress the sexual desire. Or, stated in another way, idleness does not offer a means of taking care of the emotional overflow that seeps into sexual channels, but which would be sublimated by normal activity. So here again we find our modern methods of life disturbing the natural sexual balance by affording a means of sexual deflorescence in the male, without any corresponding means of deflorescence in the female.

Thus we see that our present mode of living, with crowded cities, strenuous business activities, and craving for excitement, tends to produce a distinctly altered condition in the country's sexual balance. It produces bacherlorhood and postpones the time of marriage several years, thus directly affecting the natural supply and normal demand; it produces an appreciably large class of men who are in effect impotents; and it lessens the natural sexual desire in men by the transmuting process of active mental effort.

Meanwhile there are no corresponding factors for reducing or transmuting the sexual accumulations of women. On the contrary, modern life tends to increase woman's impulse, but it reduces her chances of having this impulse gratified.

We find another evidence that we have gradually developed a condition of sexual unbalance which is largely in favor of the man and against the woman, if we compare the sexual habits of the lower animals and those of the races low down in the scale of evolution, with the sexual habits of the civilized races; and compare also some of the fashions and customs of past centuries with those of to-day. In the bird and animal world it is the male who must do the strenuous courting to arouse the ardor of his consort, and even then his success is directly dependent upon a definite and periodic physiological process taking place in the female.

A somewhat similar, although greatly modified condition exists in certain savage tribes, where the burden of courtship falls upon the male. In these tribes the male resorts to "parades, displays, dances, and mock combats" to arouse the ardor of the female, who still retains a vestige of the sexual instinct of the ancestral animal. Undoubtedly the periods of intensified sexual impulse are more pronounced, and correspond more closely with the periods of ovarian activity in the savage woman than in her civilized sister. But as we advance upward in the scale of civilization we find that a period of fairly constant sexual desire supplants one in which there are periods of complete indifference which coincide with the periods of ovarian dormancy in the lower animals. The periodic physiological time of fecundity still persists, to be sure, but this period has relatively slight effect upon sexual desire or gratification. Indeed, it is a common observation that there may be no relation whatever between actual fertility and sexual desire in civilized women, since women who are absolutely sterile on account of rudimentary uterine and ovarian development frequently have perfectly normal sexual impulses. Even nymphomania has been known to exist in women with undeveloped sexual appendages.

This last is, of course, an example of an abnormality that is the product of civilization in general, not merely the result of recent changes. But when we compare the prevailing fashions of Colonial days with those of the present time, we find evidence of influences of a more subtle nature. The gay colored Colonial found it advisable, perhaps necessary, to display his bright plumage to arouse the ardor of his consort. And this suggests that the sexual balance in Colonial communities was at a point of adjustment where the woman still needed somewhat more arousing than her modern descendant.

Be that as it may, it is certain that she was more active physically than the modern woman, of more stable nervous adjustment, and sufficiently occupied with normal household duties to afford a natural outlet for any superfluous accumulation of ungratified sexual impulses. The church also afforded the Colonial dame a means of sexual deflorescence that is denied the modern woman in these days of lukewarm belief, skepticism, and crumbling creeds.

The change in mode of life and mental attitude has been quite as pronounced in the case of men. The men of today are absorbed by strenuous business transactions, have become less athletic as a class, more high strung, and more addicted to bachelorhood. They have also gradually discarded garments whose chief asset was display, for those of somber, unattractive comfort and utility.

Meanwhile a change in many ways precisely opposite has been taking place in women. Idleness has supplanted housewifely activity; motherhood has become less and less a part of normal womanhood, and the physiological events immediately preceding it have become almost pathological; and higher senses have been cultivated to the extent of heightening nervous tension and increasing nervous instability. But, although some of these changes correspond closely with those that have taken place in men, there has been no corresponding tendency to modest sobriety in dress. On the contrary woman has been consistently inclining in the opposite direction. And recently this inclination has taken a somewhat startling turn toward unusual suggestiveness.

It is quite possible, therefore, since there are so many evidences that sexual balance is being disturbed by our rapidly changing civilization that these unusual fashions are an indication of this disturbed equilibrium. Possibly the hobble and diaphanous skirt, and exposed hosiery, are simply signals of distress—protests against the discrimination which modern customs and the double standard have instituted against the entire sex.

With this thought in mind one is led to wonder whether, after all, the sudden wave of desire among certain women for political equality is not really a mistaken interpretation of a desire for sexual equality. And to question whether the basis of all the recent movements and fashions—militantism, political equality, and suggestive skirts—is not the element of sexual unbalance asserting itself in one way or another according to the temperamental peculiarities of the individual. And possibly the fact that militant women are rarely the hobble-skirted ones, and hobble-skirted ones seldom militants, if subjected to careful analysis, would reveal that each is simply a manifestation of the same ungratified primitive instinct expressed in such radically different ways.

In any event, since men have been the controlling factors, the blame for both conditions may justly be laid at their doors. But all this is changing. Woman is coming into her own—or what she believes to be her own. And when this Utopian period arrives perhaps we shall see a restoration of sexual equilibrium. Possibly this will be accomplished by the distinctly progressive method of abolishing the "double standard"—not in the orthodox way suggested by male reformers, but by one precisely opposite in character.

609 Exchange Building.

Chronic Hemorrhagic Prepatellar Bursitis.—Giuseppe Campora reports a case of this condition which is not an exceedingly rare one. The formation is classified with the traumatic hygromata of which there are three types: the serous, the hemorrhagic, and the proliferating. The first and the last are the result of slight repeated traumata, while the hemorrhagic type is usually the sequence of a single traumatism. The wall of the hemorrhagic bursitis may be from a few millimeters to two centimeters in thickness. The prognosis is good provided the growth is treated as a simple chronic inflammatory tumor.—*La Riforma Medica.*

FACE TO FACE.

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The human countenance has been variously idealized as the "index of the mind," "the mirror of the soul," "the chart of the emotions," "the portrait of the character," and sundry other beautiful conceptions which the poetic imagination has conjured up. By purely muscular effort, by the play and interplay of the delicate elements of its wonderful mechanism, it can faithfully delineate those purely psychical emanations which we denominate anger, fear, hope, pleasure, pity, and sorrow, and the numerous shades and gradations, thereof. Dulness, vivacity, candor, deceit, purity, and sensuality leave their imprint in the upbuilding of the individual countenance. It can transmit thought without the interposition of a spoken word. Asymmetry of development indicates degeneracy. This does not apply to what we style "homeliness," which may be associated with pronounced brilliancy of intellect and sweetness of disposition, but a want of correspondence between the two sides of the face. Cynics have emphasized the faculty possessed by the human face of repressing or counterfeiting emotions. This has come within the experience of every one, for deceit is no uncommon quality. Again, aside from the mischievous desire to mislead, it is considered a mark of virility and sturdy character to control these outbursts. Hence many men, and women, too, because of the usages of their class, pretend to an absence of emotion which they possess in as marked a degree as their more volatile fellow creatures. Betrayal of fear is considered disgraceful, stolid indifference to pain the badge of gentility. But in most ordinary mortals pain will be read on the countenance with perfect facility, and even the proud-spirited stoics reveal to the practised eye of the physician the secret they are striving to suppress.

Expert observers can often locate pain by a shade of difference in the expression. The contracted brow of headache is a familiar phenomenon. The pursed lips of abdominal distress are usually construed aright. The fixed visage and staring eye of precordial agony are unmistakable. The intermittent facial contortions of neuralgic paroxysms are readily interpreted. The screwing up of the face on one side will indicate an aching molar. Associated with lacrymation and a drooping eyelid it is highly suggestive of iritis. The half-opened mouth, forward thrust of the chin, and dribbling saliva are characteristic of acute pharyngitis. The broad nose and gaping lips of adenoids call for no extended comment. The saddle nose of lues is immediately recognized. Puffiness over the antrum of Highmore will point to a complication in that cavity during an attack of coryza. Puffiness of the lower lids is universally conceded to be significant of nephritis. While not literally a part of the face, still the columnar neck of Hodgkin's disease becomes such a prominet feature of the patient's picture that it may be properly included here. Goiter, especially if associated with exophthalmos, is a conspicuous deformity. The expression of uneasiness and anxiety, so manifest in this distressing malady, should lead at once to the proper line of investigation. The dejection of melancholia, and

the vacuity of paresis contrast pointedly with the exaltation of paranoia. The yellow tint of hepatic jaundice, and the bronze of Addison's disease are very naturally first discovered on the face. The pallor of anemia and the greenish tinge of its congener, chlorosis, are noted particularly in the same situation.

The cyanosis of embarrased circulation and the flush of its feverish acceleration will first attract attention there. The malar glow of phthisis is in vivid contrast with the encompassing waxy pallor. The unilateral accentuation of the pneumonic blaze as indicative of the lung affected is a clinical truism. The dilated arterial twigs observed in the countenance of the beefy, portly, puffy bon vivant, are a pretty reliable indication of the condition of his general circulation, and of the likelihood of a crash from arteriosclerosis. The menopause, in the long train of its discomforts, produces no more distressing symptom than its almost incessant "hot flashes." A burning face, with a look of piteous appeal, and palpable nervous hypertension, make a picture of compelling clearness. Alternate flushing and paling are, in connection with other signs, indicative of meningitis. This has been somewhat aptly styled the "fugacious flush." A weeping eye, as already noted, may indicate an iritis. It may also be produced by keratitis, dacrocystitis (occlusion of the lacrymal duct), or an inverted lash. The peculiar "sore eyed" aspect of granular lids is becoming more and more infrequent in our communities, owing, no doubt, to the keen precautions of our emigration officers. But we have a pretty constant supply of blepharitis marginalis of the "scrofulous" variety. In connection with the subject of the eye it will be apropos to mention the contracted pupil and nictitation of the opium habitué, and the dilated pupil and exhilarated mien of his cocaine counterpart. The swollen grayish facies of chronic parenchymatous nephritis, and the yellow, rough, toad-like mask of myxedema are the most remarkable manifestations of these affections. The sallow, muddy hue of intestinal stasis (the so-called bilious state) is a matter of universal observation, as are the fishy eye and sodden bloat of chronic alcoholism. The cancerous cachexia is revealed by a peculiar earthy tinge. The "risus sardonicus" of septic peritonitis is happily rather difficult to illustrate today. It consists in a drawing of the upper lip tightly across the discolored teeth in a most appalling grin. It was common enough in the good old days, preceding the era of asepsis. Facial palsy may be indicative of a lesion within the cranium or without. The conduct of the upper eyelid under attempted muscular effort will immediately settle the doubt. If the eye cannot be completely closed we are dealing with an involvement of the nerve after its departure from the cranium, in other words, with a Bell's palsy, and the prognosis is good. If the eye can be closed we are dealing with an involvement of the nerve before its departure from the cranium, and the prognosis is decidedly worse. The oscillations of the head in paralysis agitans, ceasing when the patient fixes his gaze, are accompanied by a total lack of expression in a florid countenance. Facial spasm is frequent in chorea, tetanus, meningitis, epilepsy, tic, postapoplectic states and hysteria. Central or peripheral irritation of the facial nerve may be the cause. Facial hemiatrophy is so marked a trophoneurosis that it cannot possibly be overlooked.

The preceding enumeration of the general conditions reflected in the face is naturally an imperfect one, and apter illustrations may be suggested by every practitioner. But it is not intended to include every instance of the sort. Rather is it intended to point out the effectiveness of the face as a diagnostic chart whereon is traced the course to pursue in devious pathology. One class of general conditions has not been yet described in connection with their facial manifestations. These are the exanthemata. While in reality general conditions, their conspicuous symptoms are so decidedly cutaneous that the writer has determined to group them with the dermatoses. With one exception all of them are noted on the face. The exception is scarlet fever, which does not advance above the line of the jaws. But even here its very absence is of negative significance, because a high temperature, with an eruption affecting the body and sparing the face, would be indicative of scarlet fever. Measles shows itself unequivocally on the face. In fact, it is the face which supplies the peculiar combination of signs that establishes the diagnosis. The ocular suffusion, the coryza, and the crescentic grouping of the dark red macules, make an absolutely characteristic picture of the disease. Rubella, or German measles, will present a rosier eruption without the grouping and coryza, but with a cervical adenitis and moderate angina. The face is a favorite site for the outbreak of erysipelas, and the dusky red, infiltrated cheek, forehead, or nose, with a sharp line of demarcation, is rarely misunderstood. A recurrent red eruption of less intensity, but as sharp delineation on the nose and adjoining cheek, is due to infection within the nasal cavity. This is frequently and incorrectly denominated erysipeloid (the "oid" pronounced as two syllables), which latter condition occurs only on the hands of those who handle putrid meat. Varicella, with its umbilicated vesicles in various stages of development, always invades the face. It is of consequence only when it is liable to come in conflict with variola. This occurs only in adults and during smallpox scares. The differentiation is usually easy, if attention is paid to the general conditions and to the manner of progression. Varicella, to begin with, is associated with very trifling constitutional symptoms. Variola is marked by a very distressing preeruptive stage. In varicella the eruption comes out in successive crops, so that vesicles are discoverable in all degrees of development, beginning, mature, and receding. In variola the lesions are all of one age. In varicella there is a haphazard scattering of the lesions over the face and scalp. In variola there is an evident selection of location, the mouth, temples, and forehead being favored in this regard. Of course, in well-marked cases, this confusion would not be possible. But some cases of variola are so mild and some cases of varicella are so severe that in the excitement of an alarm of smallpox a doubt is apt to arise. It is expedient to be acquainted with the finer points of difference. The toxic erythemata due to the ingestion of irritating pabula sometimes produce the facies of measles or scarlatina. The absence of the usual concurrent symptoms of the one or the other will mark the distinction. Deliberation and circumspection will prevent a blunder, as the flush of scarlet fever is accompanied by a persistent high temperature, and that of toxic erythema is not. The same distinction holds good as between measles and the toxic condition.

Syphilis is manifested on the face in all its stages and in every diversity of form assumed by that ex-

ceedingly facile adept at disguise. There may be a chancre of the lip, frank and honest, or mimicking a herpes. There may be a chancre of the eyelid mistaken for a stye or an epithelioma. Chancre of the cheek may also be mistaken for epithelioma. Secondary syphilis may produce a corona veneris, grouped lesions about the mouth, and fissures at the angles thereof. The form may be macular, papular, or annular. The eruption may be sparse, or it may be profuse. When sparse the tendency to grouping is noteworthy. The raw ham color so prevalent in luetic lesions is not to be depended on too implicitly, as it may be modified by accidental circumstances. Occasionally, though rarely, the outbreak is vesicular, or pustular. In this guise it has been mistaken for variola or varicella. A careful consideration of all the possibilities is the surest safeguard against error. Most of our failures are attributable to a want of comprehensiveness in our investigations. If we would go far enough afield to postulate syphilis as an eligible factor we should soon get on the trail of confirmatory evidence. The annular lesions of lues are peculiar and distinctive. They occur in the neighborhood of the mouth, as a rule. There may be one or several dime-sized rings discrete, touching, or interlacing, red in the white man, gray in the negro. They are as clear in the center as the clearest type of ringworm. They look as though they were drawn on the skin with the turn of a crayon. The face is favored liberally by the attentions of tertiary lues. Gumma and the tubercular ulcerative lesion are seen in all their variations, and in every conceivable situation. No portion of the surface is exempt. The nose is oftenest singled out for attack. Cheeks, eyelids, forehead, chin, ears may be the point of minor resistance. The punched-out character of the gumma, whether it be round, crescentic, or irregular, is diagnostic. It has a sloughy base and a nasty secretion. The ulcerating tubercular form consists of solid, round infiltrations arranged in circles, crescents, or chaplets of various outlines. They are crusted over superficial ulcerations. The looped, or so-called serpiginous formation, is counterfeited by nothing else unless it be an ancient lupus, and then other elements enter to clarify the situation. When the lesions are small and discrete they closely resemble an acne varioloformis. The latter is not one-sided, and is usually more profuse. The former displays a tendency to get into groups and clusters. Periosteal nodes upon the forehead must not be overlooked. They are as significant as similar growths upon the shins.

The face is the favorite habitat of lupus vulgaris. The nose and adjoining cheeks are especially selected. Any part of the face, however, may be invaded. It is a dark red, raised, sharply outlined infiltrated plaque, studded with little nodules of a reddish yellow color, which resist the pressure of a glass spatula, and remain visible when the surrounding inflammatory area is blanched. These constitute the disease. Aggregations of these tend to ulcerate sluggishly, crusting, sloughing, and leaving tough cicatrices. As already noted, the resemblance to lues is often remarkable. If the nodules can be made out the conclusion is obvious. Usually on the periphery of the main lesion a few isolated nodules are discoverable. It must be admitted that the Wassermann reaction has to be invoked at times to decipher a particularly misleading resemblance. Post factum it is of interest to know that the scar of lupus is tough and that of lues soft and pliable. Lupus erythematosus (which, by the way, is not a lupus at all) generally assumes the contour more or less exact of a bat or butterfly. The imagination has to be called into play very often to sustain this comparison. It is a neoplasm with a sharply circumscribed outline slightly elevated, red surface covered here and there with tightly adherent scales which upon removal reveal the gaping mouths or pouting sebaceous follicles. It may attack any part of the face, and after the nose seems to have a fond attachment for the ear. The scalp (which is never affected in lupus vulgaris) is very often affected in lupus erythematosus. It begins later in life than lupus vulgaris, which in the greatest number of instances begins in childhood. It scars into small atrophic areas, which we find here and there in the midst of the active foci. Lupus vulgaris is the classical cutaneuos expression of tuberculosis, being the direct product of the bacilli. Lupus erythematosus is assumed to be caused, not by the bacilli, but by their toxins, and because of this circumambulatory maneuver is denominated a tuberculide.

Epithelioma has a marked predilection for the face. The lips, nose, eyelids, cheeks, foreheads, ears may any of them be invaded in any part. The under lip presents a very much larger number than the upper. The reason for this difference in susceptibility in tissues of identical structure is not at all clear. The old explanation of the irritation produced by the pipe never has been perfectly satisfying, because the pipe is grasped by both lips, and even if its weight comes on the lower lip some pernicious influence should be felt by the upper. Epithelioma of the lip is an ugly proposition, and should be removed as early in its career as it can be got at. Its contiguity to mucous membrane and to tissues rich in lymphatics accounts for its malignancy. Epitheliomata elsewhere on the face (excepting, it is needless to say, the vicinity of the eye) are much more "benign." They advance much more slowly and metastasize more sluggishly. Still their "benignity" is quite like the harmlessness of a powder magazine which is ready to create a tremendous disturbance if properly stimulated. Epitheliomata are characterized by infiltration, rolled pearly borders, and superficial ulceration. There is usually a history of a persistent scabbing in one small spot for a long time, for years in many cases. No matter what the appearance of the lesion may be, that is a very suspicious circumstance. On the lip it is possible to confound it with a chancre if proper attention is not given to all the features of its appearance and history. This mistake has occurred on the cheek both ways about. While elderly people are more prone to the development of this disease they by no means have a monopoly of it, as it is observed in those who have not reached middle age. Do not discard the diagnosis of epithelioma because the patient is under forty, or even under thirty years old. There are several varieties of this neoplasm, all but one of which present the characteristics cited as diagnostic. The exception is the flat or parchment type, which simply shows a circular lesion with a reddish edge and a yellowish center. It does not ulcerate. It is accompanied by little or no discernible infiltration. Epitheliomata are divided histologically into basal and prickle cell types, and their malignancy is rated accordingly, but it is injudicious to trust to the distinction in the practical management of a given case. There is one and only one royal road to safety, and that is radi-

cal removal as soon as the growth is recognized.

Xeroderma pigmentosum, a rare affection, may be most aptly discussed at this point because of its eventuation in epithelioma, and because of the curious circumstance that it occurs for the most part in children, thereby emphasizing the contention that the age of the patient is no bar to this form of malignancy. It may be described as a premature senilism of the skin, which takes on the degenerative changes (in an aggravated form) which should not appear till late in life. The face has a freckled, weather-beaten appearance, soon followed by scarring and telangiectasis. After a period more or less prolonged, warty or papillomatous tumors appear at the site of the original lesions, and the malignant nature of the disease is manifest. Prior to the tumor stage the appearance is decidedly like that of an *x*-ray burn. It is rapidly fatal after this stage. Acanthosis nigricans is another fatal malady developing verrucous lesions of a blackish hue upon the skin, and in the abdominal viscera active carcinoma. It is also very rare, and it also accentuates the heretofore accepted error that cancer is confined to maturity. Mycosis fungoides is likewise a disease of evil prognosis, some of whose manifestations are on the face. Erythematous or eczematoid eruptions appear and disappear for a period extending over many years in some cases, finally to become permanent and furnish a basis for the development of the fungous tumors which give the disease its name, and on ulcerating bring about the septic cachexia from which the patient invariably dies.

Sarcoma cutis may appear upon the face. It may be of the nodular, the melanotic, or the multiple pigmented variety of Kaposi. The melanotic is the most malignant. It arises from a pre-existing nevus and its activity is pernicious. The last two are seldom seen upon the face, it is true, but their possible appearance there should not be overlooked. The multiple benign sarcoid of Boeck, consisting of little reddish or brownish nodules few in number or actually covering the head, face, neck and shoulders, is a rare cutaneous disease that must be differentiated from its malignant prototype.

The facies of tubercular leprosy is so strikingly repulsive that it is never forgotten. The broadening of the countenance into the remote simulacrum of a lion's head, the fungous flattened, dirty brown tumors, studded over it, the discoloration of the skin between them, the presence of ulcers munching at the nose or ear or eyelid, the dry and lifeless hair, the expression of hopeless misery, constitute a clinical picture unparalleled in dermatology. The macular anesthetic type is also seen upon the face where it does not long remain an unmixed evil, being soon diversified by the appearance of the grosser lesions. Pellagra, arising on uncovered portions of the cutaneous surface, the face is invariably attacked. In the districts where the disease is endemic this is a point of decided importance. Actinomycosis, or "lumpy jaw," is an infiltrated condition of the subcutaneous tissue studded with nodules and riddled with sinuses discharging pus. In the discharge can be found the "ray fungus," the cause of the affliction. Sycosis parasitica, or ringworm, of the beard produces large nodular swellings, the fungus having invaded the hair follicles. It is to be distinguished from sycosis non-parasitica, which is a staphylococcus infection of the same structures. The latter produces individual pustules, each pierced by a hair. It is far more intractable than the other. Tinea circinata or ordinary ringworm of the surface is frequent on the face. It is of trivial importance unless it happens to be confounded with annular lues. Myringomycosis is the portentous title given to a fungous growth in the external auditory canal. It consists of a dirty gray or brownish mould that may line the whole canal and cover the membrana tympani. Scabies never appears on the face of an adult at least outside of Norway. Children in arms may acquire it on the face when the mother's nipples are involved. Pediculosis capitis produces an impetiginous eczema of the nape of the neck, which in filthy people may extend forward to the region of the ears and adjacent cheeks. Impetiginous eczema is nothing but eczema with an added pus infection. Eczema, of course, as the commonest of skin diseases should in the natural order of things be found with great frequency on the face. From earliest infancy to extreme old age this is seen to be the case. The type denominated infantile eczema involving all of the face except the very central portion (containing the nose, lips, and chin) is prevalent in every community where babies are irrationally fed. Erythematous eczema is liable to appear at any age, but shows a particular affinity for the eyes, cheeks and chin of elderly patients. The desire to conceal the evidences of advancing years, sometimes through vanity, sometimes through the need of retaining a hold in the business world, induces many persons, especially women, to resort to hair dyes. These often bring about a dermatitis identical with erythematous eczema. Seborrhoic dermatitis, incorrectly styled seborrhoic eczema, will show itself in greasy patches about the ears forehead or nose. This is always an extension from an affected head. The dryer scales of psoriasis are infrequent much below the hair line. Still their occurrence here must not be ignored, and it is a matter of notoriety that eruptions sparse upon the body may be prominent on the face. The presence of the pearly scale determines the diagnosis. Impetigo contagiosa is repellantly disfiguring and readily mistakable for other dermotoses caused or complicated by pus, such as barbers' itch, poison ivy, and eczema. Its superficial character, its honey-colored crusts and recent occurrence should serve to distinguish it. Dermatitis venenata (Rhus), while indiscriminate in its selection of points of attack, rarely slights the face. Sometimes the disfigurement is portentous and grotesque. Acne facei vulgaris, pustulosa, and indurata is prevalent in all communities. Acne rosacea, somewhat unfairly synonymized as rum blossom, is a very rebellious and humiliating dilatation of the blood vessels of the nose, cheeks and chin, with a marked accentuation of the follicular openings. Rhinophyma is the ultimate possible development of this condition. This has been derisively denominated "tomato nose." The description is not inexact. Granulosis rubra nasi has been felicitously named. It consists of a reddening of the nose, and the development thereon of numerous darker red granulations. It somewhat resembles lupus erythematosus. It occurs in the young and disappears spontaneously. Its differentiation, aside from the purely academic aspect, is important only as regards prognosis. Rhinoscleroma is a very rare neoplastic distortion of the nose, due to the development of hard, flat tumors within and without eventuating in a general broadening of the organ, with contraction of the orifices. It is of parasitic origin. Other granulomata of various types attack the nose and can only be classified by the microscope.

Herpes zoster occasionally appears upon the face.

It is one-sided here as elsewhere, and apart from the pain is of no importance, unless the vesicles threaten the integrity of the cornea. Herpes simplex has a penchant for the face. It is a trivial affection with a curious but well founded connection with latent malarial fever. Urticaria is of general distribution. So is erythema multiforme. The face is frequently involved in both. Erythyma pernio recognized at once under the title of chillblains is quick to attack the nose, ears, and chin. Of assistance in the diagnosis will be the associated involvement of fingers and toes. Prurigo mitis which may be described as an aftermath of chronic papular urticaria in children is very apt to show itself upon the forehead. This has been known to be the deciding point in the differential diagnosis between it and lichen planus, which avoids the face. The generalized redness and scaling of pityriasis rubra, and its clinical counterpart and prognostic antithesis dermatitis exfoliativa, are prominent on the face. Pityrisia rubra pilaris also produces a marked scaliness in this locality. The plugged papules of Darier's disease affect the temples and the slopes of the nose. While pretty rare, it turns up once in a while to our profound bewilderment.

Another curiosity that may confront us at any moment, and find us unprepared, is adenoma sebaceum, which consists of reddish tumors of the sebaceous glands covered with dilated capillaries. It is confounded with acne rosacea until it comes under the observation of the dermatologist. It is a curious and noteworthy circumstance that most of the victims are of feeble mentality. In ichthyosis the face will be harsh and scaly, partaking of the general tendency to hyperkeratosis. Fibromata, neurofibromata, lipomata, angiomata, and lymphangiomata, nævus pilosus, melanotic nævi, any of these neoplasms may mar the comeliness of the human countenance. The golden infiltrate of manthoma affects the eyelids and the inner canthi. It may be the first intimation of lurking diabetes. Cloasma, indicative of derangement of the generative organs, will splotch the cheeks or forehead with its dirty brownish stains. Freckles, so common in the light-complexioned and in the young of no pathological importance, may in the aged become the focus of epitheliomatous degeneration.

The direct antithesis of the hyperpigmentation of the skin is seen in Albinism and leucoderma. In leucoderma the diagnosis is sometimes overlooked because of the apparent or actual intensification of the color at the margin of the disease. The "obtrusive" crescent is the advancing disease the "receptive" crescent the normal skin. Alopecia areata frequently denudes the bearded area in freakish patches. Alopecia luetica is liable to produce a moth-eaten appearance of the same region or even to sweep it clean. Its proneness to assail the eyebrows in connection with the scalp is notorious. Keloid may follow trifling wounds of the face and even acne lesions. It sometimes develops to an enormous degree after piercing of the ears for earrings in negroes. I have seen the diseased tissue many times larger in extent than the organ attacked. Hydrocystoma, which has been more or less correctly called dysidrosis of the face, presents a number of white, deep-seated vesicles with no tendency to rupture, and no inflammatory complications. It occurs in elderly women whose visages have been subjected to the irritation of hot stoves or steaming washtubs. It is persistent. The lesions must be punctured. It is of no importance aside from the disfigurement and the possibility of confounding it with miliaria crystallina or sudamen. Molluscum contagiosum consists of minute globular tumors with a central depression. They are pearly white or slightly tinged with yellow. Curretage removes them effectually. Milia are pinpoint pearly tumors filled with sebaceous matter. They affect the forehead and eyelids. They are to be managed like acne of which they might be considered an abortive type.

The lesions of dermatitis herpetiformis or Duhring's disease are apt to be abundant on the face. Hydroa vacciniforme is practically limited to the face and ears of children. It occurs during spring and summer and is caused by the actinic rays of the sun. The bullæ of pemphigus vulgaris and the denuded or crusting lesions of pemphigus foliaceus, grossly disfigure the countenance. They are to be distinguished from the lesions of bullous impetigo and epidermolysis bullosa. The latter is a curious disease in which trivial trauma causes the speedy appearance of oftentimes enormous bullæ. It is a trophoneurosis. Impetigo dries down into superficial crusts that look as if they were pasted on the skin.

It is a matter of general information that many drugs produce a characteristic outbreak on the skin. Bromides, iodides, copaiba, quinine, antitoxins, antipyrin, are the commonest offenders. But there is hardly a drug that has not its occasional victim. Hypertrichosis facei so ardently desired by the male adolescent is poignantly humiliating to the female. Electrolysis is the only remedy. All depilating applications are not only useless, but stimulating and provocative.

The foregoing imperfect consideration of the clinical significance of the human countenance, in the determining of a great number of pathological conditions, emphasizes the wisdom of giving it the minutest scrutiny as a routine procedure in every instance. This habit once developed, a commanding advantage will be gained over the less observant investigator, who will miss many a hint and circumstance pregnant with important possibilities.

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VINCENT'S ANGINA.

By H. H. Amsden, M.D.,

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One of the most valuable contributions which bacteriology has made to medicine is the differential diagnosis of those acute infections which, though symptomatically similar are yet distinct diseases, differing in etiology, hence in treatment. The recognition of the acute infections of the upper respiratory tract is particularly important because so many of them are contagious; hence the necessity for prompt diagnosis and treatment. Recognizing the fact that in many of the acute infections the local symptoms are but the outward manifestations of a systemic disorder, the trend of modern medical treatment is toward a specific therapy based on the bacteriological diagnosis.

History.—The disease which forms the subject of this paper was first described as a distinct affection by Vincent in 1898, though previous to this time Rauchfuss and Babes in 1893 and Plaut in 1894, had described the occurrence of the specific organisms, the fusiform bacillus and spirillum, in ulceromembranous angina, and scurvy. Mayer in 1902 gave the first description of the disease in this country, or, in fact, in the English language.

Etiology.—Infection with the fusiform bacillus and spirillum appears to be the direct cause, though most writers consider that lowered bodily resistance, diseased tonsils, teeth and gums act as predisposing factors. St. Clair Thomson states that it is more frequently met with in debilitated subjects, who live in unsanitary surroundings; that it occurs chiefly in children; and that it is but feebly contagious. Cocks quotes some statistics by Mulholland of 24 cases in the New York Foundling Hospital, in children under five years of age; he considers the disease fairly contagious. Fraley gives an account of an outbreak in an institution for children in Philadelphia, the spread of which was attributed to a common drinking cup.

Pathology.—The lesion in the typical case of the disease is a necrosis of the superficial layers of the mucous membrane. The pseudomembrane is really not an exudate, as appears in diphtheria, but a yellowish or greenish yellow slough resting on an ulcerated base, easily bleeding on touch. The structure first attacked in most cases is the mucous membrane of the tonsil, though the initial lesion may be on any part of the oral or pharyngeal mucosa. In mild cases the ulceration is confined to the tonsil; in the severe cases it spreads to other structures, or lesions are found in other parts of the body. The specific microorganisms have been found in mastoiditis (Yates); in chronic suppurative otitis media and meningitis (Held); in abscesses of the liver and spleen (Schmorl); and in an ethmoidal abscess (Brant).

The few fatal cases on record have generally been due to complications. Goodall reports one due to ulceration of the larynx; Bruce, two fatal cases: one due to toxemia and one to bronchopneumonia, with ulceration of the larynx; Fruehwald, one of meningitis and brain abscess; Rothwell, one with chills, pyrexia, severe pain, cough, and bloody sputum, which contained numerous Vincent organisms; Tunnicliffe, one of general pyemia, with multiple abscesses in various parts of the body, following appendicitis.

Bacteriology.—The specific microorganisms are the fusiform bacillus and spirillum. The diagnosis should always be made from the stained smear. The fusiform bacillus is a long slender rod pointed at the ends with a slight swelling in the middle. In the stained specimen there is an oval unstained vacuole in the center. Besides these long slender forms, shorter rods and long thread-like bodies are also found. Cultures are made with difficulty in serum or ascites-agar under anaerobic conditions. The cultures have a fetid odor. The spirilla resemble the ordinary mouth spirochetæ, are corkscrew shaped and very motile. Cultures may be obtained under similar conditions to those of the bacilli. Smears should be stained with diluted Ziehl's solution, or according to Giemsa. They are Gram-negative. The bacilli alone appear in the diphtheroid or pseudo-membranous variety of the disease, while in the ulcerous form both bacilli and spirilla are found. In fresh cases the fusiform bacilli and spirilla appear in almost pure cultures, while later in the disease the ordinary mouth bacteria are more numerous.

Tunnicliffe and Wright believe that the fusiform bacillus and spirillum are different stages in the development of the same microorganism, and Coplin states that recent observers are of the opinion that the organisms found in this disease, also those allied forms occurring in syphilis and relapsing fever, are not bacteria in the true sense, but are animal parasites, closely related to the trypanosomes.

Symptomatology.—According to Vincent, two clinical forms are recognizable. (1) The ulceromembranous, by far the more common, in which both the bacillus and spirillum are found. The initial symptoms are those of an acute tonsillitis or pharyngitis, malaise, headache, fever, generally slight, and dysphagia. Objectively, there is at first redness of fauces and tonsils, fetid breath, coated tongue, and swelling of submaxillary glands. Later, on tonsils and pillars is seen a soft friable yellowish slough, slightly adherent with marked ulceration of subjacent mucous membrane, easily bleeding on touch. Deep and extensive ulceration of tonsils, pillars and palate may follow, with loss of tissue and subsequent contraction.

(2) The diphtheroid variety is very rare, about 2 per cent. of all cases. It is due to the fusiform bacillus alone. The distinguishing feature of this form is a distinct false membrane, resting on an inflamed slightly ulcerating base; clinically, the two forms are otherwise alike. Rolleston claims that there are not two distinct varieties of the disease, but that the ulcerative is only the later stage of the membranous. Cocks recognizes two types: the tonsillar, or mild type; and the severe form, in which the membrane extends to extra-tonsillar structures, with ulceration, and accompanied by more severe general symptoms. Most cases of the disease are mild affections, yielding readily to local treatment, or self-limited.

Diagnosis.—Vincent's angina must be distinguished from diphtheria, syphilis, and the anginas caused by various pyogenic organisms, especially streptococcus or staphylococcus. From diphtheria the diagnosis is easily established by the stained smear and culture; this is also true of the streptococcus or staphylococcus infections. From syphilis, the Wassermann test may be necessary. In the typical case, the yellowish-green slough, the characteristic fetor, the ulceration, and the low range of pulse and temperature are significant.

Prognosis.—In the uncomplicated tonsillar cases the prognosis is excellent, this form usually clearing up in ten days or two weeks. When unilateral recurrence is apt to take place on the other tonsil. The amount of toxemia seems to depend largely on the extent of the local lesion; in the cases showing extension to larynx or adjacent structures, with ulceration, the prognosis is more unfavorable.

Treatment.—The general treatment is that of any acute infection. As the disease is at least mildly contagious, suitable prophylactic measures should be taken, including an antiseptic mouth wash. For the throat lesions, various local remedies are recommended, as methylene blue, tincture of iodine, Lugol's solution, Monsell's solution, argyrol, solutions of nitrate of silver, in various strengths, and hydrogen peroxide. Orthoform tablets relieve the dysphagia.

The extratonsillar lesions in the severe cases, as deep ulceration of the fauces or larynx, are very intractable to local measures. The lesions in mouth and throat are but the local manifestations of a constitutional process, hence local treatment alone is of little avail in the severe cases, no more so than local treatment in diphtheria.

Acting on the theory that as Vincent's Angina is a spirillum disease, a remedy specific in syphilis should be curative in this affection, Gerber and

Rumpel used salvarsan in Vincent's Angina with markedly successful results. Citron uses a trituration of salvarsan in glycerin locally with permanent cure. Brant reports a case of ethmoidal abscesses treated with a 10 per cent. solution of salvarsan in glycerin with speedy cure. Cocks reports a case treated with salvarsan intravenously.

The writer's personal experience is limited to two cases. The first of these was reported in the MEDICAL RECORD, May 9, 1914.

CASE.—E. C., age 17, family and personal history negative. June 23, 1914, was called to see patient. Subjectively, she complained of sore mouth, headache, backache, rigors, and general malaise. Objectively, pulse, temperature, and respiration were negative. On the roof of the mouth, a serpiginous ulceration covered with a greenish yellow slough, extended from the middle of the hard palate across the soft palate to the right of the uvula; a pronounced fetor was present, there was no adenitis, nor tonsillar involvement. Patient stated that mouth had been sore for several days before my visit. Smear from lesion showed large numbers of fusiform bacilli and spirilla, no other bacterial forms being present. Urine was negative. Blood showed slight increase in lymphocytes and a somewhat marked eosinophilia. An analgesic and Dobell's mouth wash were prescribed. The following day the lesion had increased about a third in area; was much deeper, and more painful, and fetor was very marked. Neosalvarsan 0.6 gram was given intravenously and the general treatment was continued. Reaction was slight, some nausea and rise of temperature to 99.4° being practically all the symptoms. The following day showed much relief subjectively, both local and general, and without further local treatment the lesion healed, in a week, leaving no scar. Examination of smears at frequent intervals showed a gradual diminution in the specific bacteria, these being replaced by the ordinary mouth bacteria.

A CASE OF ACUTE THYROIDITIS.

BY IRVING WILSON VOORHEES, M.S.M.D.,

NEW YORK.

ALTHOUGH acute inflammation of the thyroid gland is not an uncommon entity, its occurrence has not been frequently reported in America. No mention is made of this disease in the authoritative American textbooks on diseases of the nose, throat, and ear. Most of the German and French authors devote some space to its consideration.

The case here reported is that of a man, twenty-six, who was sent to me by his physician for a painful swelling in the neck and difficulty in swallowing. Nothing in the history seemed of especial note save an attack of what seems to have been influenza about two weeks previously. The nose and throat were quite normal, save for some enlargement of the lingual tonsil. No ulceration was present. Externally there was considerable swelling in the region of the thyroid gland. The skin was reddened and the gland itself was quite painful on palpation, especially over the right lobe. There was a slight rise in temperature, with some aching in the back and bones, and general physical depression. A diagnosis of acute thyroiditis was made, the skin was painted with tincture of iodine and the patient advised to apply ice cold compresses. Calomel, 2 grains, was prescribed, and the patient was told to drink large quantities of water and to restrict the diet. After five days the swelling began to diminish, the acute symptoms subsided, and a good recovery followed.

The word thyroiditis is used in contradistinction to strumitis which concerns a chronically involved thyroid. It is said that the condition is either of traumatic, idiopathic, or infectious origin, in which latter circumstance it represents a simple metastasis from some septic focus elsewhere.

Kocher and Tavel report various other diseases in association with thyroiditis and strumitis. These inflammations are inclined to suppurate. Since the gland has no connection with the outside world the infection is in most cases brought to it by way of the lymph and blood streams.

Tavel found varying bacteria present eight times in eleven cases. The organisms were: *Bacillus typhosus, B. coli communis, Streptococcus pyogenes, S. lanceolatus, Staphylococcus pyogenes*, and "*Bacillus strumitidis* a and b." Tavel's findings have been confirmed by others.

Pyemia, pneumonia, influenza, diphtheria, bronchitis, puerperal fever, endometritis, and the second stage of typhus are conditions in which thyroiditis may occur. One case is reported in which thyroiditis was associated with orchitis.

The treatment is that outlined above. If abscess formation seems inevitable, this should, of course, be encouraged by the usual means, and as soon as distinct fluctuation is felt general surgical measures should be instituted. As it is not unlikely that the lingual tonsil is, in some cases, at least, the site of origin of infection, this should be treated by applications of iodine or nitrate of silver, according to the judgment of the laryngologist.

Medicolegal Notes.

Liability of Hospital for Injuries to Employee.—The Texas Courts of Civil Appeals hold that a charitable hospital, which administers to the sick of all nations and creeds, accepting payment if the patients are able to pay, but otherwise rendering the service gratuitously, is liable for damages to an employee for personal injuries sustained through its negligence, and its property is not exempt from execution to enforce the payment of such demand.—Hotel Dreir v. Armendarie, (Tex.), 167 S. W. 181.

Expert Opinion Merely Advisory to Jury.—In an action for personal injuries, the expert evidence was contradictory as to the cause of a benign tumor. It was held that the subject of the cause of benign tumors was one of technical cognizance, of which the court could have no judicial knowledge. The opinion of the plaintiff's experts seemed as reasonable as the contradictory opinion, and it was for the jury to say whether they would be guided by one or neither of such opinions. The expert opinions of doctors were held to be merely advisory to the jury and might be rejected entirely, if believed to be at variance with common sense and experience.—Powmeroulie v. Postal Telegraph & Cable Co. (Mo.) 165 S. W. 1174.

Practising Medicine Illegally—Proof of Residence.—In a prosecution for practicing medicine illegally, the state is required to prove that the accused, with intent to receive compensation therefor, performed services such as are defined in section 1683 of the Civil Code of 1910, without registering in the county of his residence as required by section 1684 of the Civil Code of 1910. The burden is upon the state to prove, as a material fact in the case, the residence of the accused as alleged in the indictment; but the prosecution may rely upon the failure of the accused to attack prima facie or presumptive proof as to residence which is sufficiently strong to compel the production of affirmative proof in order to rebut it.—Hathaway v. State, Georgia Court of Appeals, 81 S. E. 260.

Illegal Medical Advertisements—Insertion by Agent.—In a prosecution for violating Michigan Public Acts of 1907, No. 164, by the publication of an illegal medical advertisement the defendant claimed that the advertisement had been prepared and published by her husband without her authority and consent. It was held proper to charge the jury that it was not necessary, in order to convict the defendant, to find that she personally caused the advertisement to be inserted, it being sufficient if she caused the insertion by her duly authorized agent.—People vs. Kowalski, Michigan Supreme Court, 146 N. W. 177.

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POSTINFECTIOUS HYPOPITUITARISM.

FRÖHLICH'S syndrome or the dystrophia adiposogenitalis has been definitely established as a clinical entity resulting from a diminished function of the hypophysis. According to Harvey Cushing, in the typical syndrome of Fröhlich there is an "infantilism both structural and sexual associated with adiposity of juvenile type and an hypophyseal tumor—a combined effect of deficiency of both anterior and posterior lobes." But there are cases that do not correspond with this typical picture. Thus trauma instead of a neoplasm may be the causative factor, while in some cases the loss of hypophyseal function may be secondary to castration or to destructive disease of the genital glands. In one of Cushing's cases there was, instead of a structural infantilism, an actual structural gigantism in the absence of hypophyseal tumor, although a slight degree of hydrocephalus was present.

R. Massalongo and P. Piazza (*Riforma Medica*, September 19 and 26, 1914) describe a postinfectious type of the syndrome adiposogenitalis which they distinguish from the neoplastic type of Fröhlich. Their study is based upon a number of cases of hypopituitarism that came under their observation. They point out that adiposity may result from disturbances in any one or more of the glands of internal secretion, which, in the order of frequency and importance of their causative rôle are the hypophysis, the genital glands, the thyroid, the pineal body (epiphysis), and the suprarenals. The adiposity of endocrine origin has distinct characteristics and runs a typical clinical course. It appears that the posterior lobe or the so-called nervous portion of the pituitary gland pours its secretion into the third ventricle and thereby in some manner prevents the abnormal accumulation of fat in the organism. Hypophyseal adiposity is always accompanied or followed by disturbances or a suppression of the functions of the genital glands. Although the genital impairment is, as a rule, secondary to the hypophyseal lesion, one cannot exclude the possibility of coincident lesions in the genital glands or even in other of the endocrine organs, which in their physiology, both normal and pathological, come into reciprocal relationship with the hypophysis. In acromegaly, which is one of the types of hyperpituitarism, there is observed in contradistinction to the types of hypopituitarism, an excessive activity of the genital glands.

The point upon which the above authors place greatest emphasis is the fact that the syndrome adiposogenitalis may result from any one of diverse morbid processes in the hypophysis, more particularly in its posterior lobe. Such processes consist either of neoplastic infiltration or of degeneration or sclerosis of the hypophysis secondary to an infectious disease. It is this type of pathological change in the hypophysis that may serve to explain those cases of obesity that follow recovery from a disease such as typhoid fever. At any rate, the observations of Massalongo and Piazza open up a new and suggestive field of investigation.

THE TREATMENT OF PRESTERNAL LUXATION OF THE CLAVICLE.

DISLOCATIONS of the sternal end of the clavicle are caused by falls and blows upon the shoulder, the dislocation being anterior or presternal, backward, or upward, according to the direction in which the causative force acts. The anterior, or presternal, is the most frequent variety, and while the recognition of the nature of the lesion and the reduction of the dislocation are easy, holding the head of the bone in its proper position without operation has been the despair of all surgeons who have had these unfortunate cases to handle. The dislocation is reduced by raising the outer end of the clavicle and drawing the shoulder backward, when the head of the bone usually glides into place; although occasionally pressure over the head of the bone may also be necessary. Attempts to maintain reduction have usually been made by the use of the posterior figure-of-eight bandage, the Velpeau bandage, or the spica of the shoulder with a pad over the inner end of the clavicle, the arm being carried in a sling. As a rule, any or all of these methods have failed in the individual case, and the patient has been confronted with the choice of resulting slight deformity, usually with more or less functional disability, or open operation.

Danielsen (*Zentralblat f. chir.*, Oct. 10, 1914) reports a recent experience in a case of this kind occurring in camp before Verdun. The diagnosis and reposition were simple as usual and there was also the usual tendency to recurrence of the dislocation. Noticing that as soon as he retracted the patient's shoulder the sternal end of the clavicle sprang forward, thus reproducing the dislocation, he came to the conclusion that the dressing should be applied in a manner directly opposite to the usual custom, bringing the shoulder upwards and forwards instead of backwards. He therefore raised the arm, holding the upper arm against the cheek while the forearm rested upon the top of the head, and applied bandages to maintain this position. The luxation then remained reduced, healing progressed without any trouble, and the final result was no deformity, with free and painless motion.

Stimson long ago recognized the advantage of the anterior and upward pull on the shoulder, and

suggested the anterior figure-of-eight or Velpeau in some of these cases; but we believe that Danielsen is the first to use the exaggerated position described above. The result was a very happy one in the case which he quotes, and is worth trial by all of us as occasion presents itself; for if generally successful the method will be a great boon not only to the patient but also to the surgeon who has so often been baffled by this dislocation.

PROGRESSIVE TORSION SPASM.

THIS condition was first described by Ziehen under the name of the tonic torsion neurosis. Oppenheim then styled it dystonia deformans, while Flatau preferred the designation progressive torsion spasm. Another term proposed, also by Oppenheim, descriptive of the gait is dysbasia lordotica progressiva. Until its isolation the affection was probably classed under hysteria, and perhaps in some cases athetosis. A patient with this affection shows at least two components. One is the attitude, and the other the peculiar muscular movements. If the patient is at rest on his back with the limbs somewhat drawn up and flexed, the movements are not as marked as when he stands or walks. The muscular activities are in part intrinsic and in part locomotive. They undergo constant tonic contraction and relaxation, the rhythm of which suggests that of clonus. The muscle bellies alternately swell up and dwindle in size. As a result torsion movements especially occur. There is, however, a general restlessness more marked when patient is lying down. As a result of the tonic spasms the spine is flexed and rotated. The thighs participate with the trunk but the muscles of the head and legs proper are involved in a minor degree only. As a result of contractions of the muscles of the trunk and thighs the body becomes somewhat arched, and the spine is often lateroflexed.

A case of this sort was reported by Seelert last summer before the German Society for Psychiatry and Neurology (*Berliner klinische Wochenschrift*, October 5), the patient being a boy of seven years. The chief point of interest was the possible relationship to hysteria. Oppenheim in discussion emphasized the psychic indolence of the patients. Rothmann called attention to some artificial features in the disease picture. Bonhoeffer was satisfied that the affection is not psychogenic. Although at first sight it appeared eminently hysterical, prolonged observation of the evolution of the disease led him to class it among the choreatic processes as an organic disease.

THE PURIN METABOLISM AND THE INTERNAL SECRETIONS.

THE effect of the internal secretions upon the purin metabolism with particular reference to their possible relationship to the origin of gout, was the subject of a fruitful investigation by Fleischmann and Salecker (*Zeitschrift für klinische Medizin*, Vol. 80, Nos. 5 and 6). They found that whereas nucleinic acid fed to dogs is almost wholly eliminated in the urine, the simultaneous administration of pituitary extract causes a lessening and a delay in the excretion of allantoin. If the pituitary extract is fed to an animal whose diet is purin-free, there is at first a slight increase and later a decrease in the elimination of allantoin. In the fasting animal, however, this initial increase is not observed. Suprarenal extract if injected in amounts that are not too small causes a marked rise in the excretion of allantoin without any increase in the total nitrogen elimination. In the case of the injection of phloridzin the results are just the reverse. In thyroidectomized animals nucleinic acid administered in the diet is excreted in smaller amount. Iodothyrin causes a diminution in the elimination of allantoin during the stage of the pronounced protein disintegration. The results of the administration of parathyroid extract have not as yet been uniform. In fasting animals purin bases administered in the diet are excreted in diminished amount, which fact indicates a probable retention. An excessive imbibition of water causes a considerable rise in the excretion of allantoin. The practical significance of the above researches is as yet obscure. Nevertheless, they show an important relation between the various internal secretions and the purin metabolism.

MIGRATING NEEDLES.

THE subject of migrating needles and other pointed objects figures more conspicuously in the secular press than in medical literature. Physicians have long known that the testimony of patients on this possibility is often untrustworthy and that the occurrence of needles, etc., in certain localities, like the female bladder, is due to deliberate introduction from without. This objection, however, cannot be raised in the case of animals, and there is abundant evidence that pointed objects such as needles are swallowed with the fodder, undergo arrest in the gullet and eventually penetrate into the heart, where they may or may not cause death. At a meeting last May of the Aerztlicher Verein of Hamburg (*Deutsche medizinische Wochenschrift*, October 1) Fraenkel related a case in which an aspirator needle, which had broken off while in the thorax of a goat, traversed the left lung and perforated the heart so that death occurred suddenly three weeks after the accident. Some time ago Professor Marchand found at autopsy a needle nicely healed into the myocardium, in which it was rendered visible in skiagrams. No history of an accident could be obtained and the integument was searched in vain for remains of a lesion.

News of the Week.

Examination for Position of Epidemiologist.—The United States Civil Service Commission announces an open competitive examination for epidemiologist, for men only, to fill a vacancy in this position in the Public Health Service for service in the field, at a salary of $4,000 a year. The duties of this position will be to make laboratory and field investigations of the diseases of man in relation to prevalence, causation, and methods of control, and to conduct field studies of public health matters. It is desired to secure persons thoroughly qualified to do laboratory and field research work in epidemiology, and to organize and conduct such work in the field. Graduation with an A.B. or B.S. degree from a college

or university of recognized standing, and graduation with an M.D. degree from a medical school of recognized standing, and at least five years' experience in epidemiological research, including field studies and laboratory technique, and at least five years' public health service under Federal, State, or municipal authorities, are prerequisites for consideration for this position. Experience in epidemiological research and experience in public health service may be concurrent. Applicants must have reached their twenty-fifth but not their fortieth birthday on the date of the examination. Persons who meet the requirements and desire this examination should at once apply for Forms 304 and 2095, stating the title of the examination for which the forms are desired, to the United States Civil Service Commission, Washington, D. C., the Secretary of the United States Civil Service Board, Post Office, Boston, Mass., Philadelphia, Pa., Atlanta, Ga., Cincinnati, Ohio, Chicago, Ill., St. Paul, Minn., Seattle, Wash., San Francisco Cal.; Custom House, New York, N. Y., New Orleans, La., Honolulu, Hawaii; Old Custom House, St. Louis, Mo.; or to the Chairman of the Porto Rican Civil Service Commission, San Juan, P. R. No application will be accepted unless properly executed, excluding the medical certificate, and filed with the Commission at Washington prior to the hour of closing business on December 15, 1914.

Red Cross for Servia.—Two more Red Cross units for work in Servia sail today on the *Finland*. The personnel of the two units consists of Drs. Ethan Flagg Butler and E. P. Magruder, directors; Drs. James F. Donnelly, S. H. Hodge, Clapham P. King, and Morton P. Lane, staff physicians, and twelve nurses. The company will land at the Piræus and proceed at once to Nisch via Salonika. They carry 75 tons of material for dressings and other stores.

Surgeons in the Field.—v. Schjerning, Surgeon-General of the German Army, in a report issued on October 5, stated that there were at that time 9,000 army surgeons of this nationality in active field service. Writing in the *Münchener medizinische Wochenschrift*, Klar makes an appeal for the appointment of orthopedic surgeons as consultants in the field layouts, believing that thereby many limbs and incidentally lives might be saved.

Antitetanus Serum.—In accordance with the now generally accepted view that the value of antitetanus serum lies in its prophylactic rather than its curative efficacy, the French Army medical authorities have issued orders that a preventive injection be given as soon as possible to those receiving shell wounds. Large quantities of the serum, prepared at the Pasteur Institute, have been sent to all the field ambulances for immediate use.

Repudiating British Honors.—Professors Waldeyer, Orth, and A. Martin have added their protests to that of Verworn against the action of Behring, Roentgen, and others in melting down the medals and renouncing the honors conferred upon them by various scientific bodies in Great Britain. They deplore the disturbing of the pure scientific atmosphere by gusts of political rage, and add moreover that it is foolish, for the English will not be in the least annoyed by such puerile actions; they have more important things to think of.

The Death Rate of this city for the week ending November 7 was 11.55 per thousand as compared with 10.60 for the previous week. There was a notable decrease, as compared with last year, in deaths from violence and from scarlatina, measles, typhoid fever, and diarrheal diseases. The death rate for the first forty-five weeks of 1914 was 13.53 per thousand, as against a rate of 13.84 during the corresponding period of 1913.

A Conference of Antituberculosis Workers was held at Syracuse, N. Y., last week, under the auspices of the State Department of Health and of the State Charities Aid Association. Two of the points insisted upon as essential in the crusade against tuberculosis were better ventilation of schools and the establishment of a tuberculosis sanatorium in every county of the State.

Gift from the Mikado to a Hospital.—It was announced recently that the Mikado has donated 50,000 yen ($25,000) toward the foundation of St. Luke's International Hospital in Tokio, which is to be conducted under the auspices of the Episcopal Church Mission, represented by Dr. Rudolph Teusler. The hospital will cost about $500,000 and will be the most elaborate institution of its kind in the Far East, especially advancing medical research work.

Rabies in New York.—During the recent quarter of 1914, 2,136 dog-bitten persons were examined in this city by officers of the Health Department, and 153 Pasteur treatments were given. Sixty-four cases of rabies were discovered in animals and two deaths from human rabies occurred; another death occurred last week, making three deaths for the year thus far. The Health Commissioner announces that despite the protests of some unreasonable owners of dogs, the muzzling ordinance will continue to be strictly enforced.

Physical Examination of School Children by Private Physicians.—In accordance with a suggestion made by the Committee on Hygiene of the Board of Education, two districts in the Borough of Manhattan have been selected in which to carry on an experimental study relative to the possible desire of parents to have their children examined by their own physicians. If these examinations of children entering school for the first time should be made in any considerable numbers by private physicians, it will allow the school medical inspectors of the Department of Health additional time in which to make examinations of children in the upper grades. If this experiment should prove a success, the system will be put into operation throughout the city.

The Forsyth Dental Infirmary for Children.—The new building of this institution, at 140 The Fenway, Boston, will be dedicated with appropriate ceremonies on Tuesday, November 24, at 10 o'clock in the morning.

Accidents to Epileptics.—Dr. Matthew Woods, 1402 Spruce street, Philadelphia, writes that he is preparing an article on "Accidents due to epileptics being unsuitably employed," and would be glad to receive reports of such accidents, together with photographs showing the resultant mutilations.

Translations of Dr. Knopf's Prize Essay on Tuberculosis.—The seventh American edition of Dr. S. A. Knopf's prize essay, "Tuberculosis as a Disease of the Masses and How to Combat It," has been translated into Bohemian by Dr. S. Breitenfeld of New York. The same American edition is now being translated into Spanish by Dr. Jesus E. Monjaras of Mexico City, which makes the

third edition in Spanish, two having appeared in previous years. Dr. A. Lankester, the Government appointee of the Indian Research Fund Association (Special Tuberculosis Enquiry), Cranleigh, Simla, is now translating the essay into a second East India dialect, one Hindu edition having appeared last year. This makes the thirtieth translation of the essay since its original appearance in German some ten years ago.

Dr. William M. Polk has removed his office from 7 East Thirty-sixth Street to 310 Fifth Avenue, New York.

Medical Society Elections.—At the meeting of the New York and New England Associations of Railway Surgeons, held October 21 and 22, in New York City, under the presidency of Dr. C. A. Pease of Burlington, Vt., the following officers were elected: *President*, Dr. W. H. Marcy, Buffalo, N. Y.; *First Vice-President*, Dr. D. H. Lake, Kingston, Pa.; *Second Vice-President*, Dr. H. G. Stetson, Greenfield, Mass.; *Treasurer*, Dr. J. K. Stockwell, Oswego, N. Y.; *Corresponding Secretary*, Dr. Geo. Chaffee, 338 47th St., Brooklyn, N. Y.; *Recording Secretary*, Dr. J. H. Reid, Troy, N. Y. The next meeting, celebrating the quarter-century anniversary of the Association, will be held in New York City on October 21 and 22, 1915.

The Ohio Valley Association, at its sixteenth annual meeting, held at Fort Wayne, Ind., November 4-6, elected the following officers: *President*, Dr. E. O. Smith, Cincinnati; *First Vice-President*, Dr. G. U. Young, Evansville; *Second Vice-President*, Dr. William Shimer, Indianapolis; *Third Vice-President*, Dr. W. H. Harsha, Chicago; *Secretary and Treasurer*, Dr. Benjamin F. Floyd, Evansville.

At the annual meeting of the Republican Valley (Neb.) Medical Association, held at Oxford, on October 29, the officers elected for the coming year are as follows: *President*, Dr. N. T. Johnston, Upland; *Vice-President*, Dr. H. C. Smith, Franklin; *Secretary*, Dr. P. A. Sundbury, Holdrege; *Treasurer*, Dr. W. D. Shields, Holdrege. The next annual meeting will be at Holdrege, Neb.

At a meeting of the medical graduates of the University of Virginia, held in Richmond on November 11, an organization was effected of the Medical Alumni Association of the University of Virginia and the following officers were elected: *President*, Dr. Hugh Young, Baltimore; *Vice-President*, Dr. Richard Whitehead, Charlottesville; *Secretary-Treasurer*, Dr. Thomas V. Williamson, Norfolk.

New York Academy of Medicine.—The anniversary meeting and reception of the Academy took place on Thursday evening of this week. The anniversary discourse, entitled "Some of the Relations of the Profession of Medicine to Municipal Government" was delivered by the Hon. George McAneny, President of the Board of Aldermen of this city.

County Tuberculosis Hospitals.—At the recent election in New York State three counties voted for the establishment of tuberculosis hospitals. These three counties were Chenango, Lewis, and Suffolk. Twenty-nine counties in this State now either have hospitals or have decided to provide them for the tuberculous.

Charitable Bequests.—By the will of the late Dr. Morris Longstreth, formerly of Philadelphia and of Cambridge, Mass., who died recently in Barcelona, Spain, half of his residuary estate is bequeathed to the College of Physicians of Philadelphia, to provide for the salary of the librarian and his assistants, and in addition his medical and scientific books and pamphlets and instruments.

The Litchfield County (Conn.) Hospital has been made a beneficiary under the will of the late Mrs. Mary R. Wilcox of Winsted. The amount will probably be about $30,000.

By the will of the late Henry B. Palethorp of Philadelphia the sum of $5,000 is bequeathed to the Jewish Hospital, the Wills Eye Hospital, the Pennsylvania Hospital, and the Presbyterian Hospital, respectively.

By the will of the late William Lutz of Philadelphia the sum of $5,000 is bequeathed to the German Hospital as a memorial to his wife, Sophia Lutz.

Obituary Notes.—Dr. HARRY H. PEMBERTON of Long Branch, N. J., a graduate of the Jefferson Medical College, Philadelphia, in 1872, and of the Hahnemann Medical College and Hospital, Philadelphia, in 1873, died at his home on November 11, from heart disease, aged 62 years.

Dr. CROWELL C. HALL of Dover, Me., a graduate of the Dartmouth Medical School, Hanover, N. H., in 1876, a member of the Maine Medical Association and the Piscataquis County Medical Society, died at his home, after a long illness, on October 19, aged 61 years.

Dr. JAMES BARTLETT BREWSTER of Plymouth, Mass., a graduate of Tufts College, Boston, in 1862, of the Bellevue Hospital Medical College, New York, in 1866, and of the University of Vienna in 1868, a surgeon in the United States Army during the Civil War, a member of the Massachusetts and Plymouth District Medical Societies, formerly acting assistant surgeon-general of the United States Marine Hospital Service, surgeon-general of the Department of Massachusetts, Grand Army of the Republic, and a State medical examiner of Massachusetts, died at his home on November 7, aged 73 years.

Dr. JOHN C. AMIS of Fort Smith, Ark., a graduate of the Medical Department of the University of Louisville, Ky., in 1883, and a member of the American Medical Association, and the Arkansas and Sebastian County Medical Societies, died at his home, after a long illness, on October 22, aged 55 years.

Dr. JACOB LOPES CARDOZO of Brooklyn, N. Y., a graduate of the University of South Carolina, Medical Department, Columbia, in 1878, a member of the Kings County Homeopathic Medical Society, chief of staff of the Gates Avenue Homeopathic Dispensary, and physician to the Eastern District Dispensary and Hospital, died at his home on November 3, aged 82 years.

Dr. JOSEPH C. DOANE, formerly superintendent of the Miners' Hospital at Shamokin, Pa., has been appointed Chief Resident Physician to the Philadelphia General Hospital, vice Dr. Henry Sykes deceased.

Dr. HENRY NORTHAM BRYAN died on November 2 at Philadelphia at the age of 61 years. He was graduated from Jefferson Medical College in the class of 1884 and from the Medico-Chirurgical College in the class of 1895. He was for many years chief clinical assistant in the surgical dispensary of the Medico-Chirurgical Hospital. He was a member of the Philadelphia County Medical Society and of the Medical Society of the State of Pennsylvania, a Fellow of the American Medical Association, a Fel-

low of the College of Physicians of Philadelphia, and a member of the Philadelphia Medical Club.

Dr. PHILLIP G. CREVELING of Broadway, N. J., a graduate of the Department of Medicine, University of Pennsylvania, in 1857, died at the home of his daughter, recently, aged 80 years.

Dr. EDWARD HODGES of Brooklyn, N. Y., a graduate of the Long Island College Hospital, Brooklyn, in 1895, attending gastroenterologist to the Swedish, Bushwick, and Samaritan Hospitals, Brooklyn, and the Polhemus Memorial Clinic, assistant surgeon in the Forty-Seventh Regiment during the Spanish-American War, and a member of the American Medical Association, the New York State and Kings County Medical Societies, the Associated Physicians of Long Island, the Long Island Medical Society, of which he was a former president, and the Alumni of St. John's Hospital, died at his home, from pneumonia, on October 30, aged 44 years.

Dr. OSMON B. WAY of Claremont, N. H., a graduate of the Dartmouth Medical School, Hanover, N. H., in 1866, a member of the New Hampshire and Sullivan County Medical Societies, consulting physician to the Claremont General Hospital, twice a member of the New Hampshire State Legislature, and for some years a trustee of Boston University, died at a sanatorium in Brattleboro, Vt., after a long illness, on October 26, aged 74 years.

Dr. EDWARD HARVEY TAFT of Milford, N. H., a graduate of the Dartmouth Medical School, Hanover, N. H., in 1897, a member of the New Hampshire and Hillsboro County Medical Societies, and president of the Milford Progressive Club, died suddenly at his home on November 3, aged 45 years.

Dr. SAMUEL S. APPLE died at Easton, Pa., on November 11 at the age of 75 years. He was graduated from Jefferson Medical College in the class of 1869. He served as cavalryman during the Civil War and he was for many years surgeon to Lafayette Post G. A. R.

Dr. ANDREW S. LOW died at Philadelphia on November 9 at the age of 77 years.

Dr. JOSEPH SCRIBNER GIBB died at Philadelphia on November 7 at the age of 55 years as the result of an attack of apoplexy. He was graduated from the medical department of the University of Pennsylvania in the class of 1880 and he then served as resident physician in the Philadelphia Hospital. From 1882 to 1892 he was outdoor physician to the Department of Charities and Correction and surgeon to the Police Department, and from 1881 to 1884 he was in charge of the Nose and Throat Department of the Northern Dispensary. Since 1893 until recently he was surgeon to the Ear, Nose and Throat Department of the Episcopal Hospital and from 1897 to 1913 Professor of Diseases of the Throat and Nose in the Philadelphia Polyclinic and College for Graduates in Medicine and since the last date emeritus professor. He was a Fellow of the College of Physicians of Philadelphia, a member of the American Laryngological Association, the American Laryngological, Rhinological, and Otological Society, the Philadelphia County Medical Society, the Medical Society of the State of Pennsylvania, and the American Medical Association.

Dr. JOHN MORGAN HOWE of New York, a graduate of the New York Homeopathic Medical College and Hospital in 1879, and a member of the American Institute of Homeopathy and the New York State Homeopathic Medical Society, died at his home on November 13, aged 70 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

WAR ITEMS—"DUM-DUM" BULLETS—DARK STREETS OF LONDON—EARLY CLOSING OF LICENSED HOUSES—DANGER OF INTEMPERANCE—TETANUS—SOLDIER'S HEART, ETC.

LONDON, October 29, 1914.

"*Bellum, horridum bellum.*" The war absorbs so much of our thought in its many aspects that even when doctors meet to discuss professional questions the great topic is sure to intrude and not seldom displaces all others. Let me, then, make a few notes on the prevailing subject or medical items connected with it. Sir A. Sloggett has gone to France as the chief commissioner there of our Red Cross and St. John Ambulance associations, besides which he will be director-general of the expeditionary force. He will, it is expected, be in a position to coordinate the work of these two voluntary bodies with that of the R. A. M. C., thus preventing overlapping and securing more satisfactory results than could be obtained from separate organizations.

Sir J. Rose Bradford, Sir W. Herringham, and Sir Almroth Wright have been appointed consulting physicians with the rank and provision of colonel to the expeditionary force and have gone, accompanied by three bacteriologists. A sanitary committee, to advise the army council on hygienic questions connected with the troops engaged, has also been appointed from officers of the Army Medical Corps, reinforced by some of the public health service and the engineers. This committee should prove very efficient and of no slight use to the A. M. C. and still more, perhaps, to the medical officers connected with the recruiting service now so active as well as those with the territorials. Mr. Burghard has started as surgeon and Dr. T. R. Elliott and Dr. Alexander Fleming as assistant physicians.

Sir Alfred Keogh, K. C. B., who has for some time been abroad in connection with the Red Cross service, has been recalled to act as medical director-general during the vacancy. He formerly held this appointment for a period of five years.

An outcry has been raised, as in former conflicts, against the alleged employment of the so-called "Dum-Dum" bullets. There seems no proof of any such violation of the treaty or arrangement between the powers, but the public is sensitive on the subject and unsupported assertions get circulated. Consequently civilian friends press their doctors with all sorts of questions about them and the character of the injuries they inflict. Not having handled them myself I recommend inquirers to ask those who have been army surgeons, but this does not satisfy all. Some seem to think every doctor must know and ask further what then are the "humane bullets" we hear about and what is the difference between them? So I have to tell them, again warning them it is merely what I have heard, that these are more sharp pointed, but the question of their being humane is doubtful—whether in regard to the fatality or the pain caused by the wounds they make. Professor Fessler's report was that they are more apt to turn on their axis as they pass through the tissues and would thus cause more damage in the cavities of the head, chest, or abdomen than the original Dum-Dum would do. This and its imitations tend rather to break into pieces in the tissues and are pretty certain to do so when

they strike bone. Not only so, but bits of the core or of its envelope are carried into the wound as may be other foreign bodies, as of the clothing. Splinters of fractured bone may also be found in the wound. I have said there is no proof that these missles have been used in this war, although rumor has been as busy as usual on the outbreak of hostilities, but their use is against the recognized customs of war between civilized nations and could only be admitted on unimpeachable evidence. A surgeon-general of extensive experience repudiates the charge which is usually made only by those who have not had the opportunity of war service.

The streets of London have of late been comparatively dull in the evening. The order to turn the gas low has removed the excessive glare which was proverbial and people who walk about talk of the semidarkness. Some, interested above all in their own convenience, grumble but have nothing to answer when asked what they do when they go into the country—except the one so obsessed with his grumble as to say "they have the moon there," and wonder why he was ridiculed.

In connection with this the earlier closure of public houses has been carried out. The licensing authority on the 15th inst., with the support of the Government, ventured to order all licensed houses in London to close at 10 P.M. The temperance party are rejoicing over a victory they have long fought for, but the authorities though sympathizing had not the courage to decree. This is a war item, for the danger of drunkenness among troops is once more exemplified by the German atrocities, many of which are no doubt due to the maddening effect of the looted liquors consumed during their pillaging.

The scheme for providing free medical attendance with drugs and appliances to the dependants of soldiers and sailors serving with the columns may be considered a success. The Government committee on the Prevention and Relief of Distress in conjunction with the National Relief Fund Committee, together with the representatives of the British Medical and Pharmaceutical Associations have cooperated to carry out the intentions of the promoters in a comprehensive manner; doctors and chemists in all parts of the country have agreed to render their services in accordance with the scheme which seems to be simple and practical.

You will not be unprepared for the announcement that a number of cases of tetanus have occurred among the wounded. Some have appeared after arriving in the Paris hospitals, which is not surprising considering the long incubation period that only the slightest wound may afford access to the microbe and that the earth would be so disturbed at the front. It has been asserted that the soil in the Aisne valley contains an excessive number of tetanus bacilli compared with other parts. The statements as to this seem to me speculations rather than evidence.

Emphysematous traumatic gangrene is considered to be somewhat allied to tetanus, and cases of it are also reported among the troops. It is, of course, possible that this "gas gangrene," as it is commonly called, may predispose to tetanus and as it occurs mainly under the same conditions may be even probable. But so little is known of it that this and other points that have been raised are only subjects of conjecture.

It is reported that antitetanic serum is being freely used by the French surgeons on the line and in the military hospitals.

At the Institute of Hygiene on Tuesday Dr. Strickland Goodall gave an address on "Soldier's Heart," in the course of which he referred to the remarkable endurance of Sikh troops, who are perhaps the best trained regiments in the world, but are not altogether exempt from this trouble. Among ordinary troops 2 or 3 per cent. will fall out from heart trouble on a march of 100 miles. Two batallions of Sikhs lately marched 52 miles at an average pace of 4 miles an hour. Most of the marching was at night when the actual rate was 5 or 6 miles. No European regiment could do that, yet only four cases of heart failure occurred in those 2,000 men during the whole march. Dr. Goodall considers the soldier's heart as a variety of the athlete's heart and said at least one-third of recruits rejected on medical grounds were refused on account of the heart. Nevertheless, breakdowns among soldiers in the first three months of training were generally due to the same cause. But he added that heavy arms carried and the effects of belts and bandoliers combined to increase the liability, while in forced marches some men always fell out from cardiac failure.

Lord Kitchener has appealed to the public not to treat soldiers with drink (a common practice), but rather to assist them to resist temptation to which they are so much exposed. Where soldiers are stationed Lord Kitchener suggests committees might be formed to advocate public opinion on the importance of our defenders being in the highest state of efficiency and this, of course, implies strict temperance.

OUR LETTER FROM THE PHILIPPINES.

(From Our Special Correspondent.)

CHOLERA CARRIERS—FUTILITY OF THE FIVE-DAY QUARANTINE—LOW CASE MORTALITY—MANAGEMENT OF THE CHOLERA EPIDEMIC—AUTOMOBILE DISINFECTING CAR—MANILA MEDICAL SOCIETY—CLEAN-UP WEEK FOR THE PHILIPPINES—PERSONAL.

MANILA, October 15, 1914

In the recent occurrence of cholera in Bilibid Prison, out of a total daily average of some 2400 prisoners, 84 have been found by the Bureau of Science to be positive cholera carriers, or 3 per cent. Of these carriers, who were held in complete isolation, four developed cholera after being found to be carriers. One developed the disease four days after being found positive, one 16 days, one 17 days, and one 18 days. In the quarantined cell houses cases have occurred at from two and three up to twelve and thirteen-day intervals. At the San Lazaro detention camp one cholera carrier developed an attack of the disease twenty-one days after being found positive. All this has an intensely practical bearing as it illustrates the futility of the usual five-day quarantine as an effective safeguard against the spread of cholera in a very respectable percentage of infections. It also explains very many outbreaks most difficult to understand under the old hypothesis of a five-day incubation period of cholera. Also it very clearly shows the absolute necessity in fighting cholera in looking for the infection outside of the actual cholera cases. In the present outbreak in Manila, the search for cholera carriers is being prosecuted at the rate of about two thousand examinations a day, and about twice as many carriers as actual cases have been found and isolated. These carriers require about two weeks on an av-

erage to clear up, and it is evident that if allowed to remain at large they would be a far greater danger to the public safety than actual cases. Indeed, it is believed by Major Munson, acting director of health, that a most serious epidemic in Manila has been averted only by the systematic and persistent searching out and isolation of the cholera carriers. No effort is being made to examine the population as a whole for cholera; but all contacts with cases, all residents of a vicinity where a number of cases have occurred, and all persons handling food are examined.

Usually a sample of feces is secured and inoculated on culture tubes furnished by the Bureau of Science, but in a good many instances where it is undesirable to wait for a fecal specimen, swabs are inserted in the rectum and inoculation of the media made in this way. It seems, however, as if these rectal smears are not as reliable as cultures made from fresh bowel movements. Rectal smears may give negative results where feces show positives. A number of cases of intermittent carriers have also been discovered, the moral of which of course is that while positive findings are conclusive of danger, a negative finding is by no means indicative of freedom from infection. Efforts for intestinal antisepsis have as yet proved unsatisfactory. Aromatic sulphuric acid, five drops t.i.d., has proved about as satisfactory as anything in clearing up carrier cases. A fairly large experience with salol does not indicate that the latter has any particular value. In fact, several cases of cholera have occurred in carriers who were receiving ten grain doses of salol twice daily, and the elimination of infection from ordinary carriers does not seem to be hastened in any degree by this treatment.

The extraordinarily low case mortality of cholera in Manila still continues. The doctors at San Lazaro state that only about 25 per cent. of the cases that reach them result fatally, while previous epidemics have run as high as 70 and 80 per cent. There were thirty-nine consecutive cases from Bilibid with only four deaths, though all were confirmed bacteriologically. The clinical symptoms are those of cholera, but of an extraordinarily mild type —purging, cramps, collapse, suppression of urine, etc., but all in much less than the usual degree of intensity. Some slight cases are clinically no more than colic with bowel looseness, and of course there is every degree of severity from the immune carrier up to the case of cholera sicca that dies in perhaps a few minutes. This matter of immunity is most interesting. Why is it that a case will harbor germs for three weeks in apparent safety, and then without demonstrable cause suddenly develop an attack? Is there an anaphylaxis, or does the attenuated cholera vibrio take on a more virulent character? None of the carriers who have come down with cholera while under detention have been undergoing anything in the way of deprivation or hardship which could lower vital resistance generally. The hypothesis that the germ itself acquires qualities of virulence beyond the power of the system to resist, in a certain percentage of carriers, is rather favored by the existence outside of Manila, in certain provinces, of a type of cholera which entirely conforms to that of previous outbreaks, having its case mortality of about 80 per cent. Moreover, examinations of many hundreds of tubes inoculated from contacts or neighbors have as yet failed to show cholera infection in a single case from the provinces, while in Manila 3 per cent. of all examinations are positive. The conclusion seems almost warranted that in Manila there is an attenuated strain of high resistance but such low virulence that most of the people who harbor it never show signs of sickness, while in the country the infection is so virulent that those who get it almost invariably become violently sick and the vast majority of such promptly die.

The rise in city cholera which resulted from the big flood has now about subsided, but the heavy rains in the provinces have done much to spread the infection there. So far it seems completely under control, though new foci of infection are constantly starting up. A smart epidemic in Bulacan has been completely stopped, and despite the large number of towns which have presented one or several cases, no serious outbreak has occurred except in Union Province, where sanitary effort is now being concentrated. The disease got a start there from the presidentes either neglecting or refusing to report the existence of cholera in their communities until it had become well scattered. However, after a week of systematic effort the cases have been reduced to a third of what they were in Union Province. No great outbreak is apprehended, but the cases are sufficiently numerous and scattered to keep the health officials constantly alert and busy.

To do away with this danger the health authorities have requested that buckets of disinfectant solution be kept in every public midden shed, and that signs be posted directing people to wash their hands therein before leaving. Also an effort is being made through the native papers, physicians, etc., to have the people take up the use of eating utensils, with such effect that a native member of the City Council of Manila introduced a resolution making it a misdemeanor for anyone to use the fingers in eating. The matter was finally compromised by an order being issued that restaurants in public markets must furnish spoons or forks with food to be eaten on the premises. In Manila more and more proof is accumulating that practically all cases are contact infections, largely spread by carriers. The health officials are conducting a campaign for personal cleanliness and for the use of spoons and forks instead of the fingers in eating, which latter are habitually employed by the lower classes. As these people use no toilet paper, but may wash the anus after defecating with a few spoonfuls of water held in the hands, and do not wash such hands before eating rice from a common dish with them, it is not difficult to understand how cholera infection is spread from one to another among families and friends. The Chinese, who eat with chopsticks, have noticeably escaped the cholera infection, though their practice of eating only cooked food, and drinking boiled water in tea, probably assists in their relative immunity. The old Biblical injunction to wash the hands before eating and after defecation, and in default of water to go through the process with clean sand, is certainly a valuable sanitary requirement. This practice still obtains among the Mohammedans, and the Moors of the Philippines carry it out, but in such a defective way and with such an obvious idea that it is merely a ritualistic form that the procedure is practically robbed of its sanitary effectiveness. In the provinces, what cholera there is seems practically attributable to the use of contaminated surface water. Where artesian wells exist cholera cases are either nonexistent or but few in number. A large number of shallow wells are being disinfected, which the late

rise in cost of potassium permanganate, amounting to nearly a thousand per cent., makes a rather costly matter.

Health officials report the new automobile disinfecting car to be a great success. One disinfecting gang with this car is doing with ease all the work that two gangs with carretellas were required for. The doctor, ambulance, and disinfecting gang often reach a house within five minutes after their services have been telephoned for.

A meeting of the Manila Medical Society was held in the College of Medicine and Surgery on October 5. A paper was read by Dr. Ferdinand Schmitter, army medical corps, on "Malassezia Furfur as the Cause of Tinea Versicolor." Dr. Schmitter has been doing a large amount of investigation into the part played by yeasts in the development of disease in the tropics. Dr. Saleeby presented a case which was apparently a combination of beriberi and scurvy in the same person.

The newly organized Social Welfare Board has called for a "clean up week" for the entire Philippines, to be held the first calendar week in December. The Bureau of Health, the Bureau of Schools, the Constabulary, and other branches of the government are combining to advertise the project, outline local plans for improvement and direct local efforts to best advantage. It affords an excellent opportunity to draw public interest to sanitary matters, and the health department proposes to take every advantage thereof.

Dr. Eleanora J. Pond, one of the attending women physicians at the Mary Johnston Hospital, has just been made secretary of the Board of Medical Examiners, relieving Dr. C. E. Norris of the Bureau of Health, who has applied for leave of absence to return to the United States.

Progress of Medical Science.

Boston Medical and Surgical Journal.

November 5, 1914

1. Preliminary Notes on the Anaphylactic Skin Reactions Excited in Hay-Fever Subjects by the Pollen of Various Species of Plants. J. L. Goodale.
2. Forlanini's Artificial Pneumothorax. A Study. G. M. Balboni.
3. Asthma in Children. Its Relation to "Egg Poisoning" (Anaphylaxis). F. B. Talbot.
4. Out-Patient Work in the Massachusetts State Hospitals for the Insane. A. W. Stearns.
5. Transfusion in the Treatment of Hemorrhagia Neonatorum. R. M. Green.
6. A Comparative Study of Three Methods for the Diagnosis of Tuberculosis by Sputum Examination. R. Ernstbek.

1. **Anaphylactic Skin Reactions in Hay-Fever Subjects.**—J. L. Goodale describes the reactions occasioned in hay-fever patients by the application of various pollen extracts to an abrasion of the skin. The use of the skin test in hay-fever subjects to determine the special toxic pollens has the advantage over a test carried out on the eye or nose of permitting a number of determinations to be carried on simultaneously as well as being much more acceptable to the patients. The plants which were selected for determination were in addition to the well-known excitants of hay-fever various grasses and ragweed, also a number of the more common plants flowering in spring and summer, chiefly the anemophilous ones in which fertilization is accomplished by airborne pollen. The extracts were prepared by soaking the pure pollen for 24 hours in a 15 per cent. dilution of alcohol and filtering. The test is applied by placing a drop of pollen extract upon the previously sterilized skin of the arm and making with a pointed knife or paracentesis needle a superficial scratch about one-eighth of an inch in length, sufficiently deep to cause blood to appear. The solution of pollen is then gently rubbed into the scratch with the knife blade. If the reaction is positive it occurs in the course of five to ten minutes, first as an elevation of the skin bordering the scratch, proceeding more or less rapidly in all directions for a distance ranging from one-eighth to one inch. In pronounced reactions the elevated area is surrounded by a hyperemic border and more or less itching is noted. The duration of the swelling is from one to three hours, the whole finally disappearing completely. In moderate reactions the margin of the skin is even and regular; in more intense reactions there occur alterations more or less sinuous with irregular prolongations. The color of the elevated surface ranges from a slight to an intense pallor most marked at the site of the scratch.

3. **Asthma in Children and "Egg Poisoning."**—F. B. Talbot believes that asthma is a manifestation of anaphylaxis and conceives that the urticaria seen on the skin may also involve the mucous membrane of the bronchi and thus give rise to the symptoms of asthma. In some children asthma is due to egg poisoning. Inoculating a scarified area of the skin with egg albumin will indicate whether the latter is the specific cause of the asthma or not. Many if not all patients suffering from egg asthma may be immunized to egg albumin by feeding the patients with gradually increasing doses of egg albumin in capsules. When the egg idiosyncrasy is cured the ashma stops unless an idiosyncrasy to some other protein complicates the situation. Horse asthma is an anaphylactic phenomenon due to the protein of horse serum and may be recognized by scarifying the skin and applying horse serum. A reaction similar to that produced by egg albumin results. It is as yet impossible to state whether or not other proteins have an etiological relation to asthma.

5. **Transfusion in Hemorrhagia Neonatorum.**—R. M. Green points out that transfusion is a procedure of definitely established specific curative value in the treatment of hemorrhagic disease of the newborn. By its use the mortality of this disease has been reduced from 50 to 10 per cent. A probable further reduction of mortality may be expected in the future from the more prompt and universal application of this method of treatment. Improvements and simplifications in the technique of transfusion have now made its performance possible by surgeons of average training, experience, and skill. Of the methods thus far devised that of Kimpton is regarded by the author as superior in certainty, speed, and ease of accomplishment. Even with transfusion the prognosis in the rare cases of hematuria neonatorum is apparently much worse than in any other form of bleeding in the newborn. The greatest present need of further investigation in hemorrhagic disease of the newborn is into the knowledge of its probably syphilitic etiology.

New York Medical Journal.

November 7, 1914.

1. General Anesthesia, with Special Reference to Surgery of the Genitourinary Tract. J. T. Gwathmey.
2. Local Anesthesia in Relation to the Surgery of the Genitourinary Tract. J. F. Mitchell.
3. Is the Modern Antituberculosis Crusade Really a Failure? S. A. Knopf.
4. Operative Treatment of Cancer from the Standpoint of Internal Medicine. A. L. Benedict.
5. Implantation of the Generative Glands and Its Therapeutic Possibilities. G. F. Lydston.
6. Pilocarpine in High Blood Pressure. W. D. Robinson.
7. The Relief of Gas Pains After Appendicectomy. T. A. Kenefick.
8. Some Essential Points in Infant Feeding. E. S. Rimer.
9. Hodgkin's Disease. A. K. Yoosuf.

1. **General Anesthesia in Surgery of the Genitourinary Tract.**—J. T. Gwathmey states that most patients to be anesthetized either locally or generally should have the benefit of physiological doses of morphine

before anesthesia, and also of an alkali and carbohydrate treatment both before and after operation. In very weak and feeble patients and for those in the extremes of life, or where exhaustion with acidosis is present; also in instances in which the patient is in a state of coma or has acute or subacute nephritis or any respiratory affection, the morphine should be omitted and bromides or paraldehyde and olive oil per rectum should be substituted. The essence of orange-chloroform-ether sequence, or the nitrous oxide-oxygen-ether sequence should be used instead of ether by the drop method or the "gas ether" sequence. Chloroform throughout is the anesthetic of choice for chronic alcoholics in fair condition. Oil-ether colonic anesthesia is indicated for the very obese. For office work and short operations it is both safe and satisfactory to use only nitrous oxide and oxygen without any preliminary medication or the addition of ether. For major operations in genitourinary surgery patients can be narcotized with nitrous oxide and oxygen alone if proper preliminary medication is given, and this combination should be more frequently employed.

5. **Implantation of the Generative Glands and Its Therapeutic Possibilities.**—G. F. Lydston finds that successful total or partial implantation of human sex glands in both male and female is practicable. Glands taken from the living subject are most desirable, though rarely obtainable. Glands taken from the healthy dead body at any time prior to the beginning of decomposition are of therapeutic value equal to that of those taken in vivo if implantation succeeds. In human beings the gland of one sex is transplantable upon the other and it is possible that the hormone of the one is useful to the other. The author's experiments apparently show that the tissues of the female are more hospitable to the implanted male sex glands than are the tissues of the male. The benefiits of implantation probably accrue irrespective of the site of the implantation, but the vicinity of the peritoneum (extraabdominal) in the female and of the tunica vaginalis in the male are the sites of election. The development of senility possibly can be retarded and longevity increased by internal sex secretion derived from implantation. The climacteric may be postponed by it or the disagreeable features of the climacteric relieved. Defective and aberrant psychical or physical sex development and differentiation—inversions and perversions—are definite indications for sex gland implantation. Certain cases of cryptorchidism and imperfect testicular development are an especially promising field for it. Chronic diseases of the skin due to or modified by nutritional disturbances—notably, certain types of chronic eczema, psoriasis, and ichthyosis—in a certain proportion of cases apparently are likely to be benefited and possibly cured by sex gland implantation. That arteriosclerosis will in its early stages be benefited by sex gland implantation is probable. Inferentially if taken early senile dementia possibly may show beneficial results. All conditions incidental to sex gland mutilations in either sex afford a positive indication for sex gland implantation, the probability of benefit being inversely as the length of time that has elapsed since the mutilation and dependent on the age at which it occurred. The most important point of all is that in properly selected cases successful implantation ought inevitably to increase physiological efficiency with all the benefits accruing therefrom. With increased physiological efficiency come individual and social efficiency.

6. **Pilocarpine in High Blood Pressure.**—W. D. Robinson states that for the past few years he has used pilocarpine with good results in practically all cases of hypertension of blood vessels without marked cardiac hypertrophy and with gratifying results in nearly all instances. Its use gave evidence of modifying the cause of hypertension. The dose was a fraction of that usually taught as the normal dose. The records of heart action and blood pressure change were always closely watched, as was also the effect on sensible sweat. The starting dose for adults in fair condition was one-thirtieth of a grain in a glassful of water after meals. This occasionally had to be still further reduced and seldom increased in order to secure a gradual decrease in blood pressure amounting to about thirty to forty mm. Hg after four to six weeks of administration. The therapeutic dangers usually accredited to this drug have not been met with in the modified dose in which it has been used, a dose that is not mentioned in works on therapeutics and materia medica. The general feeling that the drug is a dangerous one is attributed to the practice of administering the maximum dose of one-tenth to one-fourth grain.

7. **Relief of Gas Pains After Appendicectomy.**—T. A. Kenefick points out that the history of most cases of appendicitis includes the symptoms of intestinal fermentation with the usual depression and discomfort. These are the result of fermentative action due to food and the presence of various forms of bacteria and their ultimate gaseous products. The combination of twenty grains of acetyl-salicylic acid with one grain of calomel and five grains of sodium bicarbonate mixed and given in two or four ounces of water the afternoon preceding operation, followed by the usual enema the next morning, has produced good results in relieving the gas pains. The drug is harmless and can be given alone if calomel is objectionable, but the cathartic effect is desirable. The dose of each varies according to the age of the patient. If by percussion the abdomen later shows evidence of a beginning distention ten grains can be given the next day as the result of which relaxation soon occurs and the threatened tension and distress are aborted and held in abeyance until the tract can be safely unloaded.

Journal of the American Medical Association.

November 7, 1914.

1. The Education of Health Officers. M. P. Ravenel.
2. Test of Ventilating Plants. F. Bass.
3. The Importance of Studying the Actual Condition of Hospital Air. C. E. A. Winslow.
4. Hospital Ventilation from the Point of View of the Clinician. J. A. Miller.
5. Laboratory Experiments with Air. F. S. Lee.
6. Hospital Ventilation from the Ventilating Engineer's Point of View. A. K. Ohmes.
7. A Comparison of the Hospital of Old with the Modern Structure. T. J. Van der Bent.
8. Chronic Focal Infection of the Nose, Throat, Mouth, and Ear. J. C. Beck.
9. The Faucial Tonsils as a Gateway to General Infections. N. L. Wilson.
10. The Present Teaching of Psychiatry in American Medical Schools. R. Moore.
11. The Ideal Course in Psychiatry for Medical Schools. H. D. Singer.
12. Operative Intervention in Cyst of the Left Cerebral Hemisphere with a Consideration of the Preoperative and Subsequent Symptoms. C. M. Remsen.
13. A Clinical Contribution to the Diagnosis of Epilepsy. L. P. Clark.
14. A Culture of *B. tuberculosis* from the Blood Post-Mortem of a Case of Military Tuberculosis. H. K. Faber.
15. Rabies. Its Diagnosis in Animals and Prevention in Man. R. M. LeComte.
16. The Bacteriology of the Urine in Two Cases of Parenchymatous Nephritis. G. F. Dick and G. R. Dick.
17. Tumors of the Crus Cerebri. J. H. W. Rhein.
18. Idiosyncrasy to Orthoform. T. C. McCleave.

8. **Focal Infection of Nose, Throat, Mouth, and Ear.**—J. C. Beck states that the streptococcus, staphylococcus, and pneumococcus are the most frequent causes of chronic focal infection, but that their toxins are practically the same, being proteins. The patients may show no symptoms excepting that they may complain of not feeling well and may be unable to do good work. In all such cases the focus of infection should be sought

for and the mouth, nose, throat, and ear should be carefully examined, as there may be chronic infection from a focus that hardly reveals itself. Aside from the eradication of the focus the treatment should aim at increasing the general resistance of the patient. The tonsils and adenoids are most frequently involved as foci of local infection and conditions apparently far removed from them may be relieved by the treatment of the foci and the increase of the general resistance of the patient. Not alone is the nose or ear in a suppurative condition often cured by the removal of tonsils or adenoids, but a suppuration quite distant from the tonsils, as in the bladder or uterus, is sometimes markedly relieved or cured.

12. **Cyst of Left Cerebral Hemisphere.**—C. M. Remsen reports a case of this condition in a man aged fifty-nine. The history suggested a hemorrhagic destruction of brain tissue with aphasic symptoms, followed later by an increase in the symptoms which indicated a progressive, growing lesion. Motor and sensory disturbances rapidly became evident. The drainage of the cyst by a subdural route was made necessary in view of the desire to avoid external drainage, by the jelly-like consistency of the brain tissue which absolutely precluded the possibility of manipulative procedures in this region. There was an accumulation of fluid under the dura at about the sixth week, as demonstrated through the trephine-holes and the associated psychic and sensory motor disturbances. There was an absorption of the subdural fluid with a consequent improvement in the symptoms. There was a complete disappearance of the Jacksonian epileptic attacks and of the dragging of the foot, a striking improvement in the motility of the right hand, a betterment, often striking in character, of the sensory, sterognostic, apraxic, ataxic and position-sense disturbances.

13. **Diagnosis of Epilepsy.**—L. P. Clark has called attention to the expressionless quality of the epileptic voice. It usually renders the frank epileptic incapable of singing beautifully or speaking well. When the voice defect is once pointed out it is obvious to any one. Instead of the continual rise and fall in melody the vowels and phrases run along in even tones. The speech of the epileptic may thus be designated as "plateau speech," that is, the melody proceeds by even steps. Several years ago the author reported a new and rather rare form of rapidly recurring petit mal epilepsy and gave the details of the bizatte attacks in persons affected by it. The attacks in this peculiar form of epilepsy are in most instances a simple awakening from sleep and occur a hundred or more times in a single night. The point of special interest is that the peculiar attacks are immediately increased by the ordinary doses of bromide (from 60 to 120 grains daily); but as the dose is increased from 120 to 180 or even 230 grains daily, all attacks cease. Bushy and the author analyzed thoroughly the gastrointestinal tract of a small but selected group of epileptics and found an abnormal position of the various parts of the gastrointestinal tract present in every case examined. A point of considerable practical moment following *x*-ray examinations has been the more or less definite indication as to just to what parts of the abdomen one should apply kneading and massage movements over the large intestine. This therapeutic procedure is of the greatest value, particularly when there has been a tendency to stasis in the ascending colon. *X*-ray examination in epileptics has shown rather remarkable changes in the posterior clinoid processes which often hook over so as nearly to close the sella cavity.

14. **Tubercle Bacilli Cultivated from the Blood.**—H. K. Faber reports the production of a successful culture of tubercle bacilli from the blood post-mortem of a tuberculous child. The blood was taken directly from the heart cavity and the culture which was not originally attempted for a demonstration of tubercle bacilli was made on an agar slant and its success was unexpected. Inoculation experiments were made on guinea-pigs and verified the culture. The conditions were such that aerobiosis was complete.

16. **Parenchymatous Nephritis from Mouth Infection.**—G. F. and G. R. Dick describe two cases of typical non-suppurative nephritis with positive bacteriological findings. In the first case which was apparently acute nephritis the portal of entry for the organisms was probably a pyorrhea, the bacterial flora of the urine corresponding closely with that of the pus from the gums. In the second and more chronic case the atrium of infection was not so clear though the organisms found in the urine are commonly associated with diseased tonsils. Proof is wanting that the organisms found in the urine caused the associated nephritis. The author, however, found that in forty-two normal women the urine was sterile in thirty-eight cases and that only a few organisms such as *B. coli* were present in the remaining four cases. The continued excretion by the kidney of organisms in quantities such as were found in these cases suggests that such organisms are the probable cause in at least some cases of perenchymatous nephritis.

17. **Tumor of the Crus Cerebri.**—J. H. W. Rhein reports a case of a tuberculous tumor in the left crus cerebri invading the upper part of the pons, affecting the nuclei of the third nerve, and extending upward into the basal ganglia. The paralysis of associated movements upward, downward, and laterally, indicated a lesion of the pons in the neighborhood of the oculomotor nuclei and a lesion of the posterior longitudinal bundle. The characteristic symptom-complex of tumor of the crus is said to consist of a hemiplegia on the side opposite to the lesion with oculomotor palsy on the same side as the lesion, but in fourteen of the eighteen cases collected from literature, including the author's case, the oculomotor palsy was on both sides in nine instances and one one side in five instances. In rare instances the hemiplegia and oculomotor palsy may be both on the same side. The hemiplegia is gradual in onset and is usually more or less spastic. In some cases tremor or choreiform movements appear due to the pressure on the pyramidal tracts. Hemiataxia has been observed and both arms were ataxic in the case reported by the author. In rare instances palsy of the opposite limbs is observed, when, according to Oppenheim, dysphagia and dysarthria may occur. Contralateral hemianasthesia occurs in some cases and the reduction of the body temperature on the paralyzed side has also been noted in a few instances. Paresthesia and hemihyperesthesia have occurred. The reduction of body temperature may possibly be referred to vasomotor disturbances from implication of the substantia magna. Inordinate laughter was a symptom in two instances. Tuberculous tumors predominated, constituting twelve out of the eighteen. In three cases the tumor was a glioma and in one case a hard-celled sarcoma.

The Lancet.

October 31, 1914.

1. Advances in Knowledge Regarding the Circulation and Attributes of the Blood Since Harvey's Time. R. D. Powell.
2. Traumatic Tetanus. M. H. Gordon.
3. Further Results in the Electrolysis Treatment of Cystitis. C. Russ.
4. Smallpox, Vaccination, and the New Vaccination Law in Siam. H. C. Highet.
5. Periosteal Whitlow. H. R. Davies

2. Traumatic Tetanus.—M. H. Gordon points out that Sawamura whose work is quite recent (1909) recognises three kinds of tetanus: tetanus ascendens, tetanus descendens, and mixed tetanus. In tetanus ascendens the local muscles are affected first; next the tetanus spreads up the limb, then to the opposite limb, and finally up the trunk. This is the form commonest in experimental animals after subcutaneous or intramuscular injection. It is possible, however, that this type is not as rare in man as may be supposed. Tetanus descendens appears to be the commonest form in man and the horse. The muscles of the jaw and neck are first affected and then the disease spreads down the body. It is of graver significance than tetanus ascendens. In mixed tetanus both the above forms occur. The patient's chance of life depends upon (1) the incubation period, (2) the rapidity of onset and severity of spasms, and (3) the duration of the disease. Of these points (1) is the most important and (2) comes next. In the words of Kanthack, "fatality is in direct proportion to rapidity of onset, and inversely proportional to the duration of the disease." As long ago as 1891 Vaillard and Vincent showed that when freed of adhering toxin either by washing or by heat neither *B. tetani* nor its spores produced tetanus in animals by simple inoculation. They found, however, that the toxin-free bacillus or spore could produce the disease if they bruised the tissues locally by pinching them with a forceps, or if they simultaneously injected either lactic acid or another microorganism such as *B. prodigiosus* or even its filtrate. These experiments are generally held to show the importance of bruising and also of a mixed infection in the genesis of tetanus. There is reason for doubting, however, if it is even now clearly realized how very important the associated bacteria may be. The author attributes an important rôle to the associated bacteria particularly in fatal cases. It seems probable that the explanation of the difference in prognosis according to the length of the incubation period is directly due to the association of *B. tetani* with other virulent bacteria of which the most important is the anaerobic bacillus of Welch. While tetanus antitoxin has been a brilliant success when applied prophylactically, and its efficiency in this sense is beyond question, there is no doubt that up to the present its employment after the onset of tetanus has proved disappointing. The conclusion which Roux and Borrel came to as the result of their experiments was that "a few drops of tetanus antitoxin in the brain cure tetanus better than large quantities introduced into the blood under the skin. It is not sufficient to give the antitoxin; it must be introduced in the right manner. There is a point in the disease, however, beyond which antitoxin is of no avail in whatever fashion it is employed. The intracranial injection lengthens the period of efficacious treatment." The question as to how to deal with the anaerobic bacillus of Welch when it is also present has not yet been satisfactorily solved. At the present time the best thing to do seems to be to give the wound as much drainage, free air, and premanganate as possible.

British Medical Journal.

October 31, 1914.

1. The Treatment of Arthritic Deformities. R. Jones.
2. Mechanical Considerations of the Human Foot, with Special Reference to Flatfoot. H. S. Rowell.
3. The Soldiers' Feet and Footgear. C. Webb-Johnson.
4. Insects and War:—Mites: The Harvest Mite. A. E. Shipley.
5. A Simple and Rapid Method of Localizing Bullets. P. Hernaman-Johnson.
6. The Medical Care of Lines of Communication at Home. C. B. Heald.
7. Pinewood Sawdust as a Surgical Dressing. R. Parker and F. D. Bennett.

1. Treatment of Arthritic Deformities.—R. Jones states that in the case of ankylosis the joint should be allowed to become fixed in the position of greatest usefulness as regards function. In children most deformities can be corrected by manipulation, and osteotomies and exsection of bone are very rarely required. The reduction of the deformity in a septic or tuberculous joint during the existence of the disease can be safely undertaken if the reduction be immediately followed by fixation. In sound fibrous ankylosis of the hip an osteotomy should be preferred for the correction of adduction, as some recurrence of deformity would follow reduction by manipulation. The site of osteotomy will depend upon the nature of the ankylosis and upon the extent of the deformity. Transtrochanteric osteotomy gives the most accurate mechanical result. It should be practised in all cases of bony fixation where the femoral neck is not absorbed and where there is no marked pathological dislocation. In cases in which destruction of the head and neck have occurred and the femur lies close upon the pelvis a wedge should be removed from the neighborhood of the trochanter. In cases of fibrous ankylosis in the process of becoming sound a subtrochanteric osteotomy is indicated to prevent strain upon fibrous bands. All osteotomies require subcutaneous division of the abductors. Subtrochanteric osteotomy is contraindicated if flexion is extreme. Arthroplasty of the hip joint in any of its many forms may be looked upon as a valuable and successful procedure. The character of the intervening substance—whether bone, free or pedunculated fascial flap, fat, or muscle—is not as important as good technique and sound judgment. The operation should not be performed upon children or in the presence of active disease. It should be reserved for adult life, and has proved more successful after recovery from septic than after recovery from tuberculous disease. In the case of septic disease it should be postponed for one or more years until the periarticular structures have become more normal. The results of arthroplasty of the knee are not too encouraging. In bony ankylosis of the femur and tibia the results are discouraging. In the instances in which the ankylosis is fibrous, with perhaps bony fixation of the patella, the results are often good. In such conditions, however, mobility may often be secured without operation. Finally, in painful and progressive deformities, such as in osteoarthritis of the hip, there are many procedures destined to give relief by preventing the friction of tender joint surfaces.

2. Mechanical Considerations of the Human Foot.—H. S. Rowell notes that raising the heel of the ordinary shoe would have the effect of increasing instead of decreasing the tension on the supporting tissues. Raising the heel cannot in general have a beneficial influence in cases of incipient flatfoot. This conclusion is however only partly justifiable because investigation has been purely statical and cannot take account of the foot in motion. On the other hand, flatfoot occurs mostly in people who do a great deal of standing, so that it might seem rational to suppose that the causes producing the trouble are statical. These results are nowise affected by considerations of muscular tone except in the sense of corroboration. For if the muscles become flaccid the effect is to increase the stress on the large ligamentous fascia at the sole of the foot and in fact to approach more nearly the statical conditions of the roof-truss model. For long distant walking or long country walking high heels would be absurd because of the short strides which must be taken if the balance is to be convenient and sure. There is also the undoubted difficulty of avoiding undue pressure and constraint on the anterior part of the foot, but this is the bootmaker's

problem. For the ordinary inactive life of the drawing-room, office, and shop, high-heeled boots and shoes may be advantageous in giving to the feet a pleasant, braced-up feeling, quite different from that enjoyed or suffered by those who go about in heelless slippers.

Münchener medizinische Wochenschrift.

September 29, 1914.

Shortage of Imported Drugs.—Straub takes pains to acquaint the German practitioner with the exact source of each important drug, so that economy may be exercised in prescribing drugs imported from over sea. Aloes comes from South Africa and may be replaced by anthraquinone derivatives (crude drug, cortex frangulæ), by phenolphthalein, etc. Balsam of Peru comes from South America and may be replaced in some degree by synthetics or natural substances, which consist chiefly of cinnamic acid esters, from which artificial balsams may be made. Their value as substitutes for Balsam of Peru is as yet questionable. Medicinal camphor is protected by the enormous employment of the artificial substance. Peruvian bark and coca leaves can be obtained at present from Amsterdam, the regular distributing point, and most of the synthetic quinine comes from Germany. Should cocaine give out the so-called derivatives can be made by synthesis. Caffeine is made chiefly from uric acid. Hydrastin can also be made by synthesis. In the case of morphine a real famine danger is possible. The neutral countries have prohibited its export. This is about the time of year for the annual import. Morphine cannot be replaced, and must be used economically in every way. Never give it if something else can do the work. Use the smallest dose to get results. What is true of morphine is true of codeine. Castor oil may be obtained at present from the Italian import, and a poor quality from the varnish industry. Strophanthin may perhaps be replaceable by cymarin. Ergot may perhaps come to a shortage and cannot readily be replaced.

General Prophylaxis of Epidemics.—Rosenthal lays down a series of measures designed to avert the spread of pestilences. Use no unboiled drinks save wine, beer and natural mineral waters; avoid raw fruits; avoid physical overexertion; if unboiled water must be drunk, acidulate it with phosphoric or citric acid; wash the hands thoroughly before each meal; isolate every soldier with profuse diarrhea; inspect the manufacture of all mineral waters to make sure that raw water is not used therein; restrict the sale of spirits: in an infected or suspected district forbid the traffic in lemonade and other drinks, ices, etc., which contain unboiled water.

Deutsche medizinische Wochenschrift.

October 1, 1914.

Feeding the People in War Time.—Professor Rubner outlines the sources of England's food supply. She receives dairy products from Holland and the Scandinavian countries and also from Switzerland via France. From Canada she also receives cheese, while meat and cereals are mostly imported. England engages in manufacture and commerce rather than agriculture because gains are more rapid. With Germany it is otherwise. She has 11,000,000 cows and the daily per capita production appears to be sufficient for the needs of the consumer. Germany is naturally a great meat-eating country, consuming about 115 pounds annually per capita, about half of which is pork. War interferes somewhat with the supply of poultry, eggs, and fish, but not directly with the meat supply proper. Shortage in other directions should be readily made up from the markets of the neutral countries, which happen to include the very ones which have supplied England with poultry, eggs, and dairy products. In regard to cereals enough wheat and rye alone are raised in Germany to support the country. The potato crop this year has been very satisfactory. The percentages used as food cannot be increased by cutting down the manufacture of spirits, for alcohol may become in great demand to replace gasoline as fuel. Germany need not worry about the shortage of fruits and vegetables. The problem of animal fodder is not so simple, for this has ranked in part among the imports, but at present the country has three and a half million tons on hand, and as fodder material is much the same as the distillers' raw material, some diversion of supply from man to animal is possible. In regard to brewing, animals get the refuse while man gets the nutriment in the beer. If pigs, for example, are fed directly with barley, but a small production of the food value of the latter is realized in the gain of weight by the animal, for the latter uses up most of it as mere fuel. The people will have plenty of opportunity for economizing by cutting down the meat consumption, by eating the coarser forms of bread, by restrictions on the use of butter and sugar, by using the cheaper milk products (buttermilk, curds), by eating more legumes, etc., etc. This self-denial naturally has the effect of lowering the market prices.

Introduction into Military Surgery. — Czerny cites some of the surgical consequences of the war up to the close of the first six weeks. Many wounded were sent to Heidelberg, presumably those most capable of transportation. But 27 deaths have occurred and of this number 8 were due to tetanus. The total number of tetanus victims was 17. The nine survivors are out of danger. This is a remarkable mortality percentage—less than 50 per cent—and perhaps cannot be justly attributed to the treatment which as a rule consisted of antitoxin and the usual sedatives and narcotics. One patient did not die directly of tetanus, but of a double pneumonia after cessation of convulsions. As in the majority of cases tetanus followed shell wounds, an investigation was made of the latter but thus far the tetanus bacillus has not been found. There has not been on hand enough antitoxin for prophylactic use but it will doubtless become the custom in time to treat suspicious wounds with this drug in powder form. Wounded men should not be transported in cars which have been used for horse transport. In addition to tetanus, infection of wounds occurs and gives a mortality. Thus far ordinary and gas phlegmons, blue pus, sepsis, and pyemia have furnished their quota of sickness, but erysipelas and hospital gangrene have not yet appeared.

Military Surgeons' Evenings at Berlin.—At one of these gatherings Jochmann discussed the subject of tetanus in the German Army. The disease is the result of the injurious action of the tetanus toxin on the motor ganglion cells of the brain and cord. These centers are reached through migration of the toxin along the axis cylinders. Naturally the shorter the nerve trunk the more rapidly are the motor ganglion cells reached. Thus, the toxins enter the blood and thence the axis cylinders. The ganglia of the motor nerves of the muscles of the face, jaw, neck, esophagus, etc., are most rapidly reached and give rise to the primary symptoms — lockjaw, opisthotonos, etc. The author illustrated the clinical phases of the disease by epidiascopic pictures. The toxin must be antagonized, first in the blood, then in the nerves, and finally in the ganglia. To attain this end we inject antitoxin intramuscularly and also into the spinal canal. Magnesium sulphate should also be used in routine by the subcutaneous route.

Insurance Medicine.

SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

THE DETENTION AND SIGNIFICANCE OF SYPHILIS.

ALL doubt must be removed, as far as possible, as to whether each applicant has or has not been afflicted with syphilis, and that he is free from all traces if he happens to have been the victim of a previous luetic infection. This task is often difficult as the examiners are obliged to depend upon the history, negative or positive, given by the applicant. Certain indications of former lesions or some obscure signs of a latent form of the disease are present at times, however, and may be discovered by a close and careful examination. The secondary stages leave no outward signs such as scars, though successive attacks of iritis may follow the secondary as well as the tertiary stage, and should lead to a close questioning of the applicant with this point in mind. The tertiary lesions are distinguished, among other manifestations, by their tendency to ulcerations which are followed always by scars. These ulcerations occur most frequently on the legs and at points where the bone is directly covered by skin and are not uncommon on the hand and soft palate. Destruction of the nasal bones resulting in a sunken bridge should lead to a presumption of syphilis, unless there is given a history of traumatism.

The diseases due to syphilis which most commonly cause death are affections of the heart and vascular system, aneurysm, general paralysis, locomotor ataxia, diseases of the central nervous system, chronic nephritis. Fournier furnishes statistics based on the observation of 2395 cases, in which the date of invasion of tertiarism could be determined exactly. There were 106 cases in the first year, 227 in the second year, 256 in the third, 229 in the fourth, 205 in the fifth, 201 in the sixth. The total in the first six years was 1224. From the sixth to the tenth year there were 499, from the tenth to the twentieth, 543. Above the twentieth, 129. These estimates show that if tertiary symptoms follow, they will occur in more than one-half of the cases in six years, and in nearly 75 per cent. in ten years, facts which are somewhat opposed to the popular idea that a very large proportion of the late effects of syphilis manifest themselves a long time after the appearance of the initial lesion.

The vital statistics of the United States Census Bureau, according to Hyde, make it seem probable that the fatality *directly* from syphilis is about 2 per cent. Runeberg, on the other hand, found that 11 per cent. of 734 deaths among insured persons were due to diseases resulting from syphilis, and that if certain apoplexies, probably syphilitic, were included, the mortality was 15 per cent. of the total. We have pointed out in another place that the Medico-Actuarial Investigation Committee found a mortality of 188 per cent. among insured persons who had been thoroughly treated for syphilis, the diagnosis having been certain.

These figures assume added importance from the fact that they represent the mortality among insured persons selected with care from the general population. The high percentage of mortality among those who have had syphilis cannot be attributed directly to the disease itself or to parasyphilis in a large number of cases, as the damage done by syphilis consists largely in the lowering of the general health, making the subject more vulnerable to other diseases. Furthermore, the vitality and resistance to attacks of other diseases and injuries, and the recuperative powers, are badly undermined.

It becomes the duty, then, of every examiner to scan the body closely for scars, tertiary syphilis, destruction of bone and other tissues for remaining indications of the disorder. Furthermore, every applicant should be subjected to the well-known tests for the detection of the mental disorders, cerebral and spinal lesions and changes in the vascular system, which have become so prominent as causes of death among policyholders. The fine tremor of the tongue, which is one of the very first signs of general paralysis of the insane, is usually overlooked. The pupils should be scrutinized as a part of every examination, for the possible existence of the Argyll-Robertson pupil. Ptosis with external strabismus and dilatation of the pupil, is due to paralysis of the third nerve, and is significant of tertiary syphilis. The patellar reflexes should be tried out and the test for Romberg's symptom applied. If the case looks suspicious, Babinski's reflex should be sought for. The applicant should always be asked to walk so that the gait may be observed. High blood pressure in many cases is an indication that the vascular system has become involved. Thickening and hardening of the radial or temporal arteries in applicants under middle age may usually be attributed to syphilis.

Looking forward, the time may come when the practice of directly demonstrating the presence of the *Spirochæta pallida* in all suspicious venereal sores by the means which have been placed at our disposal by the serologists, will become so universal that applicants will be in a position to furnish actual proof of the nature of the lesion when they apply for insurance later on.

Some Helpful Hints Gathered in Court.—The medical director must know that in the jurisprudence of life insurance his work has its effect and he should be informed that much that comes to him from company management and field endeavor is highly important when company and agent are in court. The law is a part of every contract of insurance as much as if written therein at length. (Metropolitan Life vs. Johnson, 94 N. E. 785). Ordinarily the medical director may take his time in passing upon an application, but he may not unreasonably delay action. (Mutual Life vs. Neafas, 140 S. W. 1026.) "Are you in perfect health so far as you know and believe?" Answered in the affirmative covers only the one inquiry and cannot be made to relate to any preceding details regarding health. (Blenke vs. Citizens' Life, 140 S. W. 561.)—Thomas W. Blackburn, secretary and counsel, American Life Convention.

The Question of Contact with Infectious Disease.—A question on which there is little authority was determined in the North Carolina case of Gardner v. North State L. Ins. Co. 48 L.R.A.(N.S.) 714, which holds that denial in an application for life insurance of intimate association with anyone suffering from any transmissible disease within a year avoids the policy if the applicant had within that time nursed members of his family ill with typhoid fever.

Book Reviews.

A Handbook of Fevers. By J. Campbell McClure, M.D. (Glasgow), Physician to Out-Patients, the French Hospital, London, and Physician to the Margaret Street Hospital for Consumption and Diseases of the Chest, London; formerly Senior Resident Assistant Physician, Assistant Superintendent, and Resident Medical Officer in Charge of the Smallpox Hospital, Belvidere Fever Hospital, Glasgow. London: Shaw & Sons, 1914.

This volume is devoted to a description of the various infectious fevers, the practical aspects of the latter, particularly the treatment, being emphasized. The classification is as follows: Fevers of known bacteriology: enteric fever, diphtheria, the plague, cholera, relapsing fever, malaria, epidemic cerebrospinal meningitis, anthrax, glanders, influenza, pulmonary tuberculosis, dysentery, and kala azar. Fevers of uncertain bacteriology: scarlet fever, measles, German measles, smallpox, chicken-pox, typhus, mumps, rheumatic fever, yellow fever, and whooping cough. Acute diseases frequently attributed to a diet consisting largely of certain cereals: beriberi and pellagra. An introductory chapter gives an excellent description of certain details in the management of the patient which are common to all the infectious diseases. In the treatment of typhoid fever the author emphasizes the importance of an adequate amount of carbohydrate in the dietary and alludes to the value of a raw egg mixed with the milk in prolonged cases with much wasting. The author rightly advocates the use of single large doses of six to twenty thousand units of antitoxin in the treatment of diphtheria. One may question, however, his condemnation of intubation as a routine procedure in the treatment of diphtheritic stenosis of the larynx. The author's opinion on this subject may be quoted in full: "Intubation has been urged by many as a substitute for tracheotomy in many cases. It is possible that in skilled hands and in hospital practice it may be attended with small risk, but even under these conditions, where the tube, if dislodged, can be quickly replaced by the physician in charge, intubation has frequently to be followed by tracheotomy. In private practice it is not to be recommended. The operation requires a considerable amount of training and manipulative dexterity, and one cannot expect a nurse to replace a dislodged intubation tube, so that the proximity of the practitioner is necessary to a degree impossible for one engaged in a practice of any size. After tracheotomy, on the other hand, the tube, if dislodged, can be replaced by any nurse who has had an ordinary training in fevers, and the practitioner is able to do his work properly without the danger of impossible calls on his time. The objections to intubation in this way are very practical and the operation has not taken hold in this country for these reasons. However, if a practitioner is able to devote the time necessary to one patient, intubation will be found, in a certain number of cases, to obviate the need of tracheotomy, when otherwise the major operation would have to be performed." The answer to this argument may be stated simply as follows: If the practitioner cannot give to his patient the requisite degree of skill and vigilant observation that intubation requires then he should summon a colleague capable of giving this skill and observation or should place his patient in a hospital where these are available. Of course, tracheotomy may be necessary as an emergency operation which no practitioner should hesitate to perform. On the whole, this volume may be characterized as a clear, practical exposition of the latest knowledge of the infectious fevers. The typographical and other mechanical features leave nothing to be desired.

The Art of Compounding. A Textbook for Students and a Reference Book for Pharmacists at the Prescription Counter. By Wilbur L. Scoville, Ph.G., formerly Professor of Theory and Practice of Pharmacy in the Massachusetts College of Pharmacy; Member of the Eighth Committee of Revision of the United States Pharmacopeia and of the Second and Third Committees of Revision of the National Formulary. Fourth Edition, revised and enlarged, with 76 illustrations. Price $3.00 net. Philadelphia: P. Blakiston's Son & Co., 1914.

Comparatively few physicians have even a superficial knowledge of the art of compounding. Familiarity with the methods employed by the pharmacist will go a great way toward correcting a rather widespread chaos in prescription writing. The present volume is one that should find a suitable place in the doctor's library. It is strictly up-to-date, including such subjects as colloidal chemistry, the preparation and use of ampoules, physicochemical studies of emulsions, the "phase rule" in the liquefaction of mixtures of ketones and phenolic bodies, improvements in ointment bases, pharmaceutical applications of sterilization, and biological products. Of particular interest are the 225 prescriptions which have been culled from State Board Examinations and which have been arranged under the various classifications. The prescriptions illustrating different types of incompatibilities, with notes explaining fully the nature of the incompatibility, should prove of distinct service to the prescriber. This volume contains a large number of illustrations showing chiefly the manufacturing side of pharmacy. There can be no hesitation in recommending this book to the practitioner, although it is designed primarily for the pharmacist and the pharmaceutical student.

Psychopathology of Everyday Life. By Prof. Dr. Sigmund Freud, LL.D. Authorized English edition by A. A. Brill, Ph.B., M.D. Price $3.50 net. New York: The Macmillan Company, 1914.

This is a translation of another of Freud's works by his American pupil. In this work the doctrines of the German psychiatrician are developed and extended to the casual acts and thoughts of everyday life in a manner which is at least highly ingenious. The themes are developed with an appearance of logic, but the argument is often obviously forced and in many instances not at all convincing. This is, however, not the time or the place for a critical discussion of the theories. It is sufficient to say that the book represents Freudism carried to an extreme, but in the most attractive guise possible.

Progressive Medicine. A quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics, Materia Medica and Diagnosis in the Jefferson Medical College, Philadelphia; Assisted by Leighton F. Appleman, M.D., Instructor in Therapeutics, Jefferson Medical College, Philadelphia. September, 1914. Price, $6.00 per annum. Philadelphia and New York: Lea & Febiger.

The September number contains contributions by W. Ewart, on Diseases of the Thorax and its Viscera, including the heart, lungs and bloodvessels; by W. S. Gottheil on Dermatology and syphilis; by E. P. Davis on Obstetrics; and by W. G. Spiller on Diseases of the nervous system. All of these writers are experienced hands, and the readers of this quarterly are familiar with their able presentation of the subjects entrusted to them.

The Cause of the Social Evil, and the Remedy. By Albert W. Elliott, President and General Manager, The Southern Rescue Mission, Atlanta, Ga.: Webb and Vary Co., 1914.

This little pamphlet is the work of one who has devoted several years to rescue work. He writes from what he knows, and has seen for himself; and his treatment of the question differs from almost all other writings on the subject by his wide sympathy and equally broad common sense. We strongly recommend this booklet to all interested in the subject of which it treats; it will prove a useful antidote to the larger and more pretentious works which are frequently the outcome of much zeal, little charity, and less knowledge.

A Manual of Normal Histology and Organography. By Charles Hill, Ph.D., M.D., Professor of Histology and Embryology, Chicago Veterinary College, formerly Assistant Professor of Histology and Embryology, Northwestern University Medical School, Chicago. Third edition thoroughly revised. Price, $2.25 net. Philadelphia and London: W. B. Saunders Company, 1914.

There is very little difference between this edition and the one which preceded it. The new matter consists mainly of a few paragraphs on the stomach in ruminants, and on the hoof of the horse. The volume is one of the best of the smaller works on histology; the main facts of the science are presented concisely and with suitable illustrations. The cloth binding is an improvement on the leather cover of the last edition.

Society Reports.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Fortieth Annual Meeting, Held at Cincinnati, October 27, 28, and 29, 1914.

THE PRESIDENT, DR. D'ORSAY HECHT OF CHICAGO, IN THE CHAIR.

Factors Which Determine the Advisability of Prostatectomy.—Dr. WILLIAM F. BRAASCH of Rochester, Minn., drew the following conclusions: 1. "With stone in the bladder it is usually advisable to remove the stone and drain the bladder for a time prior to prostatectomy. 2. Stone in the bladder may cause temporary enlargement of the prostate. 3. Pyelonephritis is a frequent complication of bladder drainage and a strong resistance should be established before attempting operation. 4. The renal condition is better estimated prior to operation by clinical evidence than by laboratory tests. 5. Cystoscopic examination, while valuable in certain conditions, may be the cause of harm if used as a routine procedure. 6. Urethroscopic examination is occasionally of greater value than cystoscopic examination. It is particularly valuable with intraurethral hypertrophy and with carcinoma."

Hemolysis Following Transfusion of Blood.—Dr. BERTRAM B. BERNHEIM of Baltimore said that having had one fatal case of hemolysis following an emergency transfusion of blood and one non-fatal case following a transfusion for therapeutic purposes, he sent out a question form to various men throughout the country with the view of ascertaining just how frequently hemolysis did occur following transfusion, and what were the consequences. Briefly, he found that in eight hundred reported transfusions there were fifteen instances of macroscopic hemolysis, an incidence of about 2 per cent. In these fifteen cases there were eleven recoveries and four deaths. No hemolytic tests were made in three of the instances where death occurred, although there was plenty of time to do so in two of the cases. The third was Bernheim's own case, which was a postoperative emergency where there was no time. In the fourth death tests were made and it was known that the "donor's cells were slightly agglutinated by the patient's serum," but since agglutination was an entirely different process from hemolysis, and since no other donor was available it was considered fairly safe to use this donor, and a fatality occurred. Tests were made in eleven of the fifteen recoveries, and in nine instances hemolysis was prognosticated. That there were no fatalities in this group was considered almost a miracle, as he felt that his study showed and proved the value of the blood tests. He divided the dangers of transfusion into the immediate and the late or delayed dangers. The first or immediate was acute dilation of the heart consequent upon an inflow of blood of such force and rate that the recipient's heart was overwhelmed. A definite train of signs and symptoms indicated such a condition, which could always be recognized and avoided by the careful operator, especially if he was experienced in this line of work. The late or delayed danger was that of hemolysis, which could be prognosticated in practically every instance by careful tests prior to transfusion. He felt that in the emergencies no thought should be given to hemolysis or anything else. Far better was it to transfuse immediately and save a patient from imminent death, running the slight risk of a late hemolysis, than to temporize with tests which required at least two hours, even under the most propitious circumstances, for their proper performance, during which time the last flicker of life might disappear. Where, however, there was time, and in the majority of instances such was the case, failure to have the tests done was an inexcusable blunder. The majority of bad results were not reported, and he knew of numerous instances of hemolysis which, for one reason or another, he could not include in his study; so that, instead of an incidence of 2 per cent., the true incidence of hemolysis would probably be at present nearer 4 per cent. And practically all of it could be prevented.

Radium in the Treatment of Cancer of the Uterus.—Dr. J. LOUIS RANSOHOFF of Cincinnati said that radium was of undoubted value in cancers of the uterus, at any and every stage of the disease. The control of hemorrhage, discharge, and pain was undoubted. The radium had a beneficial local action resulting in the local disappearance of the disease, in every instance. The question as to whether radium had a permanent curative effect on cancers of the uterus must be left to the future to decide, as a large number of permanent cures was necessary before the claims of radium could be substantiated. The same might be said of the use of radium in operable cases. At present, if possible, radium should be used in all cases of inoperable cancers of the uterus when the patient was not in the extreme stage of emaciation and cachexia. If the promises of radium in the treatment of cancers of the uterus were substantiated by permanent cures, radium might, in the future, entirely supplant operation, unless improved technique decreased the large operative mortality and promised a higher per cent. of radical cures.

Renal Infections from a Bacteriological Point of View.—Dr. IRVIN S. KOLL of Chicago said that to consider properly the bacteriology of renal infections, one must take into consideration the various factors that acted as contributory to the passage of the pathogenic bacteria into the kidney. The relative importance of the now accepted three routes, lymphogenous, hematogenous and urogenous, offered considerable interest. Our present definite knowledge of the lymph channels draining from the intestinal tract into the kidney readily accounted for the frequency of infections of the kidney associated with acute and chronic gastrointestinal disturbances. Infections through the ureter might be either extra or intraureteral. Of particular importance was the pyelitis associated with pregnancy, the frequency of which was estimated as high as twenty per cent. by some obstetricians. Of late the hematogenous route seemed to have been neglected in the consideration of the carriage of bacteria to the kidney. Its importance, however, should not be underestimated, as there could be no doubt that the circulatory system as a carrier of bacteria was of as great importance as the lymph stream. Three factors should be recognized in arriving at a diagnosis which would give a basis for a rational treatment: What was the contributing cause? What was the invading organism? What was the pathology—pyelitis, pyelonephritis, or pyonephrosis?

Experimental Studies in the Production of Chronic Gastric Ulcer.—Dr. WALTER W. HAMBURGER of Chicago said that he believed he had reproduced experimentally in dogs chronic ulcer of the stomach in a way strikingly similar to the clinical syndrome in man. While it was dangerous to draw parallels from artificial conditions in animals to clinical disease, in this instance certain conclusions seemed justifiable. If one was permitted to picture a human ulcer from the standpoint of these experiments, it might appear that slight abrasions of the mucosa, hemorrhagic erosions or even small acute ulcers occurred frequently in the human; that these acute lesions might result from food traumatization, emboli, or bacteria; that under usual conditions these acute lesions healed promptly with little or no evidence of their having occurred; that under unusual conditions, however, for instance the presence of hypersecretion and hyperacidity from the underlying neurotic cause—vagotonia; the presence of motor insufficiency from recurring pyloric spasm from swallowed toxic material and reflex pyloric spasm from disease of the appendix, gall-bladder, or elsewhere; the presence of delayed motility from low-lying atonic stomach, enlarged liver or kidney; distended gall-bladder, pancreas or colon—that under these unusual conditions these acute ulcers were prevented from healing and became chronic. As a matter of clinical experience such conditions were frequent attendants of chronic ulcer and were important causative and propagating factors. From this viewpoint they were of the utmost significance and prophylaxis.

Gastric and Duodenal Ulcer: Etiology, Diagnosis, and Treatment.—Dr. C. W. DOWDEN of West Baden, Ind., reported a statistical study of four hundred and twenty-five cases of gastrointestinal disturbances, in which a diagnosis of gastric or duodenal ulcer seemed warranted from a thorough examination, including the various laboratory methods and the employment of the Roentgen rays. Of this number, one hundred and seventy, or 40 per cent., bore a definite relation to some infection, and he concluded that this was the chief etiological factor. The anamnesis and the Roentgenological findings were the most important diagnostic methods, but the various laboratory procedures were valuable aids, particularly for outlining appropriate treatment. He believed that ulcers passed through a stage which was distinctly medical, and if diagnosed at

this time were amenable to treatment. Surgical ulcers were those that had involved more than one coat of the gastric mucosa and could always be demonstrated on the radiograms. Medical treatment at this time was worse than useless because the patient mistook temporary relief for cure, and finally suffered one of the several sequelæ, the most frequent and serious of which was carcinoma. In proof of the theory that pain was not a result of irritation by hydrochloric acid, he cited several cases and showed Roentgenograms, in which all symptoms of ulcer were present, but the gastric analyses showed a total absence of hydrochloric acid. That pain was a result of hyperperistalsis and tugging on the peritoneum he thought was a more logical conclusion. He believed a new era was dawning and that further study would show us that an active ulcer in its early stage was best treated by absolute rest to the stomach, by keeping it empty, and thus avoiding the possibility of carrying infections per os, controlling painful peristalsis by anti-spasmodics, preferably atropin, and by rectal feeding until the acute stage had passed. All foci of infection, no matter where located, should be removed.

Dr. CHARLES D. AARON of Detroit stated that in the treatment of gastric ulcer he had found that when it was complicated by vagotonia, the treatment of ulcer plus the treatment of the vagotonia would give a better result than if we ignored the vagotonia, and by our present physiological and pharmaco-dynamic tests for vagotonia, which was easily done in ulcer of the stomach, we could then tell whether the neurotic process should receive treatment or not. This was one side of the question. All had had healed cases of ulcer of the pylorus, with contraction at the pylorus, stenosis of the pylorus, dilatation of the stomach, and the visible peristalsis recognizable when the stomach was endeavoring to empty itself, trying to overcome obstruction of the food, working backward and forward on the mucous membrane, endeavoring to get through the part, the patients vomiting, and to relieve themselves temporarily would eat a crust of bread. There was a similar process going on in a patient who was becoming emaciated, weak and run down, and anemic. We submitted the patient to surgery, and what was found? We found no ulcer of the stomach. We found obstruction of the pylorus, a gastroenterostomy was done, and the patient recovered. Why in such cases did we not have chronic ulcer of the stomach?

Dr. CHARLES A. L. REED of Cincinnati stated that one thing that had impressed him in connection with these papers was the little regard that had been paid to one of the most important of the etiological factors, namely, chronic intestinal stasis. There was too little attention given to the conditions within the stomach proper, to the nerve conditions back of the stomach action, and to the various distinctly local causes as they applied directly to the pylorus or to the duodenum, but he thought if one fact had been demonstrated with more conclusiveness than any other in latter day surgery, it was in the majority of cases we found that the difficulty lay in favor of normal physiological drainage of the duodenum and stomach, thus inducing infection which in turn induced ulceration. He had succeeded in demonstrating this to his complete satisfaction in a considerable number of cases, whereas in his earlier practice he followed the then prevailing method of operating by posterior gastroenterostomy. He had latterly tried to establish drainage in the lower segment of the intestinal tract, and with what results? There was a normal physiological drainage of the duodenum; we had normal physiological drainage of the stomach if the pathological process had not already gone too far and certain direful results had become established, and when we succeeded in getting normal evacuation of the lower bowel or in doing away with intestinal stasis, we were getting normal physiological drainage by which the ulcer disappeared.

Dr. W. D. HAINES of Cincinnati said that in the class of cases under discussion we had been operating in the past on end results; we had not been seeking the cause.

Dr. HAMBURGER, in closing the discussion on his part, pointed out that in the ulcers which healed, the acidity values were low, and there was not much evidence of dilatation or hypertrophy of the stomach wall. Where he had the greatest hypertrophy or greatest dilatation he usually got the greatest amount of ulceration.

Dr. DOWDEN in closing said that he was fully in accord with everything Dr. Reed had said as to the important rôle intestinal stasis played in the production of gastric and duodenal ulcer.

Presidential Address: The Public and the Profession; a Criticism.—Dr. D'ORSAY HECHT of Chicago delivered this address. (See page 867.)

Colon Stasis.—Dr. JOSEPH R. EASTMAN of Indianapolis said that it seemed fair to say that treatment directed at the relief of chronic colitis would affect also the attendant ptosis and stasis and likewise the associated plastic peritonitis. Properly performed short-circuiting operations by the improved drainage which they provided or should provide relieved chronic colitis and indirectly affected favorably the other factors of stasis, ptosis, and peritonitis. It was well known that the feces was to a considerable extent made up of epithelial debris of intestinal secretions and of dead and living bacteria, and that these things mixed with food residue under the influence of contractions of the cecum rose in the ascending colon. But this contraction was not constant. The empty cecum was in repose; it did not contract. It was only awakened when the small intestine emptied into it its liquid contents. It was this irritant which provoked the contractions. If contractions were not produced in this way, the feces composed of epithelial debris, mucus, and bacteria had no tendency to be evacuated. The colon became lazy and atonic and obstipation was increased by antiperistalsis. It was for this reason that ileosigmoidostomy might be said to be falsely conceived. By this operation the liquid contents of the small intestine were not permitted to enter the cecum to bring about contraction. It was for this reason that Lane, Leriche, and others had been obliged to reoperate after ileosigmoidostomy and dealt with an enormous fecal accumulation in the cecum and ascending colon. It was clear that typhlosigmoidostomy or typhloproctostomy could not be opened to the above criticisms, for in these operations the fluid contents of the small intestine were permitted to enter the cecum. In a case of simple constipation concerning only the left colon, ileosigmoidostomy might be of some benefit, but it was debatable whether such a condition was not better treated by nonsurgical means. Bergmann first anastomosed the cecum to the sigmoid for volvulus of the ascending colon and the operation in cases of stasis was not indicated unless membranes or adhesions so fettered the colon as to make such an exclusion necessary because of incompetency or obstruction. If the colon was obstructed at the hepatic or splenic angles alone, then colocolostomy, as practised by Payr, which excluded these flexures alone was of obvious use. Sigmoidoproctostomy for the exclusion of redundant sigmoid might be often employed with advantage to supplement the anastomosis of the caput coli to the rectum or the redundant sigmoid might be treated by the Troyanoff-Winiwarter anastomosis between the loops of the sigmoid or eventually the redundant colon might be resected. At any rate, after typhloproctostomy, coils of redundant sigmoid could not with safety be left above the stoma. Montprofit's operation of dividing the terminal ileum and anastomosing both ends end-to-side with the sigmoid represented no improvement over simple typhloproctostomy. Here an attempt was made to drain the excluded cecum in defiance of the ileocecal valve through the short stump of the ileum, whereas this could be accomplished more simply and more completely by a large stoma in the floor of the cecum.

Dr. JOSEPH RANSOHOFF of Cincinnati stated that colon stasis existed without any question, but in a large number of individuals in which it existed, it produced no deleterious results whatever. There was a very small number of cases in which colon stasis was actually followed by conditions that were pathological. It had been said that idiopathic epilepsy might be brought on by colon stasis. It was a tremendously far cry from colon stasis to epilepsy. Idiopathic epilepsy was a condition which began exceedingly early in life in the form of petit mal. We knew that epilepsy was observed in children as early as the second or third year in some form or other. By no stretch of the imagination, by no amount of argumentation, could he believe that there was any possible connection between colon stasis and epilepsy.

Dr. WILLIAM SEAMAN BAINBRIDGE of New York said, that if there was one thing that Mr. Lane emphasized it was this, that nineteen cases out of twenty of intestinal stasis ought never to be operated on, and yet today all over the world men were saying that Lane performed colectomy, iliocolostomy, etc., on this class of patients, but if you analyzed carefully all he had written and what he had said over and over again, you would find that he hesitated about operating on certain cases. There were patients who had gone from New

York to London with their pocketbooks full of money to have their colons short-circuited or removed, but had come back to his positive knowledge to New York, living on Fifth Avenue, with belt on and plenty of Russian oil in their trunks, and some being taken every day.

Dr. Louis J. Hirschman of Detroit stated that he thought it was just as important to mention the non-surgical treatment of intestinal stasis as the surgical before a mixed body of this kind. Postural treatment, special localized exercise, etc., would cure many cases of intestinal stasis. We gave these patients Russian oil for months; it lubricated the stools, hastened their expulsion, and cured many of these cases. When they did not respond to these methods of treatment, as a final resort he fixed the plumbing.

Dr. J. Rawson Pennington of Chicago said that colon stasis was not a disease, but a symptom of a condition. Dr. Eastman had told us that by constricting the anus of a rabbit he was able to produce colon stasis. The treatment for colon stasis was to remove the constriction, and then the stasis disappeared. It did not make much difference what operation one did.

Functional Tests.—Dr. J. T. Geraghty of Baltimore stated that the necessity for functional renal tests arose from our inability to always recognize the presence of renal disease, and, above all, our inability to recognize the extent to which the presence of renal injury interfered with the function of the organ. On account of the great number of functional tests now proposed, it became necessary to know which tests were the most useful for practical purposes. In true nephritis they had found that the phthalein test in combination with a blood urea estimation, furnished practically all of the information which could be derived from these functional studies, except in rare instances. Chloride estimations were useful in a special group. For cases of urinary obstruction, the phthalein test was incomparable and only when the phthalein excretion was very low was it necessary to have a blood urea estimation. The presence of a high blood urea and a very low phthalein should contraindicate operation and called for more protracted preliminary treatment. For estimation of function in association with ureteral catheterization, the phthalein test was the simplest and furnished the most accurate information. A considerable increase in the blood urea only occurred in the presence of rather severe bilateral renal disease. While functional tests were extremely valuable and supplied data frequently unavailable from any other source, it should be remembered that they revealed only the excretory capacity of the kidney. By themselves they did not make the diagnosis or supply the prognosis. They only indicated the functional value of the kidney at the time at which the test was performed, but could not by themselves indicate what the renal function would be tomorrow or next week. This latter information must be derived from the knowledge of the underlying pathological process which was producing the reduced function. Functional tests should always be used in conjunction with careful clinical studies.

Observations Upon the Use of the Abderhalden Reaction with Normal and Pathological Serums.—Drs. Ellison L. Ross and H. Douglas Singer of Kankakee, Ill., said, that in a previous paper they proved that the blood serum of normal animals contained ferments capable of splitting substrates prepared from the organs of animals of the same species. A series of tests demonstrated that this was also true for human serum and substrate. Furthermore, the material split up by the ferment could be entirely washed out by the substrate by repeated washing with acidified water. Investigations were then made with serum from pathological conditions and it was shown that by washing testicular substrate 20 times dementia precox serum gave consistently negative results. A comparison between the proteolytic power for brain substrate of the blood serum from general paralysis and that from normal persons was then made at different stages of washing. It was found that normal serum failed to react when the material was washed 5 times, whereas paretic serum showed a gradually diminishing ferment activity and became entirely negative at, and after the 13th washing. The results might be briefly stated as follows: (1) Paretic serum. With 2 washings 10 serums all gave positive results; with 3 washings 6 were all positive; with 5 washings 8 of 11 were positive; with 10 washings 1 of 3 was positive; with 11, 2 of 8; with 13, 14, and 15 washings none of the 20 were positive. (2) Normal serum. With 2 washings 8 were all positive; with 3 washings 1 of 4 was positive; with 5, 8, 10, 11, 13, 14, and 15 washings a total of 34 serums all gave negative results. It was also demonstrated that, just as with animals, the water used for the washing of substrates contained material which underwent lysis when mixed with blood serum. Hence, in order to determine whether there was any specific difference between the ferments present in general paresis and the normal state, the water used for the 5th and 8th washings was concentrated and used as a substrate. It was found that, in spite of the failure of normal serum to digest brain substrate which had been washed 5 times or more, normal serum caused lysis of the material in this washwater fully as markedly as did that from cases of general paralysis. From these facts the following conclusions seemed justified: (1) No interpretation of the results of Abderhalden tests with tissue substrates was justifiable unless the same (not merely similarly prepared) substrate had been proven to give negative results with a series of normal serums. (2) Tissue substrates could be washed from material capable of digestion by ferments present in normal and pathological serums. (3) There was a difference between the ferment activity of the serum from normal persons and those suffering from general paralysis of the insane as regards lysis of brain substrates. (4) This difference appeared to be quantitative rather than qualitative.

Modern Syphilis Therapy and the Central Nervous System from a Biological Point of View.—Dr. Carl D. Camp of Ann Arbor, Mich., stated, that the treatment of tabes and paresis was probably the most important part of the treatment of syphilis of the nervous system. These diseases, while due to syphilis, had other determining factors. Intravenous injections of salvarsan had an effect in some cases. Intradural injections of salvarsan had greater effect on the spinal fluid findings but were distinctly dangerous. The Swift-Ellis treatment seemed to vary in effectiveness with different observers; the more conservative did not find any greater improvement than with intravenous injections. The rationale of this treatment was not very clear. The use of mercury by injections was probably as effective as any method of treatment we had at the present time and had less possibility of harm. Cases of tabes dorsalis frequently became stationary under mercurial treatment, the spinal fluid findings either showing improvement or else no change.

Certain Physical Signs Referable to the Diaphragm and Their Importance in Diagnosis.—Dr. Richard Dexter of Cleveland, Ohio, said, that the situation of the diaphragm made it possible for the structure to be involved frequently in diseases of the organs either immediately above or below it. This involvement would often be demonstrated by very definite physical signs. Conditions which involved the diaphragm might be divided into two groups: (1) Those in which the symptoms of involvement depended on the irritation of the nerves which supplied the diaphragm. (2) Those cases in which the position of the diaphragm was affected. The result of this was that the diaphragm was put on a greater or less mechanical advantage. Irritations of the pleural or peritoneal coverings of the diaphragm gave rise to symptoms at a distance from the structure. The paths of pain distribution conformed to type of the viscerosensory reflex in the sense of Mackenzie and Head. Further confirmation of this view was to be found in the view of Capps. He reported two cases illustrating the pain distribution in diaphragmatic irritation, one in which no lung involvement could be made out, which might have been considered as an acute condition within the peritoneal cavity had not the evidence of diaphragmatic irritation been noted. Pain in such inflammations of the diaphragm was referred along the phrenic nerves and transmitted to the third or fourth cervical segments or along the sixth to the twelfth intercostal nerves to the lower dorsal segments. The inspiratory contraction of the diaphragm tended to draw the subcostal angle toward the median line. Under normal conditions this contraction was not strong enough to overcome the antagonistic action of the scalene and intercostal muscles. When the position of the diaphragm was lower than normal the contraction of the muscle would be more direct, and would, therefore, equalize or overcome the action of the scalenes and intercostals. The result would be a retraction of the costal angle toward the median line during inspiration. The best method of demonstrating the movements of the subcostal angle was described, and he reported cases indicating the diagnostic value of this sign. If

the diaphragm was pushed up from below the power of its contraction would be lessened with the result that the subcostal angle would depart farther from the median line than usual. He also pointed out the importance of the symptom in diagnosis.

Röntgenoscopy of the Colon with Special Reference to Some Sources of Error in Diagnosis.—Dr. JAMES T. CASE of Battle Creek, Mich., stated that the colon was normally subjected to certain variations in form and position and in the disposition of its contents which were entirely physiological. The large pendulum movements first described by Rieder were especially active in changing the form and position of the transverse colon. The appearance of the bismuth-filled bowel underwent numerous changes within twenty-four hours and from hour to hour on account of the influence of the different kinds of peristaltic movements to which the colon was subjected. With increasing experience, morphological factors had shrunk in importance, whereas functional problems relating to the colon had assumed greater significance. An increasingly large number of symptoms formerly attributed to ptosis were now found to be due to other more tangible lesions. It was especially important for the roentgenologist to familiarize himself with the mechanical factors concerned in the activity of the large bowel. Cannon's work on physiology of the gastrointestinal tract was of the greatest importance. One must recognize the various changes in the disposition of the colon content by antiperistalsis and the different kinds of onward peristalsis, especially the large mass of peristaltic movements which constituted the principal onward propulsive influence in the colon. The filling defect in the colon shadow due to carcinoma might be closely simulated by the irregular disposition of the colon content following one of these mass peristaltic movements. Filling defects due to the pressure of extracolonic tumors were often definitely indicative of the identity of the organ or tumor which made the pressure. Retroperitoneal sarcomata, uterine and ovarian tumors, splenic, hepatic and renal tumors were all likely to produce characteristic dislocations of the colon. Exaggerated antiperistalsis might be associated with either functional or organic obstruction in the distal colon. This tended to keep the bowel content as near as possible to the cecum. Hence it was not safe to judge as to the exact localization of the colonic obstruction from the point reached by the head of the bismuth colon. A combination examination by means of the colon injection and the bismuth meal gave accurate information as to the location of colon obstructions. Adhesions of the pelvic colon and other benign obstructing lesions were especially common below the crest of the left ileum. The cause of the obstruction might be functional, as in very marked spasticity due to colitis, or to spasticity of neuromuscular origin, or organic due to adhesions which were especially common in the distal colon. It was sometimes extremely difficult to differentiate between the roentgen findings in carcinoma of the pelvic colon and in adhesions of the pelvic colon, especially in women. The writer showed a number of cases of multiple diverticula of the colon, the diverticula varying in number from two or three to more than could be counted accurately. These diverticula were best seen after a bismuth enema, the bismuth meal having been administered fifty or seventy-five hours previously.

Bone Transplants.—Drs. ISIDORE COHN and GUSTAV MANN of New Orleans stated that their work was based on eighty-seven animal experiments. Gross sections were presented in which transplants had been placed in muscle, and not in contact with bone, for periods varying between forty-five and sixty-seven days. The transplants remained in all instances. Periosteal transplants had been placed as bands around the carotid artery forty-five to seventy-seven days. Subperiosteal resection of ribs and similar experiments failed to show any osteogenetic function on the part of the periosteum. The defect following the removal of a trephine button from the shaft of the tibia had healed as well when the shaft of bone had previously had periosteum removed as on the side on which the periosteum was allowed to remain. Intramedullary transplants remained and seemed to have taken part in the new bone formation. Histological preparations were being made of all specimens. The authors concluded that the periosteum was not an essential part of the transplant. When the transplant received sufficient blood supply it would grow. The bone transplant method seemed to be the ideal fixation for old fractures.

Relation of the Gastrointestinal Tract to Joint Disturbances and the Value of Eliminative Treatment.—Dr. WILLIAM A. MOWRY of French Lick, Ind., pointed out that derangements of the gastrointestinal tract operated in the production of chronic affections, such as rheumatism, gout, obesity, and probably diabetes. He had classified joint affections, excepting those purely traumatic, into infectious or toxic arthritis, true gout and autotoxemic arthritis. In the first group were those in which definite foci could be determined or strongly suspected, for which surgery and vaccines were the best recognized methods of cure. From a series of 244 patients suffering from joint disturbance, 92 were excluded in the consideration of the relation of the gastrointestinal tract to such cases. The remaining 152 cases were divided into two groups, 59 true gout and 93 autotoxemic arthritis, both terms often covered by gouty or lithemic. The principal points in the diagnosis of true gout were family history, eating and drinking habits, sex, (gout occurring oftener in the male than in the female), the clinical history of acute metatarsophalangeal joints attacking usually the great toe, cardiovascular changes, tophaceous deposits, abnormally low uric acid excretion, except during acute attacks. Gastrointestinal disturbances were common to both groups, and in the second group they had seemed to be important causative factors in the arthritis. The diagnosis of acute toxemic arthritis had been governed in these 93 cases first by the arthritis itself. Most of the cases were of chronic type. The fingers in these were affected equally in two-thirds of the cases, with toes, wrists, ankles, and elbows next in order of frequency. Constipation was very frequent in these cases, a few had diarrhea, while some complained of alternating constipation and diarrhea. Only one-third gave a history of headache, usually coincident with stomach or bowel attacks. In 48 per cent. of cases mucus was present in the stools, constantly or intermittently. Fully half of the patients complained of some form of indigestion most frequently with eructation and regurgitations. Examination in most cases confirmed the diagnosis of gastritis, colitis, chronic appendicitis, and probably cholecystitis. The urinary findings showed an average specific gravity above 1,025 with high acidity. Nearly all had a large amount of indican, no albumin or sugar in any, and traces of bile in but five cases. There were a few showing bile in the casts; large numbers of calcium oxalate crystals, in all but eight, and an excess of uric acid in over one-half. Blood pressure showed an average of 149 systolic, which was high for the average age—47. In the diagnosis of acute arthritis based in two cases on loose putrefying stools and in one on impacted fecal masses in the colon, immediate relief was given by internal irrigation, free purgation, and diet. Salicylates were used in the autotoxemic group and atophan in the gouty condition for the relief from pain, while fomentations and other hydrotherapeutic measures were regulated for each individual patient. Laxative waters were used for free elimination in all but two cases. Paraffin oil and castor oil were given when too large doses of a saline irritated the gastrointestinal tracts. The results of treatment were most gratifying. Seventeen patients were relieved entirely from pain or stiffness in the joints; all but fifteen of the remaining showed marked improvement. Patients were instructed as to the importance of diet and regulation of the bowels to insure permanent benefit.

The Conservative Versus Radical Treatment of Eclampsia.—Dr. J. HENRY CARSTENS of Detroit, Mich., drew the followng conclusions: (1) Pregnant women should have their blood pressure taken frequently and also have the urine examined. (2) If symptoms of toxemia developed, a most restrictive diet should be started and the woman placed in a position where she could have prompt medical attendance, preferably a hospital. (3) If convulsions occurred, premature delivery should be brought about by slow process, if the case was mild. (4) In severe attacks or convulsions, immediate delivery should be instituted by the so-called vaginal cesarean section, if the woman was about seven months pregnant or thereabout. If the woman was at full term, and especially in a primipara, an abdominal cesarean section should be the operation.

Salvarsanized Serum in the Treatment of Locomotor Ataxia, Paresis, and Cerebrospinal Syphilis.—Dr. WILLIAM LITTERER of Nashville, Tenn., drew the following conclusions: (1) The success of the treatment, other things being equal, depended upon early insti-

tution and the amount of nerve degeneration. (2) The number of treatments to be given depended partly on the condition of the patient, but more especially in using as an index the four tests which were generally known as (*a*) the Wassermann reaction with the blood; (*b*) the Wassermann reaction with the spinal fluid; (*c*) the cell count in the spinal fluid, and (*d*) the protein (globulin and albumin) estimations of the spinal fluid. (3) After giving 90 intraspinal injections of neosalvarsanized serum to 15 patients over a period of ten months, he had seen in some of those cases remarkable improvement which had persisted up to the present time. He believed the method in careful hands, with perfect aseptic and cautious doses, to be devoid of little or no danger. (4) On account of the numerous areas of poor vascularization in the brain and cord, the most rational contribution to the treatment of nervous syphilis appeared to be the intraspinal administration of salvarsanized serum. Whether it would entirely annihilate the spirochete or whether there might still remain inaccessible foci of infection, which would make recrudescence possible after the lapse of time, the future alone would determine.

The Value of Blood Pressure Readings in Examinations for Life Insurance.—Dr. J. W. FISHER of Milwaukee, Wis., drew the following conclusions: "(1) A systolic blood pressure reading should be required in all examinations for life insurance irrespective of the age of the applicant or the amount of insurance applied for. (2) A persistent systolic pressure of 15 mm. above the average for any given age should at least excite suspicion and call for further careful study and painstaking investigation. (3) Applicants of all ages with a persistent pressure above 150 mm. show a mortality higher than normal. The mortality increases as the pressure increases and also becomes greater progressively with the time of exposure. (4) The deaths of such applicants as had a high systolic pressure at the time of examination were caused, as might be expected, to a large extent by such diseases as apoplexy, arteriosclerosis, organic heart disease, and nephritis."

Weak Feet.—Dr. W. BARNETT OWEN of Louisville, Ky., drew the following conclusions: "(1) Weak foot occurs more frequently in females than in males, and in the majority of instances is caused by the wearing of improper shoes. (2) The most reliable diagnostic symptom is pain when standing or walking, which is relieved by rest. (3) As a prophylactic measure, normal individuals should be taught to walk with the feet parallel. (4) Abducted feet should be forced to acquire a normal attitude by a fulcrum at the calcaneoastragaloid joint. (5) All weak feet are amenable to treatment by mechanical or operative measures and proper exercise with application of appropriate shoes. (6) All mechanical support should be withdrawn as soon as muscular power has been sufficiently developed.

The Mortality and Morbidity of Appendicitis.—Dr. F. F. LAWRENCE of Columbus, Ohio, summarized his paper as follows: The mortality could be said to be determined by (1) The promptness of action after a correct diagnosis. (2) The period at which a correct diagnosis was made. (3) The patient, his resistance, his environment, and whether it was his first or one of many attacks. (4) The family doctor, his ability, his conscience, and his courage. (5) The surgeon, his judgment, his skill, and his personal attention to detail. The morbidity depended upon: (1) Delayed operations resulting in complications. (2) Abscess formation requiring prolonged drainage. (3) Inefficient drainage when drainage was required. (4) Incomplete operations. (5) Faulty technic which tends to irritate the peritoneal covering, strictures favoring adhesions, leaving the uncovered stump, disseminating infection by overlooking the physics of distension or of tension, and unnecessary trauma. In the ultimate analysis it all came back to the surgeon, his knowledge of anatomy, pathology, and his conception of his part in the care of this most complex condition.

The Present-Day Conception of the Treatment of Nephritis.—Dr. ARTHUR R. ELLIOTT of Chicago stated that advances during recent years in the therapy of nephritis had not been notable. The brilliant work of experimental pathologists in the production of the study of nephritis in animals had helped us a little in the treatment of the disease. Improvements in treatment might be summarized as a better handling of the cardiac problem, a better standard of control in diet, and improved prophylaxis. The most productive field of etiologic investigation today was the influence of chronic focal and confined infection in the causation of systemic disease. That this factor might play an important part in the etiology of chronic nephritis not only appeared probable, but it was strongly suggested by experience as the search for infective foci became more thorough. As a primary measure of treatment every case should be thoroughly examined for infective foci and these obliterated by radical treatment when found. Syphilis and chronic lead intoxication were other insidious factors that should be combated. In chronic nephritis many of the old qualitative restrictions had been done away with. Recent observations apparently showed that in the vast majority of cases during the stage of cardia compensation that total function of the kidneys was well up to normal as shown by the phthalein test and the ratio of nonprotein nitrogen in the blood. Aided by periodic functional testing to check up the kidney condition the diet might be so regulated as to maintain general nutrition and kidney conservation on a parity. He discussed the items of fluid restriction and salt-restriction advocating the performance of fluid and salt excretion tests in every case of chronic nephritis before laying down the diet. If one wished to gather all possible clinical data he would not rest satisfied with the diagnosis of nephritis, but would proceed to determine for prognostic and therapeutic purposes the degree to which the functional impairment of the kidneys had advanced. This could be done by means of the functional tests, and the best and simplest test for total function was the phenolsulphonephthalein test of Rowntree and Geraghty. This might be used with advantage in the study of any case applying to the test at intervals in order to keep track of the functional index, thereby affording help toward regulating diet and instituting eliminative measures. The most important item in the treatment of chronic nephritis was the preservation of cardiac compensation. The high blood pressure and cardiac hypertrophy of chronic nephritis constituted a compensatory mechanism enabling the kidneys to maintain adequate function. They consequently were essential to the preservation of life and should be protected by every hygienic and dietetic safeguard. High blood pressure should not be made the object of direct therapeutic attack. Nitrites should be reserved for emergency use to combat such developments as angina, cardiac asthma, etc. The appearance of dropsy in primary chronic nephritis almost invariably signified the advent of cardiac failure. At this stage the digitalis bodies became the mainstay of treatment and should not be withheld because the blood pressure was high, as they acted just as well or even better with a high blood pressure as with a falling pressure.

The Pathology of Syphilis of the Heart.—Dr. ALDRED SCOTT WARTHIN of Ann Arbor, Mich., stated that the pathology of syphilis of the heart, as given in the majority of the text books on pathology and medicine, was about fifty years old, based upon observations made by the generation of pathologists who worked under the influence of Virchow. Even the best text books on special pathology at the present day (Kaufmann's and Aschoff's) gave little attention to cardiac pathology from this disease and added nothing new. Observations made by the writer based upon the presence of the spirochete in the myocardium had greatly extended our conceptions of cardiac syphilis and its clinical significance. Cardiac syphilis must at the present time be reviewed from a broader standpoint of acute parenchymatous and interstitial lesions due to the presence of the spirochetes in the myocardium rather than from the more restricted standpoint of gumma, arteriosclerosis, and fibroid heart. The writer had shown that purely parenchymatous lesion, such as cloudy swelling, fatty degeneration, hydropic degeneration, atrophy, and coagulation necrosis, might be the result of a localization of spirochetes in the heart muscle, and that such parenchymatous lesions might exist in the entire absence of any interstitial changes. As the result of such purely parenchymatous lesions, cardiac hypertrophy and dilatation might be produced as well as serious disturbances of the heart's action and efficiency. In fatal cases of cardiac insufficiency and dilatation, the only myocardial lesions present might be purely parenchymatous. That such lesions were syphilitic was shown by the presence of spirochetes in the muscles of such hearts. Between such parenchymatous lesions and the condition of ultimate fibrosis there existed every possible stage of gradation. The parenchymatous changes at times were accompanied by interstitial edema, cellular infiltrations and cell proliferation. In a great majority of cases these acute

interstitial changes were of slight degree and could not be recognized by the naked eye upon inspection of the heart. The separation of the muscle fibers in such cases was often due to a fluid containing mucin, a peculiar form of myxedema which was especially common in congenital syphilis. With an increase in the number and virulence of the spirochetes, the interstitial changes might become more marked and the picture of a localized or diffuse interstitial myocarditis was produced. These interstitial changes were particularly prominent in the neighborhood of the smaller branches of the coronary vessels, often partaking of the nature of a periarteritis or a periphlebitis. Spirochetes could always be found in these interstitial lesions until the connective tissue proliferation became scarlike or hyalin. Such fibroid areas rarely contained the spirochete. But wherever there were cellular portions or a connective tissue that was edematous in character, typical spirochetes could be found by the Levaditi method. The fibroid areas were therefore to be looked upon as the result of local healed processes. In the writer's experience, autopsy findings showed the presence of such syphilitic scars in the heart of every syphilitic, whether the disease be active in some part of the body or cured. In association with these scars in some part of the heart, on serial section the writer had always found active areas that contained spirochetes. He regarded the parenchymatous and interstitial lesions as the most important result of syphlitic infection of the heart. In his experience he had found the gumma to be very rare, having met it but once in acquired syphilis, but much more frequently in congenital syphilis in the form of a myxogumma. As sequelæ to these parenchymatous and interstitial changes, he found the fibroid heart as the ultimate condition. Associated with this there might be coronary sclerosis and thrombosis, anemic infection, localized endocarditis, or pericarditis, cardiac thrombosis, cardiac aneurysm, dilatation or heart rupture. The clinical symptoms varied from the mildest grades of cardiac insufficiency to the most severe. Angina pectoris was frequently present in the fibroid stages, and in a large number of cases there were marked disturbances of rhythm. Cardiac thrombosis frequently led to sudden death. The important clinical lesson to be derived from this was that syphilis, especially latent or cured syphilis, was the most important etiologic factor in heart disease and that our conceptions of syphilis therapy must be extended to periods of treatment over many years, if not through the entire life of the patient, rather than for a restricted term of two, three, or even five years.

The Emotional Factor in the Psychoneuroses.—Dr. Louis Miller of Toledo, Ohio, stated that in analyzing cases one would find the mental preoccupation to have followed along certain special lines. In one person it might be in regard to his health, in another it concerned the affections, and in another sexual matters. In the first place, by persuasion one endeavored to re-educate the patient to think clearly in a matter-of-fact way, to orient himself, to see the true relationship of facts. Second, an effort was made to patch together the disintegrated personality. Third, the affective state was influenced for the better by reassurances of a cure, by the patient's confession, liberating him to an extent from the effects of possible remorse and self-reproach, by redirecting him to definite aims in affairs and ambitions, and by comforting him. On the whole, this method had given the author better results than any other. If the cure succeeded, there was less chance of relapse than with methods like simple suggestion, or the use of electricity, drugs, etc.

Gall-Bladder Infections: Their Treatment from a Surgical Point of View.—Dr. Louis Frank of Louisville stated that his own operative work in recent years, particularly during the last two and a half years, since he had familiarized himself with the anoci-association method, had been performed under gas-oxygen anesthesia and complete blocking, contenting himself with preliminary drainage of the gall-bladder, and dividing the operation into two stages. After the gall-bladder had been permitted to drain for some time, and the patient's temperature had receded to normal and the jaundice had subsided, he then did a secondary operation for the purpose of removing the obstruction from the duct. In other words, he treated these cases by a two stage operation just as he did the old prostatic with high blood tension and impaired kidneys and a septic bladder. He was sure that the mortality had been materially reduced, and he would offer this suggestion to those who had not yet tried the method.

The Medico-Legal Aspect of Radiograms in Diagnosis and Treatment of Fractures and Joint Injuries.—Drs. John D. Trawick and D. Y. Keith of Louisville said that whether for judge, or jury, or lawyer, the photograph of a bone or joint lesion was evidence of an actual condition, and only the expert was capable of drawing conclusions as to the meaning of such condition and to interpret the probable effect of such lesion upon the possessor. Before the jury a radiogram was purely secondary evidence, a mere representation of a condition existing, and from that radiogram alone no judge could draw conclusions as to the probable results or ultimate function.

Shortening of the Round Ligaments by Transverse Suprapubic Incision.—Dr. Sigmar Stark of Cincinnati stated that should the examining fingers which had been introduced into the abdomen detect the existence of serious adhesions, tuboovarian disease, or other complications, then the procedure was as follows: The lower ends of the external oblique incisions were joined by a transverse fascial incision and the abdomen opened in conformity with the procedure of Pfannenstiel. Disturbances within the pelvis were eliminated and the abdomen closed according to the method peculiar to the Pfannenstiel incision. The round ligaments were then attached to the fascia in the manner previously described. Three of the cases in his series belonged to the complicated class, having been associated with pyosalpinx, ovarian abscess and extensive adhesions. It was particularly in this class of cases that the value of this procedure became evident as it enabled one to cope readily with complications very difficult to overcome with the bi-inguinal incision. Additional advantages were to be found in the greater ease with which the round ligaments were exposed, the greater rapidity with which the operation could be performed, the employment of a single incision, and the fact that the best part of it was hidden by the pubic hair.

THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held October 26, 1914.

The President, Dr. T. Passmore Berens, in the Chair.

Unilateral Hematogenous Infection of the Kidney.—Dr. John H. Cunningham, Jr., of Boston, read this paper by invitation. He referred to acute unilateral infection of the kidney as a relatively rare, but interesting, and extremely important disease, and said that their knowledge of it was due largely to the communication of Dr. George Brewer, published in 1910-1911, recording cases and his experimental work. The acute renal infections of hematogenous origin were of two distinct classes: one induced by infective or toxemic conditions, for example, nearly all of the infections which gave rise to general diseases such as diphtheria, scarlet fever, measles, pneumonia, typhoid fever, etc. The disturbance within the kidney was due, in this class, to the action of toxic substances elaborated by the virus of the special disease which was in part eliminated through the kidneys. While the toxic substances of these acute general diseases conveyed to the kidney by the blood stream induced cellular necrosis, it was rare that suppuration occurred, and this type of hematogenous kidney remained medical rather than surgical. It was the second, rather smaller, yet more serious, class of kidney infection of hematogenous origin, whereby the kidney was invaded by the microorganisms themselves, resulting in acute inflammation and suppuration, that commanded attention from a surgical standpoint. Infection of this kind was theoretically of a metastatic nature, and when encountered in both kidneys was usually consecutive to septic endocarditis or other septic affections elsewhere in the body. When it occurred in but one of the two kidneys, the primary focus from which the organisms found their way to the kidney had seldom been determined. The pathology of acute unilateral hematogenous infections of the kidneys was quite different from the acute bilateral kidney infections. The latter were an expression of general septicemia in which the kidney participated while the former were not a part of general pyemia, but found their origin in the lodging of a minute embolus carrying one or several organisms in the terminal vessels of the kidney. It was believed that the process might be started by a single microorganism. The condition

started as a single focus in the cortex of the organ, from which other areas were secondarily involved by the infectious material gaining access to other tubules, to the lymph spaces, and through the vessels in the connective tissue stroma. This pathological process was of two distinct types: (1) Abscess formation, and (2) a diffuse inflammatory process without breaking down of the tissue. The organisms producing the first type were the pyogenic cocci. The second type of the disease had the same sequence of events in its pathology when of hematogenous origin. The clinical course of these two forms of the disease differed in some respects, and each had a definite relation with these two different pathological conditions. The picture which unilateral multiple abscess formation produced was an acute disease which might or might not be ushered in by a chill. There was a rapid rise of temperature to from 102° to 105° F., and an early acceleration of the pulse rate, usually to 120 or higher, occurring often within twenty-four hours of the onset. A high leucocytosis developed rapidly. Pain on the side of the diseased organ, abdominal tenderness, muscular rigidity, and spasm were found on the affected side. Lumbar tenderness, rigidity, and spasm were pathognomonic signs of the disease. The abdominal signs were similar to those occurring in acute affections of the appendix and gall-bladder, for which these diseases of the kidney were often, if not usually, mistaken. The diagnostician when confronted with a problem in the right upper quadrant of the abdomen must include acute infection of the kidney as a possibility. The urine in this disease did not excite suspicion of the true condition. When the infection was severe the patient grew progressively and rapidly worse, the toxemia became profound, delirium set in, and there was a fatal termination within a few days unless the body was rid of the infected organ. The clinical picture produced by a diffuse inflammatory process within the kidney without abscess formation differed from that with abscess formation chiefly in the severity of the symptoms and was the type of the disease most usually due to *B. coli* infection and most difficult to distinguish from an ascending infection. The chief feature differentiating this form of disease from that of abscess formation was the lesser degree of progressive toxemia and the presence of more abnormal elements in the urine. The illness after the first few days following the onset remained more or less stationary and might continue not unlike a beginning typhoid fever. Remissions in the acute symptoms occurred, but indefinite pain on the affected side usually persisted. Dr. Cunningham cited cases illustrating both of these types of disease and concluded that in the first class, the kidney with multiple miliary abscess formation from which malignant toxemia resulted, the organ must be sacrificed in order to save the patient's life. In one of the cases reported only the central quarter of the kidney was involved. In this instance the infected area was removed by a resection of the middle third of the kidney and the healthy upper and lower thirds united successfully and the outcome of the case was most favorable. This procedure, however, must be considered hazardous and could not be recommended. In the other cases of this class nephrectomy was performed and it was felt that this offered the only hope of saving the patient's life. The proper treatment in the second class, the type of diffuse acute unilateral inflammation of the kidney, could not be so clearly defined and must depend on the course of the disease in the individual case. As a broad rule, it was felt that palliation, forcing fluids, and the employment of urinary antiseptics, fortifying the patient's health by a nutritious diet and stimulating drugs, should be instituted at the outset, and operative interference should only be undertaken when the symptoms and physical signs gave evidence of progression to the point of serious lowering of the general resistance by toxic absorption. The time to operate in this class of cases required experience with the disease and judgment in regard to the patient's general condition. Some of the patients recovered without operation as noted by Brewer, Cobb, and others, and in the seven cases mentioned in this communication. When an operation was undertaken in this class of cases nephrectomy was not the only procedure to be employed. Favorable results had been obtained by simple decapsulation, by puncture of the infected area with drainage, and by splitting the kidney, closing the kidney wound by suture and decapsulating the organ, or decapsulation and drainage of the kidney pelvis. When the symptoms and signs were of a distressing nature and the infected kidney was found to be the seat of an old as well as a new inflammatory process, or when the acute process was extensive, nephrectomy was the best procedure. When the infecting organism could be isolated, vaccine therapy might be of value.

Dr. George Emerson Brewer expressed his pleasure at listening to the paper because it was one that had not been generally discussed; this type of disease had not been recognized as it should have been. He was pleased to learn that Dr. Cunningham had come to practically the same conclusions as he had in his clinical observations. His presentation of the subject was most complete, and especially his classification. He had also arrived at the same conclusions, but Dr. Brewer had not studied his cases as carefully. Dr. Cunningham spoke of the toxic type of the infection of the kidneys such as followed scarlet fever, diphtheria, and other acute infectious diseases. These were the results of toxemia, but not in all cases. Dr. Brewer then reported what he termed a typical case of scarletinal nephritis in which a nephrectomy was done. He next considered two types of cases which were to be differentiated by the symptoms alone. There was the severe type with the chill and high initial temperature of 104° or 105° F., in which in a few hours there would occur the distended abdomen, pain, and signs of an intraabdominal affection. There had been six cases in Roosevelt Hospital during the past eighteen months and in five the diagnosis had been "acute appendicitis." It had been strongly impressed upon him that in the great majority of the cases presenting clinical histories and physical signs strongly suggestive of some abdominal lesion, they got signs of renal disease. It seemed to him that the progressive toxemia differentiated these cases. It was timely and now necessary to recognize them. These cases of the mild type could be treated expectantly. Dr. Brewer referred to many cases that arose as the result of unilateral hematogenous infection of the kidney. The renal infection through the blood current was more common than the ascending infections. The examination of the urine showed little to lead one to suspect any kidney infection. The urine was as clear as cherry wine; but when it was centrifuged there would be found a few red blood cells, a few white cells, and a trace of albumin. The kidney was the seat of infection and was practically functionless. Dr. Brewer said that he had tried to produce experimentally a typical pyelitis in animals, but had never been able to succeed. They were all acute hematogenous infections.

Dr. Fenton B. Turck said that the old question in these cases of unilateral, as well as bilateral kidney infection was, whether the microorganisms were carried by the blood stream or through the tissues by diffusion, as commonly occurs from the gastrointestinal tract. Experimental evidence seemed to indicate that hematogenous kidney infection was of rare occurrence. In 1896 Biedel and Kraus injected *Pyococcus aureus* and *B. coli* into the blood and recovered them in the urine in 13 to 25 minutes. The urine remained albumin and blood free. Futterer and others, even after traumatism and various devices, had failed to produce hematogenous infection of the kidneys. N. P. Marsh claimed that infection was rarely carried by the blood, but ascended by the way of the ureter, or descended with the passage of germs from the bowel to the kidney. Hess regarded ascending infection as the usual form and Scheidemandel showed that infection through the lymphatics had an anatomical basis from the cecum and ascending colon to the right kidney. L. Fejes, as well as Muller, has also shown that the invasion of the kidney occurred *via* lymph spaces in the walls of the bladder and ureter. In Turck's own experiments repeated intravenous injection with *B. coli* or pyococci produced no marked acute or chronic kidney lesions. When the microorganisms were fed daily to dogs, kidney lesions invariably occurred, but the blood always remained sterile. The microorganisms through osmosis passed between the epithelial cells lining the intestines into the areolar tissue of the submucosa, and in the same manner proceeded onward between the muscle coat and the mucous membrane. From here the diffusion took place rapidly. The precise route of the microorganisms injected into the lower bowel was studied in the fetal pig. The fetal animal was sterile and while the circulation was stopped the tissue cells were living and the *vitro-vivo* experiments indicated a similar diffusion route, as that which occurred in the adult animal. It

was not necessary to starve the animal in order to cause the microorganisms to migrate from the intestinal lumen, as Ficker thought, or to introduce very virulent strains into the intestines, as had been suggested by Hedgerman. Dr. Turck had found that congestion of the abdominal vessels, as in case of shock or by tying off the mesenteric vessels to interfere with the blood supply, would cause the microorganisms to pass between the cells as through the pores of a filter, not entering the blood stream, but moving on by the interstitial route. Infection of kidney with *B. coli* occurred alone or in symbiosis with the pyogenic cocci. The *B. coli* might undergo rapid bacteriolysis and disappear, leaving conditions favorable for the growth and more destructive effect of the pyogenic cocci. The unilateral infection of the kidney would indicate the tissue diffusion route rather than the hematogenous, as shown by Hess, Marsh, Bond and others. The path taken by the microorganisms from the intestines to the kidney passed between mucous membrane and the muscle coat, reaching the bladder by the lymphatics, then up the bladder wall and ureters to the periphery of the kidney, continuing along the interstitial zone under the capsule and there set up the infection, as so beautifully shown in the lantern slides presented. A careful study of the precise nature of the etiology of these kidney infections was highly essential, as operative interference, according to Scheidemandel and others, was reserved for only undoubted abscess formation, and in any event the source of the infection must be stopped. The apparently sound kidney also needed protection. He had previously referred to the importance of intestinal treatment including the atony and splanchnic congestion combated by colonic lavage with colloidal demulcents, special diet, ingestion of hemicellulose demulcents, such as Irish moss, slippery elm emulsion, combined with liquid vaseline, which together acted as an artificial mucus, a barrier against the passage of bacteria through the intestinal wall. Alkalies, collodial metals, internally, and autogenous vaccines planted within the pelvis of the kidney supplied some of the indications for general and local treatment.

Dr. Edwin Beer said that although he had not had the pleasure of reading Dr. Turck's paper, in which he said he proved that the kidney infections followed the tubular channels from the bladder up through the ureter, and threw doubt on the paths of infection just described by Dr. Brewer, he felt that it was the duty of any one who had experimented along these lines to challenge the statements of the last speaker. Having done considerable work along these lines he could confirm much that Dr. Brewer had said. Mildly virulent germs introduced into the circulation would be deposited in traumatized kidneys, and lead to multiple abscesses without infecting the pelvis, *i.e.* without there being any pyelitis, as the last speaker would have them believe. On the other hand, virulent germs killed the experimental animal before the multiple abscesses formed, apparently from sepsis.

Question for Discussion: The Status of the Specialist in the Field of Surgery.—Dr. Charles H. Chetwood introduced the speakers as follows:

Ladies and Gentlemen; Doctors, Physicians, Specialists and Surgeons—Especially General Surgeons: Several months ago, the President of the County Medical Society paid me the honor of requesting me to arrange the program of the present meeting. And now, having listened to what has gone before, under the inspiration of our eminent guest from Boston, and in anticipation of what is yet to come, from the all-star cast that the remainder of the program announces, I am enjoying some of the feelings of a successful impressario.

My own part in the program is a brief one. It is to propound the question of the hour, which is to define the status of the specialist in the field of Surgery, and which, if I read aright the temper of the times, is agitating the minds of all of those who are concerned in the result of the verdict, be they Urologists, Gynecologists, Ophthalmologists, Otologists, Pediatrists, Rhinologists, and many others, too numerous to mention. Against this army of—shall we say invaders, these Allies?—there stands alone the Kaiser in the person of the General Surgeon. The General Surgeon wants to know where he "gets on," because the specialist doesn't know where to "get off."

Like all questions, great or small, this one has two sides to it, and one side seems to have been characterized in song. In the Lay of Koko, of Mikado fame, we have the General Surgeon's refrain, which runs somewhat in this vein:

As some day it may happen, a clearance must be made,
I've got a little list, I've got a little list
Of medical offenders, who should all be in the raid,
And who never will be missed, who never will be missed.

Query: Is the General Surgeon being driven from the field of operations upon any portion of the human anatomy, save that, perhaps, which already belongs to the tonsorial specialist? Or, on the other hand, shall the Urologist, the Gynecologist, and others of selective fame, expend their efforts in all that may tend toward the illumination of a case in question, and then, the moment operation becomes a consideration, shall recourse be had to a "real surgeon" or "operating specialist"?

To be sure, this question has its rules and its exceptions. It may depend upon whether it be applied to hospital or private practice. In my own case, I maintain there is a decided exception, and, as you no doubt have discovered, I am unable to discuss this subject seriously. I turn to these gentlemen, who are waiting in the lists, eager for the combat! You, Urologist, and You, Gynecologist, and You, any kind of "Ologist"! who doubt the General Surgeon's superior skill, and when 'tis said:

"To operate or not to operate
That is the question"* * *

You answer:

"To sleep, perhaps to die,
And there's the rub!"

But still the General Surgeon chants, with irritating grace:

There's the medico who plays upon the weakness of his race,
The G. U. Organist, I've got him on the list, I've got him on the list
He's just the same, tho' changed in name, as the Urologist;
He never will be missed, he never will be missed.
And last of all tho' not the least—in numbers they can boast,
For operations, great and small, they surely do the most,
That medical anomaly, the Gynecologist
He never will be missed, I'm sure he'll not be missed.

Province of the Urologist and Gynecologist in the Domain of Surgery.—Dr. Edwin B. Cragin said that some had argued that the province of the specialist was diagnosis and prognosis, and that the general surgeon should do the rest. Yet when one saw a general surgeon of the highest type specializing on diseases of the brain and spinal cord he could not but feel that a specialist was justified in cutting if he could do it better than his colleagues. The relation between gynecology and general surgery might perhaps be best represented by a concrete example. Other things being equal, the general surgeon would do better stomach work than the gynecologist because he did more of it and was more interested in it. For the same reasons, other things being equal, the gynecologist would excel in diagnosis, operative judgment, and surgical technique in any female pelvic work. Regarding the relation between urology and gynecology it might be said that the urologist from more frequent practice would usually be more dextrous in the use of the cystoscope and the ureteral catheter than the gynecologist, and yet it was absolutely necessary that the gynecologist, in order to hold his position in Class A of this specialty, be able to do this work. There was a border land in both urology and gynecology where cases were bound to overlap as, for instance, a cystic kidney resembling an ovarian cyst, or *vice versa*, and speaking for the gynecologist, he must be able to deal with this condition. Something should be said regarding the relation between gynecology and obstetrics. A man might be a good gynecologist without doing obstetrics, although he believed he was a better gynecologist if he had an obstetric service in which he could observe the effect of his operations on the process of maternity. On the other hand, one could not be an obstetrician in Class A to-day unless he was a gynecologist. The obstetrician of to-day and the future must be able to deal with cases of ruptured ectopic gestation, of ruptured uterus, and of pregnancy complicated by a tumor with twisted pedicle. He must be able to perform cesarean sections whether they were to be completed according to the orthodox Saenger method, or were to have added to them a myomectomy or a hysterectomy. In other words, the obstetrician must be able to do all kinds of

female pelvic work. This at present was called gynecology. In closing he wished to say a word regarding the preparation of the gynecologist. The preparation of experience with the speculum, the glycerin tampon, and the iodine swab would no longer hold as a requisite training for the gynecologist. He must have a surgical training and must be able to do the highest type of surgery in the pelvic field. Just so long as the gynecologist in diagnosis, surgical judgment, and operative technique could excel the general surgeon in female pelvic work, he deserved to hold his position and would do so. Failing to excel the general surgeon in this particular field, he deserved to be superseded.

The Relation of Gynecology and Urology to General Surgery.—Dr. HOWARD LILIENTHAL read this paper. (See page 872.)

Dr. EDWIN BEER said that the question under discussion as he saw it was, who should do the surgery of the kidneys, ureters, and bladders? Urologists claimed it as their field and general surgeons and gynecologists liked to make excursions in that direction. It was not his belief that they would settle the question, but it was a live one and deserved earnest consideration. This was an era of specialization and it had become such because the specialist did better work than that surgeon who devoted his major energies to other fields. In his opinion the answer to the question before them would be found in a consideration of the training that a physician should have, if he wished to do the surgical work on kidneys, ureters, and bladders. Such a physician should be an expert cystoscopist in the broadest sense, able to understand the pathological pictures, able to operate through the cystoscope, able to avail himself whenever the indication arose during an examination of the many resources that made for successful results, which only careful study, reading, and, above all, practice, developed. He should have a thorough knowledge of laboratory cooperation, bacteriological, chemical, and *x*-ray, and should constantly make use of these aids. In addition to these fundamental acquisitions he should be trained in general surgical technique so that he could meet all surgical emergencies and give his patients the best available care. The surgery of the organs under discussion was most difficult major surgery and it was absolutely wrong to think that anyone who handled the scalpel could do it efficiently. Any physician who fulfilled the requirements outlined was, in the speaker's opinion, fitted to apply surgical remedial methods to diseases of the kidneys, ureters and bladder.

The Province of the Gynecologist in the Domain of Surgery with Special Reference to the Malposed Kidney.—Dr. DOUGAL BISSELL presented this paper which was read by Dr. Charles Gardner Child, Jr. He said that he was free to admit at the outset that the line of demarkation between the surgical work of the gynecologist and that of the general surgeon was at times difficult to draw, but the same was true when discussing the limits of any branch of surgery which dealt with more than a very limited number of organs. Again it was difficult to draw a line between two recognized divisions of a special department of surgery, as for instance, gynecological and obstetrical surgery. In reality gynecological and obstetrical surgery went hand in hand and were practically inseparable, and a gynecologist without a thorough training in as well as a practical knowledge of obstetrics could lay claim to only a limited knowledge of diseases peculiar to women. They should be emancipated from the generally accepted limited meaning of the term "gynecology," claiming the same right to include the urinary system in their specialty as was conceded to those surgeons who dealt exclusively with diseases of the male. The writer expressed himself as being further puzzled to understand why the term "genitourinary" should be applied only to the surgery of the male, and claimed that the same might with propriety be applied to surgery of the female. The anatomy of the female genital organs was such that they were of necessity often forced to encroach upon the domains of general surgery when correcting pelvic complications so commonly met with in inflammatory diseases of the female genital organs. The writer then proceeded to consider the importance of the malposed kidney from the gynecologist's standpoint. Renal malpositions had not received the attention they deserved, and it was the gynecologist's opportunity to discover and teach their importance as a large proportion of them occurred in the female. As pathological entities, their existence was questioned by many students of medicine, and, even when admitted, surgical procedures for their replacement were given scant consideration. Symptoms resulting in the female from renal displacements or misplacements were many and varied, and might be classified under several groups, but their interest at the present time was directed to those symptoms which led the female and even her physician to believe that some genital disarrangement or disease existed. Pain was frequently present, but to conclude that the prolapsed kidney unaccompanied by pain was a harmless abnormality was a mistake. Furthermore, when it existed it was misleading, especially when located in the cecal or ovarian region, and in many instances was the sole reason for the removal of an appendix or an ovary. Acute pain in the kidney region indicated either a recent displacement of the organ or a displacement of considerable duration with distention of the upper urinary tract, the result of imperfect drainage. Those that held that pain must be present as an active symptom before nephropexy was justified forgot that in other acute displacements pain existed and was usually severe at the beginning, often being mistaken for other pelvic or abdominal lesions, but subsequently disappeared, followed in the vast majority of instances by neurotic disturbances. The association of symptoms referable to the bladder and the genital organs of the female with malposition of the kidney was too common to be considered coincidental. With the genitourinary symptoms one usually found those referable to the digestive and nervous systems and not uncommonly the prolapse was marked and of long standing, and the resulting general condition of the female was worse than that which followed pelvic disorders. Prolapsed kidney and menstrual disorders were often related as cause and effect, and in his own experience he had seen convincing evidence in certain cases that these symptoms were removed completely by the fixation of the kidney. In certain cases in which he had succeeded in relieving symptoms by nephropexy only, curettage alone had been previously resorted to for the cure of excessive flow and with but temporary or no relief (Kindelong). In other cases curettage with repair of lacerations and even replacement of the uterus, and in still others removal of the appendix alone or with the ovary or ovaries, as well as the removal of fibroids and diseased adnexæ without relief, in which a prolapsed kidney had been ignored, were corrected by a recognition of this mistake. It was his opinion that they too frequently attempted to diagnose by subjective or objective symptoms alone, and as a result not only minor gynecological lesions were repaired, but also major operations performed while the offending lesion was overlooked. He was convinced that if these facts were more generally appreciated fewer appendectomies, divulsions, and curettages, and even hysterectomies, would be performed. Prolapse of the kidney and retrodisplacement of the uterus though frequently associated were independent in origin. As the group of symptoms accompanying each had many features in common, there was danger of the surgeon, when discovering one lesion, hastily to conclude that the entire cause of the disturbance had been found. A replacement of either of these organs alone usually met with a disappointing result, as the correction of all elements entering into the pathology of the case was necessary to the complete restoration of the patient's health. The development of a specialty means a concentration of intellectual energy and skill upon division of a great subject and the specialist was a necessity only so long as surgeons operating generally failed in part or in whole to grapple successfully with the problems at hand. The result of the specialist's efforts was a rapid development and standardizing of surgical operations and technique in a given field. When in all departments of surgery it was an accomplished fact and there existed no longer a question as to what operation or technique was best under a given condition, the day would then have arrived when, though specializing might continue, the specialist or pioneer, as we know him, having completed his usefulness, would disappear.

PHILADELPHIA NEUROLOGICAL SOCIETY.

AT a stated meeting held October 23 Dr. WILLIAM B. CADWALLADER presented "A Case of Facial Hemiatrophy Greatly Improved by the Administration of Thyroid Extract." The patient was a woman, about 24 years old, who had presented an area on the left cheek over which the skin was shiny and parchment-like, and the subjacent tissues were wasted. Under treatment with thyroid extract in doses of one and two grains

thrice daily the local condition improved gradually and progressively until the skin lost its glossy appearance and acquired a considerable degree of mobility.

Dr. H. MAXWELL LANGDON presented "A Case of Tabes with Hippus." The patient was a colored man, about 28 years old, with ataxic gait and station abolition of knee-jerks, bilateral optic atrophy, and unequal pupils, one of which manifested characteristic hippus on exposure to light.

Dr. CHARLES W. BURR presented "A Case of Multiple Neuritis, with Astasia-Abasia." The patient was a man, about 45 years old, who exhibited weakness in all four extremities, consequent upon which he developed great difficulty in standing and in walking. It was thought the early symptoms were due to the lesion of the nerves, while the later ones might be attributed to functional disorder of hysterical character.

Dr. JAMES HENDRIE LLOYD presented "A Case of Tabes Dorsalis Suggestive of Friedreich's Ataxia." The patient was a man, about 28 years old, who presented ataxic gait and station, absence of knee-jerks, insignificant ocular changes, and high foot-arches. There was no history of similar disease in the family and the Wassermann reaction was negative.

Dr. CHARLES K. MILLS presented "A Case of Probable Cerebellar Disease." The patient was a man, about 65 years old, who had a seizure followed by motor disorder on the left side of the body, as manifested by difficulty in standing and walking, with a tendency to fall backward or to the left. On douching the right ear with water the usual responses with respect to nystagmus and the coordination of the fingers were found wanting, while these were present when the opposite ear was similarly treated. Accordingly it was concluded that there was a lesion of the cerebellum on the right side in its anterior-superior portion.

Dr. ALFRED GORDON presented "A Case of Hemiplegia with Unusual Symptoms." The patient was a man, 24 years old, who at the age of 8 had had an attack of typhoid fever, at the height of which he had a convulsion followed by weakness of the left side of the body, in association with temporary aphasia. In the interval the affected parts had undergone no wasting or want of development, but the right upper extremity exhibited certain contractures in accordance with varying positions of the part and there were also a number of associated movements. Speech was soon fully recovered. The knee-jerks were exaggerated, but there was no ankle clonus and no toe-phenomenon. It was believed the symptoms were due to a lesion outside the internal capsule, perhaps in the lenticular nucleus, and that the condition might be designated extra-pyramidal hemiplegia.

Dr. DAVIDSON presented for Dr. Wm. G. Spiller "A Case of Bilateral Lenticular-Nucleus Lesion." The patient was a man, about 30 years old, who had had an attack attended with disorder of motility on the left side and later a second attack followed by similar disorder on the right side. At times, when not observed, the man was quite still, but often, and particularly when under observation, he presented a fixed smile and he made movements of the shoulders or of the feet. He was able to walk well, but in the performing of this act he at times also engaged in extraneous movements. Intelligence was fairly good. There was a history of multiple venereal infection and the Wassermann reaction was positive.

Drs. WM. DRAYTON and H. MAXWELL LANGDON presented "A Case of Tabes Dorsalis with Lost Tendon-Reflexes and Argyll-Robertson Pupils, but Without other Characteristic Symptoms." The patient was a man, 22 years old, who presented himself with neurasthenic symptoms, but in whom routine examination disclosed absence of knee-jerks, ankle-jerks, abdominal reflex, cremasteric reflex, with contracted pupils, reacting in accommodation but not to light. He could walk perfectly well and had no ataxia in the upper extremities. Sexual power was preserved and there was no history of syphilis. The blood yielded a negative Wassermann reaction, but the cerebrospinal fluid yielded a weakly positive Wassermann reaction and the number of lymphocytes was increased.

Dr. FRANCIS X. DERCUM presented "An Interesting Case of Brain-Tumor; Localization by Means of *X*-Ray." The patient was a man, about 30 years old, who had seven years before exhibited some twitching of one side of the face, but who had no disorder of motility, no headache, and no convulsions. There was some mental irritability and some loss of memory, and *x*-ray examination disclosed clearly a tumor in the midst of one cerebral hemisphere. There were slight fundus-changes in one eye. It was concluded that the neoplasm, situated in a silent area and giving rise to no symptoms, had undergone calcification and had better be left undisturbed. Dr. Willis F. Manges demonstrated the *x*-ray pictures.

Dr. TOM A. WILLIAMS reported "A Case with Lesions Around the Sella Turcica." The pathological changes were disclosed on *x*-ray examination, and improvement followed on treatment with *x*-rays.

Dr. CHARLES M. BYRNS presented a communication entitled "The Indradural Administration of Mercurialized Serum in the Treatment of Cerebrospinal Syphilis." It was reasoned that when salvarsan or even a mercurial salt was introduced into the cerebrospinal fluid or the blood only small and uncertain amounts could be looked for in the serum obtained from such an individual, whereas if a definite amount of a soluble mercurial salt, such as mercuric chlorid, were added directly to the serum obtained in the usual manner the dosage could be more accurately set up, and more nearly positive results looked for. Practical application of the method clinically confirmed the correctness of the reasoning, and in some instances better results were obtained by this method than from the employment of salvarsanized serum, notably in some cases of tabes and paresis.

Dr. WILLIAM G. SPILLER presented a communication entitled "Intense Jaundice in the Newborn Child as a Cause of Encephalic Arrest." He cited a number of instances of mental deficiency, with or without motor phenomena, in which intense jaundice had been present, and he raised the question whether the associated toxic or infective process might not in some way be responsible for the changes in the nervous system. It was suggested that the underlying hemolysis or the profound cholemia might exert a deleterious irritative or destructive influence upon the delicate nerve-structures, and in this way bring about the symptoms noted. This was not to be expected of the mild and ordinary forms of jaundice, but only of those of profound degree associated with pronounced hemolytic or toxic infective changes.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

AT a stated meeting held November 4 Dr. CHARLES A. ELSBERG of New York presented by invitation a communication entitled "Pain as a Symptom of Diseases of the Spinal Cord, and its Surgical Treatment," illustrated with lantern slides. He pointed out the relative frequency with which pain in one portion of the body or other is referred to disorder of nerves or of internal viscera when in reality it will be found on careful inquiry to be due to disease of the nervous system, at times, tabes at other times neoplasm of the spine or its canal or its membranes. In some instances operations upon appendix, gall-bladder, stomach, kidneys, pelvic organs have been performed, naturally without relief, the condition being found later to be dependent upon spinal disease. Dr. Elsberg expressed himself in favor of bilateral laminectomy, great care being taken to avoid manipulation of the cord, which has been found to be extremely sensitive to traumatism. Observation appears to show that the outer surface of the spinal dura is insensitive to touch, while the inner surface reacts to stimuli with a burning sensation. Also the outer surface of the cord is insensitive except in the vicinity of the origin or the posterior or sensory roots. Incision of the cord in turn causes burning pain. It was found also that in the cervical and upper dorsal portions of the spine the individual elements of the posterior roots are fairly separate and distinct before entering the dura, while in the lower dorsal and the lumbar portions the nerves enter into rather intimate union before traversing the dura. Further, in the cervical region the posterior nerves pass off in almost a horizontal direction, while in the dorsal region they first pass downward and outward and then at a somewhat acute angle pass upward and outward. Lower down they pass directly downward and outward. In rare instances an extramedullary lesion on one side of the cord may give rise to impairment of sensation on the opposite side of the body and loss of motor power on the same side, for example, if the cord be displaced by a growth and pressure exerted upon it by the bony canal on the side opposite to that on which the tumor itself is situated and perhaps separated from the cord by a serous accumulation. The operation of laminectomy is a comparatively simple one in the hands of

a competent surgeon, and it should be free from fatal results.

Drs. CHARLES W. BURR and CHARLES H. FRAZIER took part in the discussion.

Dr. WILLIAM G. SPILLER read a paper entitled "The Pathology of Tabetic Ocular Palsies." He reported a case presenting the typical symptomatology and course of tabes dorsalis, and which on postmortem examination exhibited in addition to characteristic lesions of that disease also lymphocytic infiltration, meningitis and changes in nerves usually found in syphilis of the nervous system. He pointed out that nuclear changes are not indicative exclusively of tabes or paresis, separately or in association, nor nerve changes and meningitis indicative exclusively of cerebrospinal syphilis, but that the two sets of conditions may be present in the same case. Also, clinically it is impossible in some cases to make a clear differentiation between tabes and paresis on the one hand and cerebrospinal syphilis on the other hand.

Drs. CHARLES K. MILLS and DANIEL J. MCCARTHY took part in the discussion.

Items.

The Father of Preventive Medicine.—The early history of our hero is veiled in myth and mystery. Born of a persecuted race, adopted as a foundling by a princely house, forced to flee the country for committing murder, the subject of this sketch exhibited marvelous insight and remarkable powers of administration and leadership. Although not a physician as we understand the term, and living long before the days of bacteriology, he yet was able to draft and enact a sanitary code whose guiding principles are still regarded as correct. In this code he originated an entirely new system of medicine, totally opposed to the prevailing plan. For the curative and therapeutic methods then universally followed, he substituted the more philosophic and wiser hygienic and preventive method. Moreover, in the regulations which he formulated, emphasis is laid on discharges from the body (blood, pus, mucus) as vehicles of disease, and on personal cleanliness and isolation as the chief means of preventing infection. A hygienist whose influence has made itself felt throughout the world, and the father of preventive medicine—we salute Moses, maker of sanitary laws.—*Weekly Bulletin of the New York Department of Health.*

Census Estimates.—An estimation by the Census Bureau of the population of the continental United States on July 1, 1914, puts the total at 98,781,324, an increase of nearly seven million over the population on April 15, 1910. The population of New York City on July 1 will be, it is estimated, 5,333,539, distributed as follows: Bronx, 529,198; Brooklyn, 1,833,696; Manhattan, 2,536,716; Queens, 339,886; Richmond, 94,043. The estimated gain for the four years is 566,654. The population of New York State is estimated at 9,899,761, a gain of 786,047. The population of the other large cities throughout the country is estimated as follows: Chicago, 2,393,325; Philadelphia, 1,657,810; St. Louis, 734,667; Boston, 733,802; Cleveland, 639,431; Baltimore, 579,590; Pittsburgh, 564,878; San Francisco, 448,502; Buffalo, N. Y., 454,112; Cincinnati, 402,175; Newark, N. J., 389,106; Washington, 353,378; New Orleans, 361,221; Minneapolis, 343,466; Jersey City, 293,921; Kansas City, 281,911; Rochester, 241,518; St. Paul, 236,766; Syracuse, 149,353; Scranton, 141,351; Paterson, N. J., 134,305; Trenton, N. J., 106,831; Reading, 103,361; Albany, N. Y., 102,961.

Oxygen Compartments for Travellers.—On the nearly completed railway from Arica, Chile, to La Paz, Bolivia, which goes to an altitude of 14,105 feet above sea level, the effect of the quick ascent and great altitude on people having weak or abnormal hearts is to be counteracted by having oxygen compartments in the passenger cars. Passengers subject to mountain sickness or any affection of the heart may, by occupying these compartments, breathe air having the same percentage of oxygen as at sea level.—*Scientific American.*

No More Diseases with Foreign Names.—German medical men have begun a campaign against names of diseases derived from Russian, French, or English and urge the use of a Latin or Greek term if no German equivalent exists. The *Münchener medizinische Wochenschrift* proposes that a committee should draw up a list of acceptable German equivalents for the more common terms borrowed from the enemies' tongues.

Therapeutic Hints.

Creosote, Calcium, and Phosphorus Therapy in Tuberculosis.—E. Brandenburg extols the value of this method of treatment as carried out by him at the Sanatorium Shöneberg in Sternberg. Creosote and its derivatives stimulate the appetite and have a moderate expectorant action. The author uses potassium guiaacolsulphonate, a derivative of creosote, and apparently better tolerated by the organism than the latter. Recent investigations have shown that tuberculosis is accompanied by a relative calcium and phosphorus starvation; hence the administration of these elements is indicated. Brandenburg has employed the following formula:

℞ Potassium guaiacolsulphonate, 6 grams.
Calcium glycerophosphate, 1.2 grams.
Dissolve in
Water, 50 grams.
Add
Simple syrup,
Syrup of cherries (Ger. Phar.), āā 60 grams,
Water, ad 200 grams.

The dose is a tablespoonful twice daily for adults, and a teaspoonful twice daily for children.—*Zeitschrift für Tuberkulose.*

The Treatment of Bronchial Asthma.—T. Muirhead Martin states that one should first get the patient into as comfortable a position as possible, either in bed or sitting in an armchair. All the windows should be opened and all close-fitting clothing, especially about the neck, should be loosened. Three grains of calomel with soda should be administered. It is well to burn in the room a powder of lobelia and stramonium with nitrate of potassium. Hot compresses to the chest and back and alternate (hot and cold) hand and foot baths are useful. In the majority of cases these measures calm the breathing, but if this is still distressing it may be necessary to inject hypodermically ¼ grain of morphine with 1 120 grain of atropine to lessen the severity of the dyspnea. The morphine acts as a nerve sedative, shortening the paroxysm. The atropine diminishes bronchial secretion, probably by virtue of its sedative, vagal influence. Later a wet pack should be applied and should be renewed at the end of two hours. The action of the calomel should be aided by a large soapsuds enema. During the first twenty-four hours the author gives nothing but weak orange or lemon water, and keeps the patient resting until the chest has been relieved of its superabundant secretion. The drug par excellence for this is potassium iodide. For the first week the author gives 5-grain doses every four hours in a mixture containing tincture of stramonium, tolu, and extract of liquorice. At the end of the seventh day the potassium iodide is given three times a day and is kept up for three months, this time in a mixture containing sodium bicarbonate, powdered rhubarb, magnesium carbonate, stramonium, creosote, and peppermint water. After three months this medicine is to be taken at bedtime more or less for two years, and during the day the patient should receive a tonic containing dilute hydrochloric acid, arsenic, and strychnine. He is instructed to eat slowly, and if not hungry to partake only of distilled water or fresh fruit juices until hunger reappears; and to avoid table salt, except a very little in the cooking of foods. It may be necessary to establish free nasal breathing and to calm respiration by general massage.—*Clinical Journal.*

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RADIUM BETA RAYS.

THE EFFICIENT FACTOR IN REPRESSIVE ACTION ON VITAL CELLS.

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THE extraordinary effect of radium radiation in retarding growth of cells and living organisms has never been explained.

The physical properties of this wonder-working substance are beginning to be understood, but it is such a composite agency that no demonstration has heretofore been made which assigns to any one of the several streams of particles flowing from the radioactive atoms the results, which all observers acknowledge.

The attempt I have made in this communication to elucidate the problem will, I hope, lead to further practical work.

For eleven years I have watched in vain for evidence of stimulation of tumors by radium. The rare cases where slight stimulation is seen after use of radium are many times rarer than those which exhibit the same effect without any previous treatment, or after surgical interference only. Such cases often apply to the surgeon because spontaneous increase of growth has attracted attention.

Three years ago I made experimental research in seed culture following exposure to radium at different distances, and seemed to show, though I am now inclined to think erroneously, that stimulation was seen when the distance was about an inch and a half. Less distance than that, produced destruction of life, while greater (up to four inches) caused retardation. These results I assigned to the three major rays: Alpha, with charges of positive electricity in all particles, which are credited with a range in air of half an inch at high velocity; beta, carrying negative electric charges, which have an average excursion of an inch and a half, and gamma, which are electrically neutral and travel far in straight lines. (See MEDICAL RECORD, February 10, 1912.)

Up to the time of that experiment the most practical way of studying the influence of the isolated alpha, beta and gamma rays was by accepting the known efficient distance of activity credited by scientists to them. It is evident, however, that the gamma only can be thus studied alone, because, in the alpha range the beta and gamma are passing through, and at the beta range the gamma is mixed, though the alpha is excluded.

There is, however, a far better method of separating the rays which has been known from the earliest days of radium study, namely, the effect of the magnetic field on the three rays. This beautiful demonstration, however, seems to have been confined to laboratory study with a very small beam of radium rays. With a magnetic field transverse to the beam, the stream of beta rays was shown (on a photographic plate in a vacuum) to be considerably deflected to one side—the alpha rays very slightly to the other.

After discussing the possibility of studying these isolated rays in larger bulk with Madame Curie in her laboratory last year, I decided to take up this new line of research. With her assurance that pretty nearly pure gamma rays could be obtained from radium by the interposition of one-tenth millimeter of lead, I sought to get the isolated beta of equal strength by aid of a suitable electromagnetic field.

With the aid of Professor Pegram of Columbia University, whose knowledge of the physics of radium was necessary to success, I had a strong electromagnet made. After some experimenting we worked out a device, which, tested with a fluoroscopic screen, gave us a brilliant display of isolated beta rays, on one side, and of gamma on the other, in apparently equal proportion. These were now available for study of their differing qualities.

For two years it had been my hope to experiment with living cells of known activity growing *in vitro*, when I had perfected some such method.

When I outlined this line of research to Dr. Alexis Carrel and asked his cooperation, he recognized the fundamental principles involved and offered his aid. No higher authority or keener observer could be found. He entered upon the work at the Rockefeller Institute with no prejudices or bias. Meanwhile I made some trials of the differentiated rays upon mealworms and upon seeds, beginning in January.

Later I had the cooperation of a scientist with experience in zoology and embryology, Dr. Charles Packard, who pursued his researches at Woods Hole, Mass., with my radium and electromagnet. He made some most interesting corroborative observations described later.

I find no record of successful study of the magnetically separated rays—in large quantity—though attempts have been made to segregate beams and pencils of rays through apertures in lead.

For the use of others let me describe the effective device of Professor Pegram and myself, evolved from many experiments.

But before doing so I will illustrate a method of showing complete ray separation. Four things are needed: (1) A fairly strong electromagnet. (2) A photograph plate. (3) Radium, best spread on a varnished surface, backed up by a half inch of lead. (4) Many little cylinders of lead about one-quarter inch long and an eighth in diameter.

Experiment I.—In a dark room place a photoplate horizontally between the poles of the magnet without the current, and arrange the lead cylinders

about the radium, all resting on the plate. (Fig. 1.)

After half an hour, develop the plate. The result will be as shown in Fig. 2—the illumination of the plate is seen with lead posts each casting a shadow radiating in a straight line from the radium and

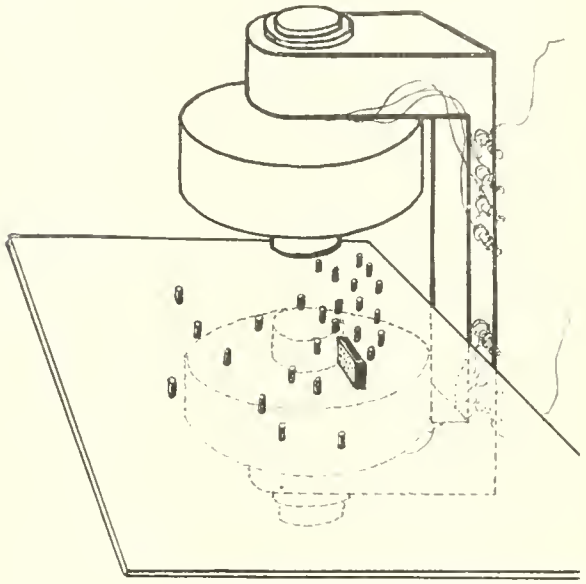

Fig. 1.

caused by all the combined rays in action. No shadows are seen behind the lead or at the sides.

Experiment II.—Repeat the arrangement and pass the current through the magnet. Instantly the beta rays are torn from their straight course, which they were traveling hand in hand with the gamma's. The developed plate now shows the shadows of the lead columns resting on the plate, displayed in two sets.* (Fig. 3.)

The pillars in front of the lead block faced with radium, still cast strong radial shadows straight from the radium, due to the gamma rays, but now shadows appear from the pillars at the side of and behind the lead block. These new shadows are due to the beta rays which have been deflected around the magnetic field.

This accords with the known path of deviated charged particles, which is in a direction tangentially deflected from the straight course and therefore describing a curved line.

If one would be more convinced of this phenomenon one should place his radium on the sensitive *x*-ray screen which he holds where the photograph plate had been. One sees an instant searchlight effect as the current is turned on or off, due to the illumination of the screen by the beta rays—separately. This brilliant and convincing exhibition will repay the trouble and stimulate thought.

A device for utilizing these separated beta rays was now invented by Professor Pegram and myself and is shown in Fig. 4.

A block of lead is so shaped that when radium is placed in a groove at one side, and a shelf made laterally with an inch and a half of solid lead between it and the radium, the gamma rays are practically shut off on that level. Below the radium a thin lead screen one-tenth millimeter thick shuts off beta rays and allows gamma only to fall on the lower shelf. With this device held between the active magnets there will be a shower of nearly pure beta rays on the upper shelf and a similar play of gamma rays on the lower one. This can be shown by a piece of sensitive screen cut to fit each shelf, which becomes intensely luminous from the beta rays when the current is on and quite black when it is cut off. The gamma rays create a continuous illumination of the lower screen. This working device was now put into service as follows:

1. Mealworms were put in paper cages covered by netting and subjected to beta and gamma radiation separately for an hour and studied for several months afterward.

Fig. 2.

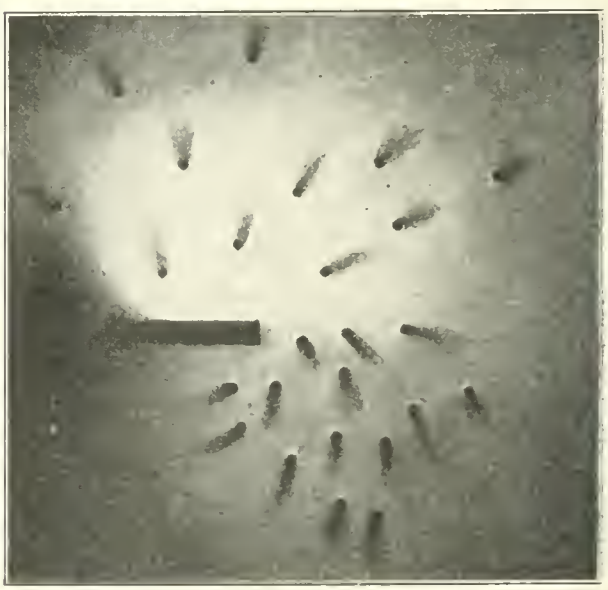

Fig. 3.

*The photograph gives a surprising proof of the generation of secondary rays by the impact of all the rays against a barrier. At the front of each lead column will be seen a brilliant white spot. This is due to the impact of myriad particles generating more rays. It has usually been asserted that gamma rays detained by a lead screen create intensification and burning effect on the skin; hence, as Wickham and Dominici have insisted, many layers of paper must be interposed to prevent unpleasant burning. It is evident from these clear pictures that it is not the gamma only, but beta rays, for in the shadows made by exclusive beta, even behind the lead block, there is the same bright spot due to secondarily generated rays.

2. Prolonged study of cell growth in vitro was made by Dr. Carrel. He used the identical tissue and technique which has demonstrated for three years, and through more than three hundred generations, the persistent and unvarying growth of cells from one stock. This could be relied on to show any change which beta or gamma rays might cause. He adopted my suggestion of extremely thin mica instead of the usual glass cover of the cell, thereby allowing penetration of even the weakest beta rays.

3. Seeds of wheat were exposed and planted with others for control.

4. Research by Dr. Packard was carried on with the same magnet, radium, and lead device during the past summer, using fertilized eggs of the sea urchin, eggs and larvæ of flies, and other objects.

From these initial studies conclusions can be made which are corroborated by independent and competent observers.

These demonstrate that *beta rays are the efficient factor in radium repressive action on vital cells.* This has been equally shown through the use of our apparatus in the varied work of all these observers. Moreover, there has been observed no stimulation in tissues submitted to beta and gamma rays separately.

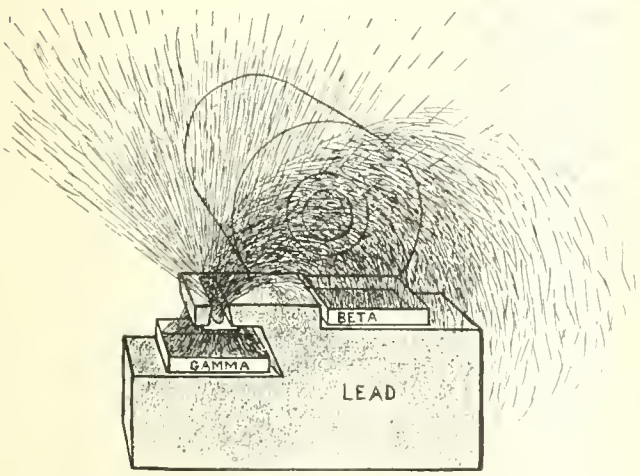

FIG. 4.

In Dr. Carrel's delicate daily measurements of growing cells the beta rays repressed growth 25 to 50 per cent. The gamma rays showed no retardation worth noting. There was no morphological change in the cells, but only in rate of growth. An important incidental observation showed that *the retarding influence persists through twenty generations* at least after radiation, showing no return to the normal, as has always happened after other temporary deterrents, such as change in temperature, nutrition, or environment.

The influence on mealworms under beta rays was corroborative and showed a slight delay in their time of changing to beetles in the few experiments made.

My experiments of three years ago, trying to disclose any point of stimulation on oats or wheat after general radiumization, were repeated and elaborated and my conclusion must now stand, that no stimulation was shown. A thousand wheat grains were placed on seven shelves of mosquito netting an inch apart, and above the top one, 250 milligrams of radium bromide was placed at one inch distance. Some seeds were removed every day from each shelf during one month and put aside to be planted simultaneously with non-radiumized controls. After growing one month they were gathered in bundles and studied. No stimulation was noted anywhere, judged either by time or distance. The universal effect was depression of growth exactly in proportion to both time and distance. The greatest destruction of seed life was at one inch. Only 7 per cent. of these seeds even sprouted and made a feeble attempt to grow. All normal seed growth was uniformly healthy, but in number and size the proportion of a like number of planted seeds after radium was as follows:

At 1 inch	7%	survived
2 "	33%	"
3 "	50%	"
4 "	85%	"
5 "	90%	"
6 "	90%	"
7 "	90%	"
No radium	100%	"

So much for the combined-rays effect.

The segregated beta and gamma effects were only given for eight hours and the results were not striking enough for conclusions. A much longer exposure would have been wiser.

As seed life is less sensitive than cell life it is with special pleasure that I can record the biological experiments of Dr. Charles Packard. The following is his own account of these experiments:

"The following experiments on the effects of the beta and gamma rays were made at the Marine Biological Laboratory at Wood Hole, Mass., during the summer of 1914. They deal chiefly with the effects of these radiations on the early development of two marine invertebrates, *Nereis limbata* and *Arbacia punctulata*, since the process of cell division at such a time is most easily affected and the resulting changes most readily observed. The procedure of the experiments was as follows: (1) The unfertilized eggs in small glass chambers were placed under the beta and the gamma rays for varying lengths of time, then fertilized with normal sperm, and their subsequent development noted. (2) Fertilized eggs were exposed for varying periods, both immediately after insemination and after the process of fertilization had proceeded for some time. (3) Ripe sperm was radiated and mixed with fresh eggs. Other experiments were made on the developmental stages of the fruit fly (*Drosophila ampelophila*) and on *Paramœcium aurelia*.

"In general it may be said that the beta rays from 50 mg. of pure radium bromide produce well-marked effects, while the gamma rays bring about no appreciable changes. Numerous experiments show that the beta rays bring about a retardation in the rate of cell division, but that the effect is not uniform in different organisms. The sea urchin egg is readily affected; the egg of Nereis is affected only with fairly long exposures; Paramœcium is not affected at all.

"Retardation is permanent. Thus the fertilized sea urchin egg after one hour's exposure may lag behind the control by as much as twenty minutes, and fall still further behind during subsequent development until at the end of five days the larva is at least twenty-four hours behind the control. Such embryos are normal in appearance. So marked an effect does not occur in Nereis, although some retardation is evident. This effect of the beta rays is most strikingly seen in fertilized eggs which have been exposed immediately after the fusion of the sperm and egg nuclei. Apparently the egg is most

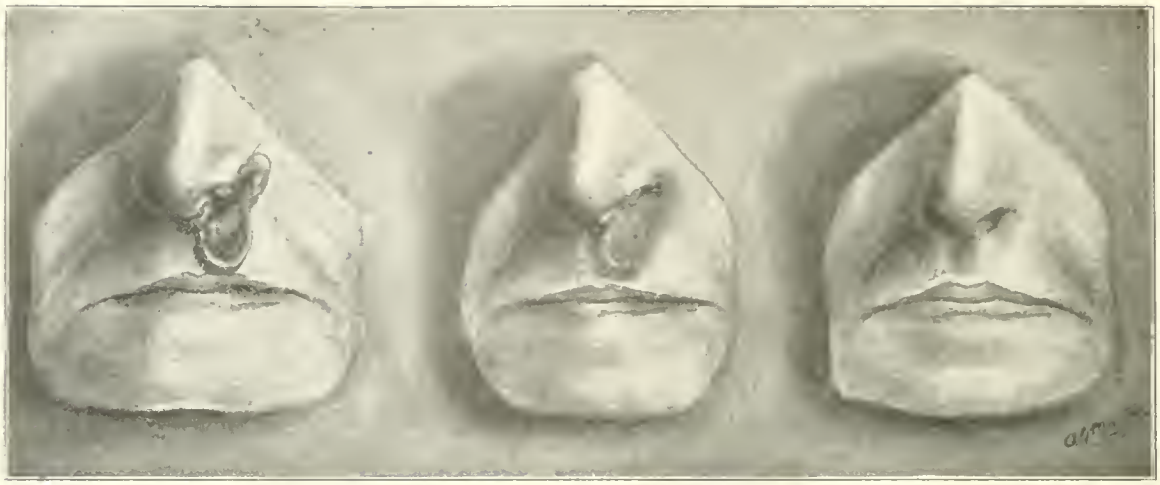

FIG. 5.
Epithelioma of the nose and upper lip, showing diminution at the end of two weeks, and disappearance at the end of five weeks. (Reprinted from MEDICAL RECORD, Oct. 12, 1907.)

sensitive during the time of actual cell division and the preceding period when nuclear activity is at its height. Unfertilized eggs may be treated for longer periods and show slighter effects.

"The gamma rays from 50 mg. of the pure bromide produce no appreciable effects. Exposures for two hours do not change the rate of division or the growth of the embryo in any way. The larvæ and pupæ of the fruit fly, as well as the imagos can be exposed for very long periods and still develop normally. The imagos are perfectly fertile.

"The distance of the object under treatment from the radium is an important factor in the character of the effects produced. In the device used in these experiments the object was about 35 mm. from the radium, and the path of the beta particles was much longer. Eggs exposed to the combined beta and gamma rays at a distance of 50 mm. from the radium showed the same phenomena of retardation which have been described above. At shorter distances the retarding effect became less evident, while marked protoplasmic changes appeared. This is evidently an effect solely of the beta rays operating at a short distance. The egg membrane and the cortical layer of protoplasm in the Nereis egg lose their firm consistency, the latter becoming so

FIG. 6.
Same patient as represented in Fig. 5, showing permanence of cure by radium after nearly ten years.

fluid that it flows out freely when the membrane is punctured by a glass needle about one micron in diameter. This effect is probably greatest in the unfertilized egg. Such eggs after fertilization divide very abnormally a few times and then die. Sections show that the chromatin also is much affected. Fly pupæ placed directly on the radium (the alpha rays were excluded) grew normally and hatched, but the adults failed to form either eggs or sperm.

"From these experiments it appears that the beta rays from 50 mg. of pure radium bromide acting at a distance of about 50 mm. produce a retardation in the rate of cell division in the early development of the sea urchin and Nereis. The chromatin is more affected than the protoplasm. At shorter distances (2 mm. to 30 mm.) the effect is more pronounced and appears chiefly as a marked softening of the protoplasm, accompanied by very abnormal cell division. The gamma rays produce no appreciable effect."

It would be an error to say that equal potentials of gamma and beta rays are used in these experiments. The main idea has been, thus far, to differentiate the kind of action each exerts.

No measurements were made of the absolute quantity of beta and gamma energy, absorbed by the tissues experimented on.

The results of the experiments relate, so far as the quantities of energy are concerned, on the one hand, to that absorbed by the several tissues when placed in gamma radiation of the intensity to be found at a distance of 20 millimeters from the glass wall of the tube 1 10 mm. thick, and 1/10 mm. of lead being interposed—and, on the other hand, to the corresponding quantities of energy absorbed by the tissues when placed in beta radiation of the intensity to be found at a distance of 35 mm. from the radium (26 mgr. radium element), the 1/10 mm. glass wall of the tubes and intervening air being interposed.

Interpretation.—Growing tumor cells of certain types are arrested in their disorderly career by the play of certain rays issuing from radium.

We come a little nearer to understanding *why* this occurs, when we differentiate one special kind of ray and find that this retarding power resides in it alone.

The beta rays are responsible for checking the tumor. The permanence of this phenomenon is shown by Dr. Carrel's demonstration of the unprecedented continuance of the influence through twenty generations. This is corroborated by Dr. Packard's work on eggs and larvæ and by my own recent and former notes.

The generation of secondary rays by both beta and gamma is of itself of interest in this demonstration.

The known effect of gamma rays in producing secondary betas on meeting resistance, coupled with their greater penetrating power—a hundred times greater than that of beta—adds to our understanding of its action on deep structures.

It would seem probable that it is the evolution of these new secondary beta rays in the deep structures, that can be considered the agent of greatest efficiency in radium work.

But most important of all is the permanence of results in curing destructive growths on human beings.

I will select one out of hundreds from my note book. It is an interesting one, because it was quickly cured ten years ago, and I have lately seen the patient for the first time since then. I marvel at the perfection and health of the little scar and submit the recent photograph.

The basal-cell epithelioma had been eating away the lip and nostril for seven years. A few hours' treatment by radium cured it in five weeks. It has never recurred.

The illustrations are taken from an early report of the case (MEDICAL RECORD, October 10, 1907), Fig. 5, and the later photograph, Fig. 6, shows the condition nearly ten years later.

Conclusion.—Separated beta rays from radium are demonstrated to be the efficient force most active against living cells.

These rays are electrons or particles discharged from the radium atom, each bearing a charge of negative electricity.

What the force is which actuates living cells is unknown, but it adds one link to the chain of facts to know that a charge of negative electrons carried into certain types of disorderly growing cell tumors reduces them to orderly growth.

The permanency of this checking force is established.

13 WEST FIFTIETH STREET.

IMBEDDED RADIUM TUBES IN THE TREATMENT OF CANCER.

WITH REPORT OF A CASE OF SARCOMA REMAINING CURED NINE YEARS AFTER RADIATION.

BY WILLIAM JAMES MORTON, M.D.,

NEW YORK.

LATE PROFESSOR OF DISEASES OF THE MIND AND NERVOUS SYSTEM AND ELECTRO-THERAPEUTICS, NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.

IN cases of cancer, in radium therapy as in surgery, a record of the permanency of favorable results is of prime importance. The patient here referred to remains well at the end of nine years, and may therefore be said to be "cured." Attendant points of interest are the utter hopelessness of relief by other measures, the method employed of low radioactivity and length of time of exposure, a Roentgengram of the imbedded tube *in situ* showing even the radium salt within the tube, and a recent Roentgengram showing the healed humerus.

The case was tentatively reported as an "apparent cure at the end of two years," in the MEDICAL RECORD of November 9, 1907, in a general article which covers essentially the entire ground of radium therapy as practised to-day, with the single exception of the elaboration of the system of filtration of the rays. A much condensed record from my private note book and from the records of the hospital, follows:

Miss L. V., aged 22. May 17, 1905. Referred by Dr. William Kemble of Kingston, N. Y. About one year previous to this date the patient noticed a swelling about the size of a walnut in the region of the upper third of the humerus. In six months the growth gradually increased to the size of a lemon. Accidentally striking her arm against a hard object a fracture occurred at the site of the tumor. The patient went to a hospital and a part of the growth was removed and pronounced to be cancer. A large tumor grew at the site of the incision and she then visited Dr. Kemble who removed portions and had slides prepared at the Pathological Laboratory of the Post-Graduate Medical School. These were submitted to Dr. H. T. Brooks, who reported that they exhibited the "histological features of sarcoma of spindle-cell variety." The tumor was fusiform in shape, four inches in length, and two and one-half inches in width at its greatest diameter. Following the two operations an opening freely discharging pus remained, large enough to admit of the introduction of a finger to a considerable depth. The patient had emaciated rapidly, had lost her appetite, presented extreme cachexia, and her skin was of a yellowish and sallow hue. No hope whatever was entertained of saving her life, but as a last resort amputation of the arm at the shoulder was proposed. This was rejected both by the patient and her mother. At the site of the growth, what little bone had survived the ravages of the disease had undergone spontaneous fracture and a splint was required for support.

Soddy had sometime earlier suggested that a tube containing radium might with advantage be introduced within a malignant tumor. Radium salts of high radioactivity were not, as I now recollect, at that time (early in 1905), available, at least in this country. But I pos-

FIG. 1.—Radiograph taken at the beginning of treatment showing the radium tube within the tumor, the radium within the tube and the state of fracture.

sessed a glass tube of radium chloride containing 100 milligrams, of an estimated radioactivity of 20,000. This tube gave excellent radium skiagraphs and I determined to insert it within the opening referred to and placed the patient in the Post-Graduate Hospital. The tube remained continuously within the wound for about six weeks. Within ten days there was a very great diminution of the discharge. At the same time the pain, which had been severe, ceased. Within five weeks the patient was able to dispense with the splint which she had worn constantly with heavy bandages and could move the arm freely and walk about. She had gained seven pounds in weight in a period of the first two weeks and showed every sign of returning health and vigor. The cancer growth receded steadily. About six weeks from the beginning of treatment the patient was discharged from the hospital and the tube was removed permanently, owing to the development of a severe second-degree radium dermatitis. This was represented by a vivid hyperemia, in places of a dusky hue, associated with a burning seasation and itching. The hyperemia extended peripherally outward from the focus of the wound, reaching almost to the elbow. Necrosis of the tumor tissue with breaking down and discharge occurred with a rise of temperature, on one day to 104° F., due to absorption of toxic material. These cases of severe toxemia due to intensive raying and consequent resorption of decomposition products, with fever, nausea, vomiting, exhaustion, and fatigue are now well recognized and will be again referred to below. From this moment complete recovery was established. At the end of three months the wound after discharging less and less freely was nearly healed. The opening closed entirely in March, 1906.

I shall not at this moment encumber this brief communication with the results of quite a number of other cases. Suffice it to say that one of these,

Fig. 2.—Radiogram taken two years after. By this time the patient had recovered the full use of her arm. Negative accidentally broken

"Case II, Carcinomatous tumor of the knee," also reported in the Medical Record of November 9, 1907, with skiagraph of imbedded tube at the time of treatment made continuous and rapid improvement, gained eleven pounds in weight, was relieved of all

Fig. 3.—Radiograph taken October 10, 1914, more than nine years later on.* The patient is in perfect health and has no disability of the arm.

pain, regained the flexibility of the joint, showed no further evidence of tumor growth, and was discharged apparently well. I am informed that some years afterward the patient died of general carcinosis. Another case, treated in 1907, but not yet reported, presents in brief this history:

Primary carcinoma of the breast of the size of a large egg. Operation firmly refused. An incision into the center of the tumor was made for me by Dr. James N. West of this city. Misroscopic examination of a piece of the tissue removed established the diagnosis of carcinoma. Into this incision I inserted a tube containing ten milligrams of pure radium bromide of an activity, as was the custom at that time to estimate it, of 1,800,000. The tube was left in place sixteen hours. A severe radium necrosis ensued, very slow to heal. Some time later on it was thought best on account of the slow healing of the wound simply to remove surgically the mammary gland involved. Microscopical

*Radiograph, Fig. 3, was kindly taken for me by Dr. Eben Clayton Hill, radiographer to Vassar Hospital, Poughkeepsie, N. Y., where the patient now resides. In his letter of October 17, 1914, Dr. Hill writes: "The woman uses that arm as if it had never been diseased and yet the plates even now show how far that sarcoma had affected the humerus." It is to be regretted that the delicate structural lines of the tumor as shown in the negatives are lost in reproduction.

examination showed, as reported by the surgeon who operated in a distant city, remaining cancer cells in the periphery of the broken-down area. The patient at this date (1914) seven years later has never shown any signs of recurrence of the disease and remains in perfect health.

That cancer cells, at some distance peripheral to the central influence of radium rays, may retain vitality for a time and yet lose their capability of proliferation, has now been established by the researches of von Wassermann. It is probable, therefore, that the patient would have made full recovery even without the comparatively minor operation resorted to.

As bearing upon the use of radium and of other radioactive elements some general considerations are not out of place. That the alpha, beta, and gamma rays of the radioactive elements are the sole and only known demonstrable means of effecting a deterrent influence upon the vitality and the proliferative power of cancer cells is now established beyond doubt. The extreme effect of all or any of the three classes of rays upon animal tissue is caustic and destructive, whether the cells be cancerous or not. A lesser effect is biological and concerns itself with the life history of the cell to the extent of inhibiting either its viability or its proliferation, while a milder effect still is to stimulate the cell growth; but how these rays act is unknown, as unknown as is the cause of cancer. It may be, as W. S. Lazarus-Barlow argues,[1] that an immunity is created by reason of a production of antibodies and autogenous vaccines. There is some strong evidence of this derived from practical work. For instance, affected glands and secondary skin nodules at a distance from local radiations have been known to return to normal.

Again, the action of radiation upon cells is selective in the sense that the normal tissue systems react in well recognized gradations. For instance, the testicles and the ovaries have an extreme affinity for radiation and sterility is produced. But further, the cancer cell reacts as fully, if not more so, than any normal cell. Thus rat sarcoma is twenty-four times more vulnerable to radiation than are leucocytes.—(Lazarus-Barlow.)

As to dosage, the radiotherapist has the choice of a small quantity of radioactive substance used over a long period or a large quantity over a short period. He may use five milligrams of a given radium salt twenty times as long as one hundred milligrams. Undoubtedly modern consensus of opinion is in favor of the massive dosage, viz., large quantity and shortened duration. But here a grave question meets the operator. So much cancer tissue may be caused to undergo necrosis that the patient may succumb to a resulting toxic effect due to the absorption of the necrosed material. This has been clearly proven by the experiments of A. v. Wassermann[2] in mouse tumor treated by chemotherapy. In the case of tumors which had reached the size of a plum, if the breakdown of the tumor occurred rapidly the animal quickly sickened and died, while under a slower action the tumor, after liquefaction, was gradually absorbed. This happened regularly and left no doubt in the experimenter's mind that the animals died owing to the toxicity of the reabsorbed tumor mass.

Herein will lie in many cases a favorable or unfavorable result, depending upon the expert knowledge and good judgment of the operator. In cases of large tumors quickly necrosed by over-massive doses of radium, it may well be that the issue of death has been determined by the sudden influx of the necrosed material thrown into the economy.

All the above and many more considerations must be taken into account in imbedding tubes of radioactive elements in cancer tissue. By this method all that is valuable in radiotherapy is retained, while there is an advantage in not being obliged to protect intervening normal tissue and thus limit a desired dosage. Indeed imbedding the tube is an intensive radiotherapy and must come more and more into practice.

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2. *Deutsche medizinische Wochenschrift*, December 21, 1911.

19 East Twenty-eighth Street.

MICROSCOPICAL TRAUMATIC LESIONS OF THE MUCOSA FOUND IN SOME RECENT CASES OF APPENDICITIS.

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In 1892 Talamon called attention to traumatism in the etiology of appendicitis. He thought that relatively large foreign bodies, directly lacerating the mucosa, or indirectly favoring stagnation in the appendix and alteration in its blood supply, were responsible for the greatest majority of appendicites.

In our days, of the theory of Talamon nothing remains but an historical interest. Although it is possible that a wound produced in the mucosa by a large pointed foreign body may be the starting point of appendicitis, this occurrence is very rare, and the origin of the disease is attributed to many other factors.

Very often, in the microscopical examination of specimens of recent appendicitis, I found lesions which appeared to me as of a traumatic origin, and I have tried to find an explanation of this fact. This report is to bring in evidence that in some cases the initial lesion in appendicitis consists in small wounds in the mucosa, produced most probably by very minute sharp foreign bodies that usually reside in the appendix.

The specimens used for this study were obtained in the 244 operations for different lesions of the vermiform appendix, which I performed in my private hospital since January, 1907.

To insure a good examination, I have taken the precaution during the operation to handle the appendix with great care. Soon after the operation the specimens that were to be sectioned for microscopical examination were split open in a line opposite to the insertion of the mesentery. Only those appendices were left intact which, being atrophic and obliterated, were very difficult to cut open.

The splitting of the appendix is not approved by some pathologists, but in my opinion it is a necessary procedure. It permits the macroscopical inspection of the specimen, which is of the greatest importance, and thus the area most affected can be selected and isolated for further microscopical examination. Besides, in the split appendix the fixing fluid is brought into better contact with all the specimen.

As fixing fluids I used alcohol in different degrees of concentration, and the fluid of Carnoy. The pieces were imbedded in celloidin. Sometimes I stained the pieces in mass, but generally the sections

were stained separately with different solutions: boric carmine, hematoxylin and eosin, and with a solution of toluidin blue.

In the very first stages of appendicitis the only lesion revealed at the macroscopical inspection is an

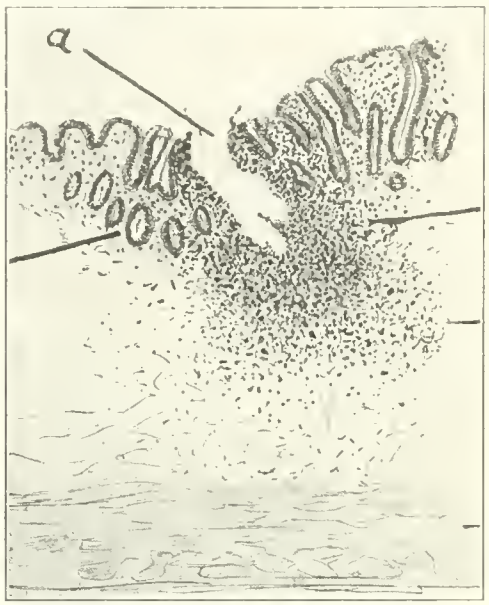

FIG. 1.—The initial lesion in appendicitis. a, abrasion of the glandular layer; b, Lieberkühn glands distorted; c, cellular infiltration; d, submucosa infiltrated; e, muscularis.

ecchymosis that occupies a limited part, or limited parts of the mucosa. Microscopically observed, this ecchymosis shows as a solution of continuity, an abrasion, of the glandular layer of the mucous membrane. In many cases this abrasion is so limited and its margins are so sharp as to appear to be an injury produced by a traumatic agent as, for instance, by a cutting instrument.

The Lieberkühn glands, which represent the most internal layer of the mucosa, are partially destroyed at the site of this abrasion, and are normal in its vicinity. This initial lesion is surrounded by a great amount of cellular infiltration which expands from this lesion as from a center on all sides in the submucosa and toward the lymphoid follicles.

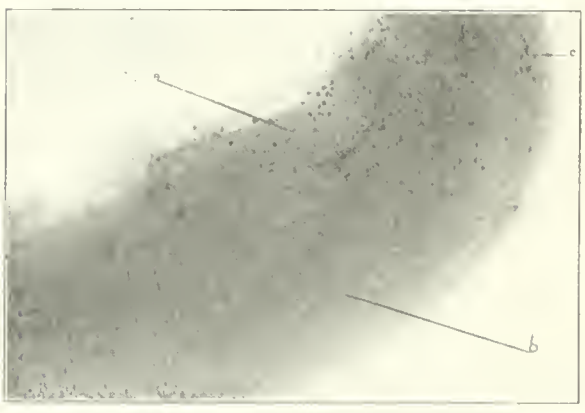

FIG. 2.—Skiagram of a specimen of appendix affected with empyema enlarged about 100 times; a, small foreign bodies; b, situation of the necrotic area without bodies; c, fundus of the appendix.

In a section a little distant from the initial lesion, it is possible to find infiltrated only the submucosa, and over it the glandular layer perfectly normal. By the observation of this fact some pathologists have been led to believe that the initial lesion of appendicitis was the infiltration of the submucosa or the inflammation of the lymphoid follicles.

In transverse sections of specimens of very recent appendicitis the tubuli are placed regularly and cut longitudinally in the greater part of the preparation, but, in the immediate vicinity of the initial lesion (the destruction of the glands) the cellular infiltration separates the tubules from each other.

In more advanced appendicitis the infiltration grows greater, and in consequence the tubuli are not only displaced, but also distorted in an irregular way. And in transverse sections of these specimens the tubuli, instead of appearing regularly disposed and cut longitudinally are cut transversely and obliquely. The interposition of the cellular infiltration is responsible for their displacement.

The lymphoid follicles take part in the inflammation as do the other elements of the appendix, more so when the lesion happens to be in the glands near the follicles, but I could never detect that they are primarily affected in the recent disease.

More or less also the other layers (muscularis and serosa) are found infiltrated.

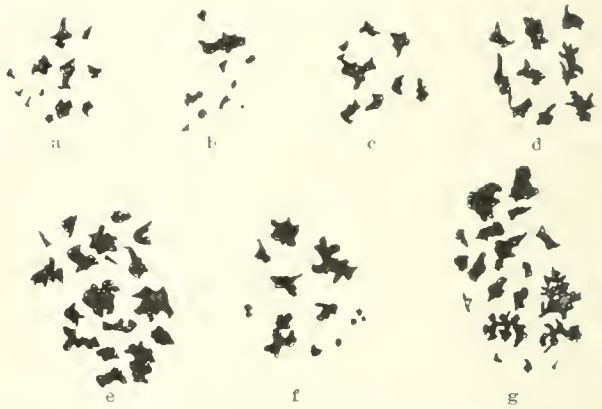

FIG. 3.—Foreign bodies obtained directly from the internal cavity of diseased appendices and from the sediment of appendices destroyed with antiformin (Oc. 2. Ob. 4mm.); a, b, c, d, were obtained by washing the mucosa with alcohol; a, specimen of gangrenous appendicitis, operation August 27, 1913; b, empyema of the appendix (this specimen was used for the *x*-ray picture), operation May 1, 1910; c, acute inflammatory appendicitis, operation September 16, 1913; d, acute gangrenous appendicitis with ulceration of the cecum, operation February 2, 1914; e, f, g, from the sediment of three specimens of gangrenous appendicitis destroyed with antiformin; e, operation January 17, 1913; f, operation June 16, 1913; g, operation September 22, 1914. The figures d, e, f, g are enlarged to bring in evidence the cutting edges.

This destruction of the mucosa has been differently explained by different observers. Some have thought that this lesion was artificial and due to a defect of the preparation, others that it was consecutive and secondary to an inflammation of the lymphoid follicles.

It is easy to demonstrate that the lesion is not an artificial tear in the preparation, by the observation of the surrounding cellular infiltration. That it is not always dependent upon and consecutive to an inflammation of the submucosa and of the lymphoid follicles is proved by the finding of this lesion at a distance from the follicles, and by the fact that the destruction of the tubuli proceeds from the lumen of the appendix toward the submucosa. In some specimens it is possible to find destroyed only the most internal part of the tubuli, the fundus being intact and the neighboring lymphoid follicles normal and unaffected in any way by the inflammatory process.

To ascertain the possible cause of this initial lesion I have resorted to the use of the *x*-rays and to direct researches in the appendix.

X-Ray Examination.—I have exposed some diseased appendices to the *x*-rays produced by a Bartlett tube for three and four seconds at a distance of 18 inches. I have printed the image thus obtained enlarging it about 100 diameters. This skiagram (Fig. 2) shows the presence of a great number of small bodies occupying all the area of the appendix but especially numerous in the fundus of the organ. These bodies are found less abundant in the place where the main lesion of the appendix is found. This dislodgment is due evidently to the suppuration and consecutive destruction of the mucosa in the place of the lesion.

In the first experiments it seemed clear to me that the punctiform shades in the picture were produced by small metallic bodies. But other enlarged *x*-ray pictures, made to determine the appearance of the diseased appendix, and the appearance of the shape and position of various microscopical substances gave results so contradictory that now I doubt that this skiagram is a proof of the presence of foreign bodies in the appendix.

Although the first interpretation was based upon an hypothesis which I could not yet verify to my satisfaction with experiments, and which most probably was not real, it has suggested the search for small foreign bodies in the lumen of the appendix.

Direct Research in the Diseased Appendix.—The specimens used in this research have been kept in alcohol.

The appendix is opened in all its length, and the mucosa is washed in alcohol with the aid of a camel's hair brush. The liquid obtained is centrifugated, and the sediment examined under the microscope. This method brings in evidence the foreign bodies free in the surface of the mucosa.

To reveal all the bodies which might be concealed in the folds of the mucosa the whole appendix is immersed in antiformin, and left in contact with the fluid for a week. In this time all the appendix is destroyed. The residuum is then well mixed, left to deposit, and decanted. The sediment is successively washed with hot water, alcohol, and ether, decanted and centrifugated each time, and finally examined. The quantity of sediment obtained in this way is large enough to be recognized by the naked eye as being of a gritty, sandy, or metallic composition.

At the microscopical examination, the sediments obtained in the two preparations appear as formed of small black bodies of various shape. Some of them are round, some quadrilateral, some triangular, and many quite irregularly formed. (Fig. 3.) Their diameter is 10 or 15 micromillimeters, some of them are larger, and a few are about one-tenth of a millimeter in diameter.

These bodies are so numerous and so heavy, that they could be separated without centrifugation, and they can easily be detected with the microscope in the bottom of the glass receptacle used for the destruction of the specimen, after the liquid has been removed.

To determine the nature of these foreign bodies, I introduced a small magnet in the microscopical field. This experiment, which must be carried out under the microscope, is difficult and the results were not satisfactory. The greatest number of the bodies were not attracted by the magnet, a few small bodies seemed attracted. But the results were not demonstrative.

The chemical tests were more conclusive:

I added a drop of aqua regia to the preparation dried over a slide, and examined with the microscope. I noticed that the great majority of the bodies were not affected by the reagent, but a few of them were very vigorously attacked, and that yellow ferric chloride was formed with abundant eruption of bubbles of hydrogen.

A short time after, a few drops of a solution of potassium ferricyanide were introduced in the preparation and in the areas occupied by the ferric chloride prussian blue was formed and revealed by its characteristic color.

Even when the quantity of iron is so small that the yellow color of the ferric chloride is hardly visible, the addition of the potassium ferricyanide solution produces an intense blue coloration, and thus reveals the presence of the most minute particles of iron.

This reaction proves that these foreign bodies are for the most part slivers of coal containing a small quantity of iron.

Conclusions.—In the cavity of some diseased appendices is found a great number of foreign bodies of very small dimensions, sometimes with very sharp cutting edges, composed of carbon with particles of iron.

It is most probable that these bodies may occasionally produce a traumatic lesion in the mucosa of the appendix, favoring the entrance of pathogenic microorganisms into the layers of the appendix, and causing various degrees of inflammation and necrosis.

31 Washington Square West

REPORT OF A CASE OF MYXEDEMA ALLIED TO THE INFECTIVE EXHAUSTIVE GROUP.*

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I REPORT this case, not to bring forth any new symptomatology, but on account of its rarity; it being the first one of its kind admitted to the Jacksonville

FIG. 1.—In health

State Hospital. During the last twenty-five years many cases of myxedema have been described, particularly in England and America. But, although many cases have been reported, in most of them appropriate treatment was instituted before they

*Read at a meeting of Alienists and Neurologists held under the auspices of the Chicago Medical Society, June 23-25, 1913.

reached the stage necessitating removal to an insane hospital.

The disease was first described by Sir William Gull in 1873 as a "cretinoid state supervening in women"; and Dr. William Ord named it myxedema in 1878. Later Charcot—who described it under the name of "cachexie pachydermique"—met with the disease in the male. In 1894, in a compilation of 127 cases of myxedema, Heinsheimer found only ten men, or 7.8 per cent.

A number of papers have been published on this subject by different writers, but the most exhaustive communication on it is the report of a Committee of the Clinical Society of London that was nominated in 1883 and reported in 1888.

We have here an interesting case: R. N., male, 32 years old, admitted to the Jacksonville State Hospital, February 11, 1913, who is a school teacher, married, and has two healthy children. Present attack began five years ago, following mental shock caused by brother-in-law committing suicide, also worry over wife's illness. The family history elicits alcoholism on father's side; the father having taken the Keeley cure. His brothers, except one, use alcohol freely. Mother's family history is negative, except that she has an exophthalmic goiter. Patient's birth and childhood show nothing abnormal. He was a hard student and ambitious; had no injuries or serious diseases until present sickness. He is not syphilitic, nor does he use drugs, alcohol, or tobacco.

Present Illness.—The history states that the first change noticed was in the spring of 1908, when, after working hard at school, he would feel weak and drowsy, and seemed to be bilious. He improved slightly and

FIG. 2

FIG. 3.

FIG. 4.

FIGS. 2, 3, AND 4.—Disease in full development (showing the large, clumsy and coarse features).

went to Normal School in the summer of that year, when he was called home on account of the suicide of his brother-in-law. The settlement of his brother-in-law's affairs, and worry over the wife's illness caused him to lose sleep; and a few days later he became delirious and was found wandering over the country. After several days under treatment, he again improved. In September, 1910, he returned to school, and was apparently all right until April, 1911. At that time he began to complain of weakness and of feeling cold, and his teachers at Normal noticed a lack of thoroughness in his work. From April, 1911 to January 27,

FIG. 5 FIG. 6

FIGS. 5 AND 6.—When admitted to Jacksonville State Hospital (showing changes in the hair).

1913, he gave up school work because of his inability to perform his duties. The writing of only a few words would cause his arm to become fatigued; and when he wrote a letter it would take him half a day to complete it, because of the difficulty he experienced in forming the letters. So, at this time, he turned to farming and other outdoor work in an effort to regain his health.

His condition gradually grew worse, and he was finally placed in a general hospital at Bloomington. He was at this hospital ten days, becoming delirious the last two days; at which time he talked incoherently; had hallucinations of hearing; thought he was going to die that evening at 7 o'clock; became destructive of glass and furniture, and was noisy during the day and night. He escaped from the Hospital through a window, and was found wandering in the country, when he was brought to the Jacksonville State Hospital.

On his admission he was a well-built man, in a weak and exhausted state. His face appeared coarse and swollen, especially the upper and lower eyelids and lips, but these parts did not pit on pressure. With the exception of a flush over the malar eminences the complexion was sallow and pasty. There was some epitaxis, and patient said he had nose bleed frequently. His facial expression was drowsy. The skin of the whole body was dry, rough, scaly, and wrinkled in places, more especially over the elbows, knees, ankles, and over the region of the tendon Achilles; and in these places there were small furrows. Patient said he seldom perspired. There were a number of warts on the left hand. The finger and toe nails were lusterless, brittle, and furrowed. The ends of the fingers were blunted, or clubbed. The hair on the head was dark in color and scanty, giving the appearance of having been pulled out; but the patient said it began to fall out two years before; it was lusterless, dry and brittle. The scalp was dry and scaly in places; and the eyebrows were also scant. The pulse was slow (60).

As I said previously, the features were clumsy and coarse, and the lips thickened. The patient said he had noticed his voice changing gradually, and thought at times his tongue was getting larger; and when eating or talking would sometimes bite the buccal mucous membrane. His movements were slow and clumsy; and the whole body showed an increase in bulk. Large pads of what seemed to be fat could be seen and felt above the scapulæ and at the sides of the abdomen. He said he felt a little nervous and weak. The respiratory and circulatory systems were negative.

The appetite has been poor; often he ate only a small piece of bread. His bowels were constipated. When the smell tests were made he noticed a difference in the tests, but could not name them correctly. The taste test, however, showed no inaccuracy. The tactile and pain senses were blunted, and there was some tenderness of muscles and nerves of the upper and lower extremities. The stereognostic sense was blunted. He said his fingers felt all thumbs, and it

took him considerable time to name objects in his hands. Sense of position, coordination and Romberg tests were good. The pupils reacted readily to light and accommodation. The masticatory and facial groups were normal. His articulation was indistinct, thick and monotonous, his speech was slow and labored.

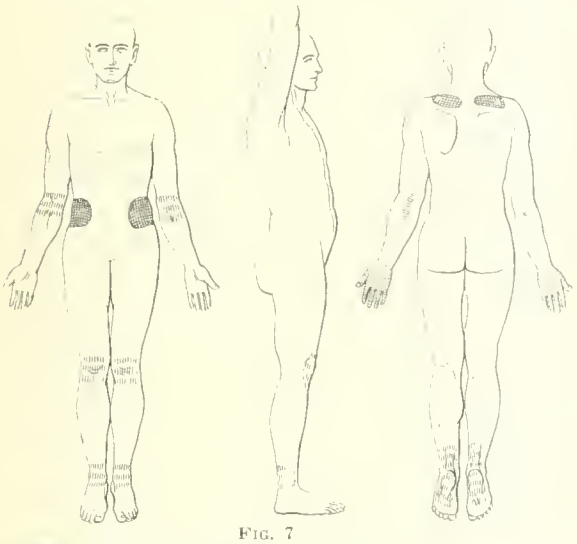

Fig. 7

Position of so-called "pads of fat."

Position of rough, scaly, and wrinkled skin.

Fig. 7.—Areas of rough skin and so-called "pads of fat."

The muscles were large, and the grip good. The hands and the calves of the legs were large. There were slight tremors of fingers and tongue. The gait was slow, labored, and stooping. There was nothing abnormal in the superficial or deep reflexes.

He has advised me recently that at times when he looked at a distant object it would seem to be at a much greater distance than it really was; also that he had difficulty in getting around in the dark, as he would run into the furniture, etc. He also said that when he felt a little bit cold he would experience great difficulty in putting on a collar or buttoning his clothes.

Although the patient cooperated fairly well during the physical examination, it was necessary to have an attendant with him, as he would get up and try to leave the room, saying: "They are calling me. There is a call for me. Let me go down there. I want to go right away. I want to go. It is getting about time for my train" (showing hallucinations of hearing). Again he said: "I want to go and see my brother. He is only going to live a few minutes. I don't want to be in here with my brother down there. We can postpone this examination." Another time during the examination he said: "Listen, I have to go out there! Let me down. Ask the gentleman there at the door if there isn't someone calling for me," and it was only after much coaxing and telling him no one was calling him that the examination could be continued. Another time he said: "Here, he is in there, I have to go. It is time now for the train to go. Let me go now. I can make the train all right if I go now. This examination won't do me any good."

Mental Examination.—Although he was quiet when admitted to the hospital, he became very restless, talkative, and hallucinated that evening, saying: "My brother is calling me," also "I am the Lord." He would not stay in bed, and it was necessary to transfer him to a disturbed ward. He refused to take nourishment.

Delusions.—"I to-day repeat, I am the Lord. The cause of my physical condition to-day is that someone has been persecuting me; and that I have been unwillingly given drugs I didn't know anything about; it had been fixed up for me. There has been considerable poison run through my system for their own personal benefit."

Fig. 9.—After 5 months under thyroid (return to health)

Hallucinations.—"I can hear voices; I can hear individuals, it seems I can hear a long distance away. A man claimed to be in Springfield, another in Jacksonville, Florida, another in Manchester! I talk to them; I can hear them speak. I have a wireless line in my head; a battery is there, and I can talk to voices anywhere. Things are sent to me by wire, and I read them in the paper the next day. I call them up; I can hear them right out of the air. It seems like it comes right down. The voices come to me and say: 'You are the Lord.' I hear angels singing religious songs. I can't explain how I hear the voices. It just seems like I can hear them coming right out of the air, their voices coming to me. They also tell me what to do. They tell me not to eat. I will die at 7 o'clock."

Orientation and Memory.—Although he knew his name, occupation and town, he did not know the day, date, month or year, or when he came to the hospital. After a long pause he was able to give the year in which he was born; but did not know his age or the year he was married, and could not give the ages of his children.

Memory of Immediate Past.—When asked where he was yesterday he replied: "Over in Heaven," "I don't know when I came or with whom; I get puzzled on these things."

To Show His Confusion.—When asked to give an account of what was done for him when he came to the hospital, he said: "Well, there wasn't anything much done. I took a bath, and then my sister was hurt and—an accident occurred with which you are all familiar—my brother was hurt—there have been so many events occurred since I have been here that I—that it has kept me in such a turmoil that it is a wonder I even lived to the present time."

Fig. 8.—After 3 months under thyroid (coarse features disappearing)

His retention was poor. His school knowledge and calculation was good.

Insight.—He said: "My mind could be worse, and I needed a little rest. There may be something the matter with it. The poisons given me is the cause of my condition more than anything else. I certainly want to get well. I don't know what line I will follow when I get well. The future alone can tell."

Urinary Examination.—February 26, 1913: Sp. gr. 1027. Acid reaction. No albumin or sugar. Indican present. Few epithelial cells and leucocytes. Few small hyaline casts. Very few granular casts.

BLOOD EXAMINATION

February 12, 1913		February 18, 1913		March 13, 1913	
R.B.C.	3,790,000	R.B.C.	3,860,000	R.B.C.	3,050,000
W.B.C.	10,400	W.B.C.	7,600	W.B.C.	8,600
Hb	90%	Hb	85%	Hb	75%
Color index	.8	Color index	1+	Color index	1+

March 26, 1913		April 2, 1913		May 9, 1913	
R.B.C.	3,220,000	R.B.C.	3,500,000	R.B.C.	4,080,000
W.B.C.	6,000	W.B.C.	4,800	W.B.C.	6,400
Hb	80%	Hb	80%	Hb	90%
Color index	1+	Color index	1+	Color index	1+

The red blood cells were variable in size.
Wassermann test made March 5, 1913, result negative

Course and Treatment.—As he became weak from insufficient nourishment the patient was transferred to the hospital ward and placed in bed. At first he was restless, would not eat, and had hallucinations and delusions. After persuasion he began to eat, and was then given iron and arsenic, also thyroid, gr. v, t. i. d. at first, which was gradually increased to 30 grains a day. Under the thyroid treatment the red blood cells at first decreased in number and the hemoglobin lessened. The dose of thyroid was decreased, until, three months after admission to hospital, he was taking 20 grains a day. During that time the bulky appearance of the body gradually disappeared; the intellect cleared; the skin gradually became normal; the nails changed in appearance; the old hair slowly fell out, and fine, soft hair began to come in; and the gait and speech improved. Finally he began to take interest in his surroundings, and said he felt as well as he ever had. Besides the medicinal treatment, light work with the florist was obtained for him, and a special nutritious diet was prescribed. He is at present a pleasant and agreeable patient.*

Although cases of myxedema are classed usually under the heading of the intoxication psychosis, I think this case can be allied to the infective exhaustive group, on account of the physical exhaustion, anemia, low percentage of red cells, confusion, hallucinations, changeable delusions, disorientation, clouding of consciousness, and changeable emotional reactions.

ANNULAR, SERPIGINOUS, BULLOUS ERUPTION COMPLICATING VACCINATION.

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ECTHYMA, impetigo, and bullous eruptions complicating vaccination have claimed the attention of dermatologists for many years past and yet the subject seems most unsettled. The number of case reports has served to build up a large class of lesions that may complicate this operation but efforts to classify them have caused endless confusion. The bullous eruptions particularly are hard to systematize and efforts to do so have only served to confuse our ideas of pemphigus, Duhring's disease, and other conditions they may simulate. Jenner[1] in his first writings on vaccination as early as 1799 mentioned these accidents following vaccination and pleaded for a more careful training and technique on the part of the vaccinator.[2] Stellwagon[3] in 1883 published a splendid article on the bullous eruptions following vaccination and concluded that such an eruption had no direct relation to it. Pusey[4] in 1893 reported a bullous eruption resembling dermatitis herpetiformis following vaccination, and similar cases were later reported by Becker and Stellwagon. Schamberg[5] in 1896 had in his practice an annular, serpiginous impetigo following vaccination, but this case had the usual impetigo crusts around the mouth in the beginning, attacking the axilla and pubic region later. Bowen[6] published in 1901 his report on six cases of bullous eruptions following vaccination that closely resembled Duhring's disease. Schamberg[7] reported in 1901 a case of acute pemphigus following vaccination. Howe[8] up to 1903 had ten cases of acute pemphigus or bullous dermatitis in his practice, nine of which had been recently vaccinated. A typical case of acute pemphigus following vaccination was shown the London Dermatological Society by Sequira[9] in 1902. T. Colcott Fox* in 1907 wrote an excellent article on the frequency of ecthyma, impetigo, and bullous eruption following vaccination and the presence of pure cultures of streptococci in all the lesions. These reports are a small number of the cases to be found in the literature and other men as Wipham, Saundby, Winfield, Zeisler, Kirby-Smith, Dyer, and others have all contributed cases which have a more or less direct bearing on this class of bullous eruptions.

The above is a fair example of the difficulty of arranging a satisfactory classification of skin diseases, in this instance three supposedly different diseases being reported as complicating vaccination with closely allied clinical symptoms and etiological factors which may be considered very similar. The question of how much the personal equation has entered into the diagnosing and separation of the diseases is a point to consider. Corlett[10] states in his report of a case of erythema multiforme bullosum that at one stage it could have very properly been diagnosed pemphigus foliaceus. Hazen's[11] case in other hands would have probably been classed as a bullous impetigo, beginning as it did in typical impetigo lesions of the scalp, spreading to the body, and yielding a pure culture of *Staphylococcus albus*, probably a secondary infection. Towle[12] showed a case of Duhring's disease that many dermatologists considered acute pemphigus. Too much attention in the past has been paid to such clinical symptoms as grouping, itching, proceeding or surrounding redness, recurrences, and foliation and not enough to laboratory examination of the contents of these bullæ, autoinoculation, and animal inoculation. Many or all of the above clinical points may be brought out in cases of dermatitis herpetiformis, acute pemphigus, bullous impetigo, and bullous erythema multiforme and time only is necessary in many cases to cause one disease to become another, at least clinically. To my mind it should take more than mere itching and grouping to change a case of pemphigus into dermatitis herpetiformis as Pernet's[13] case reported in the *British Journal of Dermatology*, January, 1910. The pemphigus class probably suffer more by this inflation than any other. Congenital pemphigus

*Through correspondence I have kept in touch with this patient up to June, 1914. He is in good health, and is teaching school in the South. He is taking a 2-grain tablet of thyroid daily.

**British Journal Dermatology*, 1907, page 191.

has been placed in an entirely separate chapter of dermatology, while bacteriological examinations have convinced us of the impetiginous nature of pemphigus neonatorum and its terminal dry stage dermatitis exfoliativa neonatorum (Ritter[14]). Is it not possible to swell further the coccogenic and impetiginous group at the expense of the heterogenous pemphigus class? Hartzell,[15] speaking of the bullous lesions following vaccination, was of the opinion that they were closely related to pemphigus and he sees no reason why they should not be included in its category. Pusey[16] in his textbook goes further and places these cases in a separate chapter but still under the general heading of pemphigus. Sequira[17] apparently thinks that they conform better to the acute malignant type than to true pemphigus. In fact, from the arrangement in his book one would be led to believe that he considers them less related to true pemphigus than is Duhring's disease. It seems to me that a certain number of these so-called cases of bullous erythema multiforme, bullous impetigo, bullous dermatitis herpetiformis, and acute pemphigus deserve to be placed under an entirely different heading. By stretching the imagination the bullous eruptions following injuries, vaccinations, infections, and uncommon impetigo-like lesions may be placed with one or the other of the above diseases, but that they represent true types I believe few will admit. As Hartzell stated, the acute pemphigus class is better fitted to receive the majority of these cases than any other we may have at present, but as long as the word pemphigus is affixed there will be confusion. If pemphigus is to include these progressive bullous diseases which follow worry, nervous disturbances, and anxiety, which are noncontagious and noninoculable, our conception of it must be stretched to the breaking point in order to include some of the above mentioned cases. Enough bacteriological work has been done at this time to show the multiform organisms that are to be found in the present pemphigus group. This has led various dermatologists throughout the world to insist on this or that coccus or bacillus being the cause of pemphigus. A survey of the papers by Pernet[17] and Balloch, Bowen,[18] Demme, Bleibtreu, Corlett, Wiphàm, Du Mesnil de Rochmont, Allen Petges and Bechlonne, Towles, Hazen, and Pusey will give one some idea of the number of different organisms that produce pemphigus in one of its forms, and each particular writer seems to have a good reason for his conclusions. It may be that when laboratory methods are much further advanced and the specificity of the organisms commonly found in these skin lesions is more thoroughly understood, there will cease to be any pemphigus and each bullous eruption will have its particular etiological organism. This would necessarily cause a tremendous commotion in the present classification but it would, to say the least, place the whole category of pemphigus on a scientific and sane basis which is not the case at present. Nor do I consider the pemphigus group alone at fault in this regard, but such cases of bullous erythema multiforme following injuries and infections as Corlett's case or the quoted epidemics by Molones-Mahon, Vidal, Leloir, Rigler, Herxheimer, and Goal lead one to believe that they are not to be considered true examples of erythema multiforme but are examples of bullous eruptions caused by specific organisms. Streptococci have been found in the blood and unruptured bullæ of some of these cases and may account for some of the reported epidemics. The dermatitis herpetiformis group has also been stretched to make room for some of these bullous eruptions. Enough is known of the etiology of this disease to lead one to suspect that exposure to cold, shock, nervous exhaustion, and worry are the chief underlying cause of Duhring's disease. No specific organisms have been found in the lesions and the disease is neither contagious, infectious, nor autoinoculable. Because a bullous eruption has a few characteristic clinical symptoms, such as itching or grouping seems insufficient cause to warrant a diagnosis of dermatitis herpetiformis bullosa in cases that run a septic course and follow infected wounds as vaccinations. The reports of cases by Dyer, Bowen, Pusey Becker, and Kirby-Smith failed to discuss the bacteriological findings except to a limited degree Acute bullous dermatitis or septic bullous dermatitis seems to me a more suitable name for most of the above-mentioned aberrant forms of acute pemphigus, erythema multiforme, dermatitis herpetiformis, and impetigo. Under this heading I would like to report an interesting case that I have had in my service at the Washington Asylum Hospital.

Frank S., colored, 28 years old, born in the District of Columbia. Family history—Mother and father living and in good health, five sisters and two brothers also living and in good health. Personal history—Measles at 13, a history of repeated sore throat before that time, whooping cough at 15 with slight conjunctivitis complicating it which lasted for three weeks Gonorrhea at 19 which lasted one month. In one month and a half after the first attack the patient had another attack which gave him very little trouble and disappeared in two weeks. This preceded a sore on the upper surface of the corona of the glans penis which was pronounced a chancre at one of the local hospitals No dark field examination was made in this case. The lesion disappeared in three days after dusting it with calomel. October 15, of last year he suffered from what he terms his third attack of gonorrhea. The discharge at this time was very profuse at first but yielded to treatment and was finally cured by April 1. At this time he was confined in the District Work House at Occequan, Virginia, and was still confined in the same institution until June 16. Nine days before being discharged from this prison he was vaccinated against smallpox along with a number of other prisoners. Three days after vaccination he noticed several small blisters on his right leg and soon the back, face, arms, and chest became involved in the order named after which he was placed on my dermatological service.

On June 26, 1914, an examination of the lungs, liver, spleen, and kidneys proved them to be normal, osseous system normal, arteries compressible, muscular system well developed and normal, nervous system showing knee reflexes absent, Babinski's sign not present, cutaneous sensibility normal. Cervical, popliteal, and inguinal glands not enlarged, submental, axillary, ulnar, supratrochlear enlarged and tender, hearing normal, left iridobulbar and palpebral conjunctivitis appearing at the same time as the cutaneous eruption; temperature 100°, pulse 99, respirations 26. The patient has a generalized bullous eruption which gave rise to a sickening odor by some thought to be characteristic of pemphigus. The lesions were variable in size as the photograph shows and located mostly on the lateral chest walls and extensor surfaces of legs and arms, while the face was more mildly attacked. The axilla, scalp, flexor elbow surface, popliteal space, palmar and plantar surfaces, fingers, and toes all remained free of the eruption to the end. Some of the bullæ were as small as 4 mm. in diameter others well over 4 cm. across. The earliest bullæ were preceded by congested spots, without subjective symptoms, which within twelve hours would develop into well distended blisters with firm covering which were sharply convex, making each lesion stand out prominently as a distinct globular elevation. The older lesions tended to be somewhat more flaccid and Nickelski's sign could be demonstrated in some; a number of the bullæ retained their hemispherical character until ruptured or absorbed. After the individual lesions were 48 hours old a narrow sur-

rounding congested halo could be discerned accompanied by a changing of the perfectly clear watery contents of the blister to a purulent or seropurulent fluid, many of the lesions would persist for a variable time after this change, advancing and progressing on one border, broadening out fan-shaped, while subsiding, becoming

Fig. 1.—Annular, serpiginous arrangement of bullæ.

less active, and absorbing on the other. In some locations, as the lateral chest walls, the center and edges of some of the larger bullæ had become less active and depressed producing in places ring, crescent, and gyrate lesions which would advance in some cases two inches before finally subsiding, bursting, or absorbing. (Fig. 1.) This would cause the lesions to change their shape in a few days and lead to the formation of the most interesting gyrations. As the daily changing and spreading led to unusual configuration so would the subsidence and drying up of the eruption leave in its trail the most striking scroll-like lesions, resembling the plates of tinea imbricata or the case of annular syphilis reported by Howard Fox. The concentric rings formed by the dropping in and desiccation of the bullæ coverings persisted until the patient left the hospital, and recalled the tendency of cutaneous eruptions in the negro to undergo such fantastic scroll-like formations. (Fig. 2.) The bullous eruption persisted from June 16, until July 1. The temperature in the meantime showed a septic course and a daily variation of from one to three degrees, but at no time was it charted over 100°. Autoinoculation was not attempted, but the first lesions developing on the legs following scratching and the course of the disease would lead one to believe that such an accident played a prominent part in its spread. After July 1 the eruption began to subside, the bullæ ruptured more easily, absorption of the fluid from them seemed to be increasing, while new lesions failed to appear. These blisters that ruptured and exfoliated their coverings persisted a few days as raw, moist, secreting surfaces which soon became covered with epithelium, leaving dark stains but no scars in their places. At no time were there any signs of honeycomb stuck on impetiginous crusts to complicate the true bullous eruption which remained of one type throughout. The mucous membrane of the mouth was attacked also, the quickly rupturing lesions in this location leaving denuded, red, easily bleeding lesions and made the taking of food painful. The only subjective symptoms the patient ever complained of were stiffness and tenderness of the cutaneous surface when he changed his position. The eye condition persisted while the eruption continued to appear, but improved and had almost disappeared when the patient left the hospital. It would be interesting to know if it would lead to essential shrinking of the conjunctiva, as reported by von Grafe, Morris, and Fuchs following pemphigus. Three days after the patient was admitted to the hospital a newly formed unruptured blister was painted over with tincture of iodine U. S. P., and opened under the most aseptic conditions. Cultures were made on agar and the organism proved to be a pure growth of *Staphylococcus pyogenes aureus*. July 1 found the eruption almost healed and the patient insisted on leaving the hospital against my wishes.

Leaving aside the peculiar configuration of the eruption seen in this case, it is to me of sufficient importance to be reported in order to try to clarify the subject of bullous eruptions. Here is an eruption which certainly should not be considered a case of true pemphigus, although many such cases have been reported in the past as acute pemphigus or malignant pemphigus. The entire course of the disease suggests an infection possibly in addition to some anaphylactic reaction in a patient presensitized by vaccine and who was perfectly well before being vaccinated and infected and in whom the supposedly commonly suspected etiological factors of pemphigus played no part whatever. The staphyloccoccus grown from a prematured unruptured bulla would point to this organism as being the exciting cause of the eruption. Bullous impetigo, dermatitis herpetiformis, or erythema multiforme would not enter into the diagnosis, although closely allied cases have been reported under such headings. Acute bullous dermatitis or septic bullous dermatitis seems to me to be a name more suitable than any of those given above and one which makes unnecessary the distortion of any particular group in order to classify it.

Fig. 2.—Showing scroll-like remains of the eruption with concentric rings of exfoliating scales.

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1219 CONNECTICUT AVENUE, N. W.

ACUTE MYELOGENOUS LEUCEMIA.

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THE various diseases characterized by changes in the blood itself are always of extreme interest, but because they are not especially rare and because the differential stain shows such a clear cut picture it is only in the so-called border line cases and in cases similar to the one we are studying that we are traveling in diagnostic fields which are still somewhat obscure and which require more cases to be studied more carefully before a proper classification can be made. In respect to etiology and treatment, the whole field of blood diseases offers most promising rewards for diligent research workers.

In 1896 Van der Wey described the first case of this condition reported in the literature. In 1903 Billings and Capps through the medium of the *American Journal of the Medical Sciences* first brought the condition strongly to the notice of the American medical profession and were able to report 9 cases which they collected from the literature. In 1910 Wolfer (*New York Medical Journal*, November 26, 1910) was able to bring the list up to 20. Since then 3 or 4 other cases have been reported so that the total list of cases is now under 25 and it is quite generally recognized as a distinct disease, although some men, even of the prominence of Adami, while freely admitting the occurrence of acute lymphatic leucemia deny the myelogenic counterpart.

Mrs. R., aged 64; father died at the age of 69 and mother at 64 from acute diseases unknown to the patient. She has a brother and sister who are both living and well. She is married, has had 13 children and with the exception of a severe attack of pneumonia in 1894 has always been strong and well. The present illness began about July 1 when she was taken with a severe attack of nosebleed which was not fully controlled until two days. On July 12 she was up and about, but complained of a tired feeling and lassitude. She had lost some weight and always complained of shortness of breath. At that time she was somewhat anemic, had a blood pressure of 118 millimeters and had a soft blowing systolic heart murmur. Her pulse was 80, of fair quality. Her temperature was not taken. On July 15 she was again seen and again suffered from severe nosebleed, which required to be tamponed and did not entirely cease until about July 20. At that time her temperature was 101°, her pulse 90, respiration 20. The lungs were negative, heart negative except for slight systolic murmur, spleen slightly enlarged but not palpable, liver slightly enlarged, abdomen soft and tympanitic. During the first two weeks of her illness the bowels functioned normally but later obstinate constipation developed. Here it may be stated that during the whole course of the illness the patient ran a temperature which varied between 99.5° and 102°. The temperature was continuous and characterized by slight, if any, morning remissions. About July 23 small hemorrhagic areas developed on the upper lip and on the under surface of the chin and there also developed small hemorrhages into the subcutaneous tissue of the orbits which gradually increased until both eyes were surrounded by dark blue hemorrhagic areas. Throughout the whole course of the disease the patient was somewhat listless and apathetic, but was not delirious and retained consciousness until a very few minutes before death. There was very slight enlargement of the inguinal glands. At different times during her illness she complained of a sore throat which was reddened and congested. She developed sordes on the lips and tongue and at times developed slight hemorrhages from the gums.

This clinical history beginning with nosebleed, fever, and malaise naturally suggested the probability that we were dealing with typhoid fever, so about this time a Widal was done which proved negative. Early in August the hemorrhages all ceased and the ecchymoses began to be absorbed, but the fever continued and the patient very gradually lost in strength and vitality. On August 5 the Widal was again repeated and was again negative and a complete blood examination was made with the following results: Hemoglobin, 40 per cent.; red cells, 2,480,000; leucoctyes, 64,000; color index, 8.8. Differential count of 200 white cells showed

FIG. 1.—Mrs. R., 6 hours before death, showing remains of orbital hemorrhage.

the following proportions: Polynuclear neutrophiles, 20 per cent.; transitionals, 8 per cent.; lymphocytes, 7 per cent.; large mononuclears, 23 per cent.; myelocytes, 42 per cent. During the count an occasional nucleated red cell was seen and there was a moderate degree of poikilocytosis.

On August 6 blood cultures were made from blood removed from the median vein with a 10 c.c. syringe. From all inoculations made with this blood Gram positive non-pigment-forming staplylococci were isolated in pure culture. Another blood examination on August 7 gave findings identical with the one just reported except that the leucocytes had increased to 70,000.

The urine was scanty, acid in reaction had a specific gravity of 1.022, contained a slight trace of albumin, a great excess of indican, and the sediment showed a few hyalin and finely granular casts.

The patient gradually weakened, the heart's action became more rapid, and she finally succumbed on August 8. A partial autopsy was allowed which was performed that evening. The body was that of a fairly well developed, poorly nourished woman of apparently 60 years of age. The remains of the hemorrhages were seen about the eyes and upon the upper lip. Rigor mortis was slightly developed. There were no hemorrhages in the peritoneum and nothing of importance was noted except that the liver was somewhat enlarged, and anemic and the cross section showed indistinct markings and a condition of cloudy swelling of the organ.

The spleen weighed 267 grams and was 10 by 5 by 2½ centimeters in its dimensions. The surface was smooth, of a deep brownish red color and showed a few small areas of perisplenitis. The splenic tissue was very friable and tore under the slightest pressure. On cross-section it was seen that the tissue was very succulent and the pulp was easily expressed from the surface and smears were made which showed many large mononuclear cells with granulars which stained some with the acid and some with the neutrophilic stains. The trabeculæ and Malpighian bodies were distinguished with difficulty.

The kidneys showed senile changes and also a moderate degree of cloudy swelling. Paraffin sections were made of these organs and are now being studied. It is to be regretted that the marrow of the long bones could not be examined.

Bouillon cultures were made of the staphylococcus and guinea pigs and rabbits were injected, but it was apparently non-pathogenic and produced no symptoms except that in the rabbits the leucocyte count was raised from 3,200 to 18,000 and 20,000.

Conclusion.—We are dealing with a case of myelogenous leucemia ushered in by nosebleed about July 1, running a course, at least highly suggestive of an acute infection, and terminating in death about 39 days after the onset.

In regard to the blood cultures, we believe that contamination with the common *Staphylococcus albus* may be ruled out because of a most careful technique because of the isolation of the same organism in four separate inoculations and because the colonies of this organism are colorless, not white. We then are dealing with either an intercurrent infection, a terminal infection or an infection which is of etiological importance. We believe that a discussion of this question at this time would be of little weight or value and wish merely to state that the disease has all the earmarks of an acute infection and to say that in 1907 Zeigler and Jochman (*Deutsche medizinische Wochenschrift*) reported a case in which staphylococci were isolated from the pericardial cavity after a severe hemorrhage.

We believe that a careful blood examination in cases of apparent typhoid fever which have failed to give a positive Widal, will bring to light more of these interesting and obscure cases, and that blood cultures taken early in the course of the disease will clearly show its bacterial origin, and reveal the presence of an organism of low grade virulence, possibly identical with the one that we have mentioned, that has gained entrance to the red bone marrow or other hematapoietic tissue and there developed a type of sepsis which manifests itself in the symptom complex known as acute myelogenous leucemia.

THE LOAD OUR STUDENTS BEAR.

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SOME time ago the Coroner of Philadelphia, investigating the death of a student at the University of Pennsylvania, made the startling assertion that three-fourths of the class at that institution were in the habit of taking stimulants to enable them to fulfil the tasks imposed upon them by the course required. Coming from an official source like that, the statement demands consideration. If any appreciable proportion of our students are forced into drug habits by the severity of the strain laid upon them, it is time to call a halt on the increase of the requirements.

Bennett Medical College is distinctly a "poor man's school." Of 443 students in one year, about two-fifths work during term time to earn their expenses; in addition to attending college for an average of 44 hours a week, and such study as they may do outside of school hours. These men work in the post office, express, railway, pharmacy, and many other places—wherever a few dollars are to be earned during the hours not devoted to their classes. Certainly, if any medical students feel the strain it should be these men.

I wrote to every member of the class graduating last year, requesting information concerning their own cases and that of their classmates. These men had completed their courses and received their diplomas. They had no reason to refuse the information asked, and every reason to tell the truth. As far as possible I have counter-checked their statements by the evidence of each concerning the others. I believe, therefore, that the data here given may be considered trustworthy.

No. 1.—Besides college class work studied 25 hours a week; worked 12 hours a week. Total 82 hours a week, or about 12 hours a day. Effect on health rather bad. Used no stimulants except a little nux, iron, and gentian, when anemic. Only a strong constitution could endure it.

2.—Worked 58½ hours a week; making with school duties 18 hours a day. Tried alcohol to keep away sleep but failed. Tobacco did better. Coffee answered the need. During last 3 years took tonics and cannabin gr. 1/10 thrice daily, increasing during examinations. Supported wife and two children. "Most positively could not have done this without stimulation."

3.—Studied 27 hours a week; did well by keeping bowels regular and resting on Sundays. Those who studied on Sundays, or used alcohol and tobacco, did not do as well as others. This man did not work during his last two years.

4.—Worked none during school time. Studied five hours a day. Perfect health; needed and took no drugs. Some did take drugs, more from habit than necessity.

5.—Used no stimulants.

6.—Studied four hours a day. Worked two hours a day. Health not injured. Some others used strychnine and alcohol during examinations.

7.—Studied and worked four hours a day each. Used no stimulants.

8.—Used no stimulants but took good care of health. "Four long years of hard study besides the work one has to do outside of the school are certainly enough to shake the health of any robust student."

9.—Studied five hours a day outside school; did not work. Developed indigestion from over-eating and lack of exercise; also iritis from over-work. Nursed a sick mother. Took no stimulants but a two-mile walk daily.

10.—Studied three hours a day; did not work. Took no stimulants. No ill effect except nervousness.

11.—Worked 8 hours a day, studying at odd moments. No stimulants. Health now poor, having lost 17 pounds weight in last year. Smokes after meals. Supports family. Did not pass finals, from inability to learn when exhausted by work and lack of sleep.

12.—Studied four hours a week-day. No work. Gained weight and was never in better health. Used no stimulants, but drank beer and wine as ac-

customed to before and since school years.

13.—Studied three hours a day. Devoted 2½ hours a week-day and four hours Sunday to business. Grew thin but remained well. Used only tobacco regularly; occasional beer. While it is a hard game to work and study, men who used stimulants did so from habit or choice, strain being a mere excuse. "School work doesn't worry these except at examinations." Very few real workers use anything, or suffer in health.

14.—"Should the requisites be more exacting many of us would be obliged to resort to stimulants to keep up; or acquire some magic force or power to make good." Use coffee daily as a habit. Occasional beer or wine relished. Never used either, or any drug, as a stimulant. Stopped when limit of endurance was reached. Working students do not do themselves justice.

15.—Did no work; averaged four hours a day studying. Used no stimulants.

16.—Studied three hours a day, more near end of term. Did no work. Used no stimulants. Cared for health. One other student used caffeine.

17.—Used no stimulants. Studied five hours a day. Quite a number of students used strychnine, caffeine, and alcohol.

18.—"The medical course is too strenuous and I would not repeat it for a quarter section of land each year." Studied four hours a day. Worked three hours a day. Unfitted for work much of the time. Used strychnine and other tonics; wife says he lived on stimulants but this he denies. Shunned alcohol but used malt. Took camphor to induce sleep. Others used strychnine.

19.—Studied three hours a day. Worked three hours a day. Was nerve-racking, and still feels the evil effects. Took no stimulants. Some use strychnine—among the best in the class.

20.—Studied four hours a day. Did little work outside. During third year suffered sense of high vascular tension after two hours' study, with mental disability and headache. Is now well as when he entered college. Took coffee for dizziness when studying more than two hours. Lost much health during course. This was a foreigner who had difficulty with his English.

21.—Studied three hours a day; worked six hours but did some study during these; the college course did not injure health, finished in excellent condition and remains well; had plenty of exercise, but could not regulate quantity or quality of food, both which were at times deficient; used no stimulants, did not need them; not even tea or coffee as a habit; alcohol did not stimulate but hindered.

22.—Studied twelve hours a week; used no stimulants of any kind to aid in work; did little outside work; health not affected—gained weight.

23.—Did no study, his previous attainments being so great as to render it unnecessary; but reviewed the week's work each Sunday; worked in shop every evening until midnight, supporting wife and child; no effect upon health; used no stimulants to aid study, but smoked.

24.—Studied seven hours a day; worked six hours a day for first semester, but not after holidays; weight dropped from 118 to 102; used stimulants and narcotics, mainly coffee with occasional alcohol; it is not the work that hurts but the worry.

25.—Used no narcotics, but strychnine and caffeine to keep awake all night during examinations; worked from 5.30 to 11 P.M., studied till 2 A.M., slept from 2 to 7 A.M., became neurasthenic and hypochondriac, lost 40 pounds weight, had appendectomy, and three other operations; but has regained health since graduation.

26.—Studied six hours a day; did little work; closed college course with health improved; used no tobacco, alcohol or other drugs; his stimulant a cold bath; vegetarian, eating meat once a week.

27.—There were no drug addicts in the class; tobacco and alcohol used by majority; studied two and one-half hours daily; health better at end of senior year than at beginning of freshman; used dumbbells and cold showers; did no outside work; used tobacco regularly and alcohol occasionally, the latter in sophomore and last semester of senior years; passed State Board with record of over 88 per cent.

28.—Studied 2 to 3 hours; worked 4 to 5 hours daily; effect on health fair; used no stimulants beyond several cups coffee daily, no alcohol, very little tobacco, slept well.

29.—Studied four hours daily; during senior year served as extern, rarely having a night undisturbed; operated on for appendectomy when senior, effect on health doubtful—gained 15 pounds since graduation; never used stimulants or narcotics or even thought of using them during course.

30.—Used no stimulants or narcotics, not even coffee or tobacco; did little outside work during last year, but did some in the other years; "Eight hours' note-taking after lecturers daily, taxed physical being to the extreme limit."

31.—Worked outside school from 4 to 12 P.M., besides two to three hours' daily study; health good but lost 12 pounds weight; used no stimulants except a rare glass of beer. Passed state board before graduation, in two states.

32.—Studied one hour a day outside classes and put in all spare time days and evenings in the hospital; effect on health good; used no stimulants, smoked some.

33.—Studied 2 to 3 hours a day outside college; worked 3 to 4 hours a day; used alcohol moderately, tobacco to excess; did not study Sundays; in no way affected health.

34.—Studied 5 hours daily; did no work; no ill effects; used no stimulants or hypnotics. This was a colored man who passed his examinations with credit in Jamaica and in Massachusetts.

35.—Used no drugs except tobacco and an occasional beer; and hot coffee to keep away sleep; studied 35 hours a week but thinks the average student cannot bear more than 20 hours; when students made a poor showing they and not the curriculum were at fault. This man attended his first and second years at a night school; he passed before the Illinois Board the best examination of the last five years, stood nineteenth in the Cook County Hospital competition held exclusively by examiners from one of the competing colleges, and secured immediately a lucrative hospital appointment.

36.—Studied five hours a day; not including Sundays; spent no time at supportive work; no bad effect on health, but took exercise, never crowded digestion, kept bowels regular and slept well; too many students lost out by crowding brains; took no stimulants but went to bed when overcome by sleep, studying in early morning; once or twice in freshman year took caffeine citrate gr. ½, but it did not answer.

37.—Studied eight hours a week outside class; worked four hours a day; no bad effect on health;

used no drugs, cut out smoking the three months before end of term.

38.—Had to work so hard in junior year that near its end had to take several cups strong coffee to keep awake at nights; for a month also took phosphorus; studied 25 hours a week; 42 hours' work weekly; at end of third year became nervous, memory and thought became difficult; smoked often, to 10 cigarettes a day, seldom drank except on a holiday a glass of wine.

39.—Studied 5 to 6 hours seven days a week; did no work for money; no harm to health; never had to use stimulants—the course was never so heavy as to compel him to extend himself very much; same as to drugs.

40.—Studied little because had to work every hour possible outside college classes; used no stimulants or narcotics; health always good. This man barely passed his finals.

41.—Studied 10 hours a day; did no manual work; used no stimulants, litttle tobacco; lost 10 pounds weight, but suffered no real injury to health.

42.—During first and second years worked average of four hours a day; studied three hours a day, smoked as usual five cigars a day; third and fourth years studied 30 to 40 hours a week, smoked as usual, had good health except some eye-strain; gained weight 10 pounds; used no stimulants; suffered in examinations from nervousness; health good now.

43.—Studied three hours a day. Did janitor work 5½ hours a day. Kept awake by walking. Never lost a day from school. Used nothing; never tasted alcohol.

44.—Studied four to five hours a day outside college; worked six hours a day besides; no ill effect on health because of a very strong constitution; no stimulants except cigars seven a day and coffee three cups a day.

45.—Studied two hours a day; worked six hours a day; lost 26 pounds weight; used no stimulants or tobacco.

46.—Studied three hours a day; did not work; health broke down from bad sanitation as well as overwork; used no stimulants.

47.—Studied three hours a day excepting Sunday; worked six hours a day including Sunday; earning thus entire expenses of college course; as well as four-year high school; health at graduation fairly good, due to active outside work; without which health would have given way; used no stimulants except a cup of strong coffee or chocolate just before going in for examinations.

48.—Studied an hour occasionally; did no other work; perfect health during entire four years at Bennett; occasional cigar or beer, used no stimulants or tonics, drank coffee at breakfast, because always in a hurry, and did not always have price of a breakfast. The average student could cover the course in less than four years and do it better.

From several men I have been unable to obtain a direct reply. Of each of these I have secured data from room-mates or intimate friends, and I am sure that not one of them used alcohol or drugs habitually during his term. Nevertheless, as some may not trust this indirect evidence I state the facts of the matter.

It is evident that the personal equation must be applied, rather than any generalization based on averages. Probably the most significant reply is that given as No. 47. This man gave 18 hours a week to study, and 42 hours to productive work, yet finished in good health and even attributed this to his outside work. Note that he did no study on Sunday, and this stands for a moral life as well, which has not been without its influence. Such men are not likely to dissipate their energies in other ways.

Nevertheless, the showing is not a good one for the workers, more than half complaining of the strain. This goes to confirm the views of those who claim that the student should not try to do productive work while studying medicine. I regret this, for the students of this class have as a rule approved themselves of superior quality. The man who works to earn his education does better and is of better stuff than the one whose relatives pay his expenses through college. But—truth is truth, and I present the evidence as it comes to me from the students themselves.

The man who attempts to earn his living while attending the modern medical school, should lay down his campaign as carefully as the modern general does, and calculate his own powers, the means of keeping his body in the best condition and the extent of his own working capacities without undue strain. In a word, he must be a qualified sanitarian and successfully apply the laws of sanitary science to his own case.

Beyond this, the same duty accrues to the school. I have had to advise intending nurses to avoid one at least of the Chicago nursing schools, because the students broke down from overwork and bad hygiene before the completion of their course, and presented themselves at graduation in a condition of physical exhaustion that reflected anything but credit upon the institution.

Questioning the head of the school upon this, the only satisfaction received was that "this was a matter the nurse should have seen to before she undertook the course." Believing that this was not the spirit that should be inculcated in the nurse, and that there was evident a lack of capacity for comprehending or teaching the necessary duties of the profession, I had to advise prospective nurses against that school.

A medical college that allows its students to work during term time must look after the health of these men and see that it does not suffer. It need not; but it is up to the college to see that it does not suffer.

A CASE OF RETROPERITONEAL AND EXTENSIVE SUBCUTANEOUS EMPHYSEMA FOLLOWING INTRATRACHEAL ANESTHESIA, WITH RECOVERY.

BY SIMON D. EHRLICH, M.D.,

NEW YORK

ANESTHETIST [illegible] BETH ISRAEL AND JEWISH MATERNITY HOSPITALS.

THE writer desires to place on record the following case which is one of unusual interest:

Celia B., aged 31, was admitted to the Beth Israel Hospital February 5, 1913. She was kept under observation until April 2, 1913, when she was operated on by Dr. Charles Goodman for intermittent pyonephrosis due to obstruction of the ureter. On examination of the patient, before anesthesia, the general condition was found to be good; heart and lungs normal, temperature normal, pulse 88, respirations 24. The patient was easily anesthetized by gas, oxygen, and ether, a Coburn inhaler being used. She was then easily intubated with an ordinary soft sterile rubber catheter, 22 Fr., introduced by means of the Cotton introducer. The catheter was then connected with the

Elsberg intratracheal apparatus and the anesthesia continued with a pressure of 20 mm. Hg. and an ether index of 30. Color, respiration, and pulse were good. The operation was then begun, the first part being an exploration of the kidney through the usual lumbar incision, the patient being placed on her stomach. (I wish to remark that since the advent of intratracheal anesthesia, we have been using this method to distinct advantage for all kidney operations where the patient is placed flat on the stomach and the breathing is embarrassed, making the ordinary methods of anesthesia difficult and unsatisfactory.) The kidney was delivered and incised. It was then found impractical to continue the operation in this position. The kidney was then sutured and replaced, and the wound closed. The patient was then turned over and the abdomen was opened on the right side and a transplantation of the ureter above the point of obstruction was made into the bladder. The first part of the operation took about thirty minutes. The anesthesia progressed smoothly: breathing and color were good. Soon after opening the abdomen and the search for the ureter begun, a marked emphysema of the retroperitoneal space was noticed. There was no change in the appearance of the face or neck. The general condition was good. The operation progressed and the anesthesia was continued. It was only at the close of the operation, about forty-five minutes after the appearance of the subperitoneal emphysema, that the swelling of the face with the characteristic crackling of emphysema was noticed. This soon spread, involving the entire face, neck, and chest. The anesthesia, which had lasted one and a half hours, was discontinued. General condition was good: color, respiration, and pulse were satisfactory. April 3, the day following the operation, emphysema of the face and neck was somewhat less marked. April 4, still less. April 5, it had diminished considerably, and the patient's general condition was very much better; the abdominal distention from which she had been suffering was relieved. The emphysema diminished rapidly, so that on April 8, six days after the onset, it had completely disappeared. The pulse rate on the days following the operation ranged between 88 and 100, respirations between 22 and 28. The patient was never cyanosed, the breathing was not labored, and there were no signs of laryngitis or bronchitis. The patient's wound closed by primary union. Her general condition was good and continued so, until her discharge from the hospital on May 6, 1913.

In explanation of this condition the only possible cause that I can see is a slight abrasion of the pharynx or larynx, due to the introduction of the catheter. I do not believe that we can consider here the possibility of overdistention of a bronchus and rupture of the lung, this being the probable etiological factor in Luke's[1] cases, because we had here an instrument which was under constant control, a safety valve in action, with pressure never above 25 mm., and the catheter not being down far enough to have entered a bronchus. The extensive retroperitoneal emphysema is explained by the entrance of air through the abrasion in the pharynx or larynx into the posterior mediastinum and from here along the spinal column to the retroperitoneal space. This condition is very rare. I have not been able to find a single reference to it in the literature. There is a report by Carl Herrman Dischler[2] of subperitoneal emphysemas following rupture of the uterus during labor. In these cases the air was found in the anterior wall of the abdomen in the hypogastric space. I suppose there have been instances of air in the retroperitoneal space, but these remained unnoticed because laparotomies were not performed. In our case recognition was simple, because the abdomen was open.

To those who may object to the method of intubation used, I wish to state that I have been using it for two years, and find it much more simple and satisfactory than the introduction by Jackson's direct vision laryngoscope. Contrary to the Jackson method, in the use of the Cotton introducer, the patient does not have to be moved over the edge of the table, there are no interruptions due to the burning out of lamps; the handling of the introducer is much more easily mastered. After all, why should it not be possible to introduce a catheter into the larynx, by means of the sense of touch, as easily as is constantly done with tubes in intubation? I have had difficulty with the introducer in a few cases and I found the cause to be a rather small pharyngeal orifice which did not allow the catheter to be brought to the larynx on account of the large curve of the Cotton introducer. I had Tiemann & Company make an introducer for me, with a smaller and somewhat differently shaped curve which I find overcomes this difficulty. One of the principal reasons for the use of the Jackson method of introduction was that one could be absolutely certain that the catheter was introduced into the larynx. In spite of this there have been numerous instances of pharyngeal introduction and anesthesia as is mentioned by Meltzer[3] in his recent article on how far the catheter should be inserted into the larynx. He there speaks of the fact that one must introduce the catheter up to the point where one meets with an obstruction, showing that it has entered a bronchus. This is done to make certain that the catheter is in the larynx, and not in the esophagus, which proves that by this method, even by direct vision, one cannot tell absolutely whether the catheter is in the trachea. With the ordinary introducer, however, it is always possible to make sure with the index finger of the left hand, which is in the throat as a guide to the introducer, as it is used in intubation, whether the catheter is really in the trachea.

In closing, I wish to state that, in spite of the possibility of this accident of subcutaneous emphysema occurring, which is after all very infrequent, this being the third case reported, I believe that, with the proper use of a safety valve, this form of anesthesia is the safest and most convenient we have to-day in operations on the head and neck, in those within the thorax, and those requiring positions which embarrass respiration.

REFERENCES.

1. Luke: *Surg., Gyn., and Obst.*, 1913, Vol. XVI, p. 204.
2. Dischler, Carl Herrman: "Aus der Koeniglichen Frauenklinik in Dresden," 1898.
3. Meltzer: *Journal A. M. A.*, May 16, 1914.

133 Avenue B.

Medicolegal Notes.

Application for Charter—Legal Status of Applicants. In an application for a charter for a corporation of the first class, to be known as the "Chiropractors' Association of Pennsylvania," it appeared that the applicants were engaged in general practice in the treatment of diseases, but that they had no legal status as medical practitioners. It was held not an abuse of discretion of the court below to withhold approval of the application until they had attained such status under the laws governing medical practitioners.—Appeal of Chiropractors' Assn. of Pennsylvania, Pennsylvania Supreme Court, 90 Atl. 335.

Hypothetical Questions—Basis.—A physician's opinion that the plaintiff's condition was the result of an injury received by her in a specified accident was held to be incompetent where it was based in part upon a physical examination, in part upon the history of the case as related to him by the plaintiff, and in part upon what the plaintiff's attending physician had told him in a consultation.—Beattie vs. J. L. Hudson Co., Michigan Supreme Court, 146 N. W. 650.

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CEREBROSPINAL FLUID.

SINCE the introduction of lumbar puncture by Quincke in 1891 a great amount of information has been accumulated concerning the composition of the cerebrospinal fluid under both normal and pathological conditions. The investigation of this fluid has become a matter of importance in the diagnosis of many diseases, and the method of lumbar puncture is used for the administration of a number of therapeutic agents. In all this time the knowledge of the physiology of this secretion has advanced very slowly. Theories have been many but few of them have found confirmatory facts to support them. In this accumulation of fact and fancy the work which has recently appeared (*Journal of Medical Research*, September, 1914) by Cushing, Weed, and Wegefarth, stands out as the most important contribution to the physiology and pathology of the subject since Quincke's revolutionary announcement. The source of the cerebrospinal fluid has for a comparatively long time been believed to exist chiefly in the choroid plexus, and since the work of His, some investigators have considered the so-called perivascular lymph spaces as an accessory source. No direct proof, however, has been offered to support these theories. These workers introduced a silk catheter through a slit in the exposed occipito-atlantoid ligament, through the aqueduct of Sylvius into the third ventricle. From the opening of this catheter fluid dropped which was exactly similar to cerebrospinal fluid, and continued to drop for some time. This experiment thus affords direct evidence that fluid is secreted by the choroid plexus, since the lining ependyma of the ventricle fails to yield any histological evidence of secretory activity. It also has afforded an excellent opportunity to study the effect of drugs upon the secretion of cerebrospinal fluid and it was found that the secretion was stimulated by ether, pilocarpine, choroid extract, and the secretion of the posterior lobe of the hypophysis. By means of their injection experiments they were able to demonstrate a direct connection between the subarachnoid space and the perivascular spaces. It is noteworthy that the injection of these spaces was satisfactory only when an anemia of the brain was created during the course of the injection. Thus there is demonstrated a dual source for the fluid, the chief one through the choroid plexus and the accessory one from the perivascular spaces. They believe it is over the latter path that the brain cells rid themselves of waste products. In addition they draw the analogy to the dual source, from the ciliary body and from the retina, of the aqueous humor of the eye.

In their studies they tried out many methods of injection and finally determined the superiority of the injection of a solution of potassium ferrocyanide and iron and ammonium citrate in such strengths that the solution was practically isotonic. This was injected very slowly at a pressure only slightly above that of the spinal fluid normally. At the end of the injection the animal was killed and the head fixed in formalin containing hydrochloric acid. This treatment resulted in a precipitate of Prussian blue in all places reached by the injected solution. The results obtained by this method far exceeded those hitherto thought possible. The authors were able to show conclusively that the fluid escaped from the ventricles into the subarachnoid space and thence found its way into the sinuses of the dura through special processes of the arachnoid, the arachnoidal villi, which project directly into the sinuses. These villi are delicate web-like structures which continue the outer arachnoid membrane into the dural wall. They have not hitherto been described at all adequately, especially in this connection, although anatomists have always been familiar with the pathological form of the villus, the Pacchionian granulations. There exists also an accessory pathway of absorption through the perineural spaces around the cranial and spinal nerves from which the fluid is taken up by the lymphatics. Here, again, these authors have demonstrated a remarkable analogy between the cerebrospinal fluid and the aqueous humor of the eye. The principal pathway in the eye is through the spaces of Fontana and the pectinate ligament and into the canal of Schlemm by means of the pectinate villi which are wholly similar to the arachnoidal villi. The accessory pathway here is apparently by way of the perineural space about the optic nerve, which furnishes a direct connection between the subarachnoid space and the interior of the eye. They also point out the close chemical similarity of the two fluids.

These studies are exceedingly enlightening and open wide and attractive fields for research and speculation. It will take years to realize to the full their possibilities of practical application. It was the good fortune of these workers, however, to obtain a naturally hydrocephalic kitten and by pushing a hollow needle through the superior longitudinal sinus into the subarachnoid space they were able to create a direct connection between the two. This remained open for at least a week and the operation was repeated several times. Each time the symptoms were relieved for about a week and there were apparently no unpleasant sequelæ. In this connection they were able also to demonstrate that the pressure of the cerebrospinal fluid was greater than that of the blood in the dural sinuses. Further experimentation along the lines suggested by this work will no doubt yield information of tremendous therapeutic value. The authors state that they are investigating the effect of drugs on

the rate of secretion of the cerebrospinal fluid and there are many other important questions which are probably susceptible of solution by these methods.

FIBRINOLYSIS AND HEPATIC INSUFFICIENCY.

It was Dastre who in 1893 applied the term "fibrinolysis" to connote the dissolving of fibrin in the blood serum. This process is manifested to a small extent under normal conditions, whipped fibrin losing eight per cent. of its weight in eighteen hours. But if a clot is incubated at body temperature in a sterile serum, it can be kept for many weeks without undergoing complete dissolution.

These facts are pointed out by E. W. Goodpasture (*Johns Hopkins Hospital Bulletin*, November, 1914) who has made a special study of the increased fibrinolysis of the blood serum occurring in association with chronic hepatic insufficiency. This study was suggested by the observation that the clot forming in the blood removed from the heart of a patient that had died from advanced cirrhosis of the liver completely dissolved in the course of three and one-half hours.

Jacoby in 1900 observed a greatly increased fibrinolysis of the blood serum in experimental phosphorus poisoning in the dog. Later Wolf reported the same sequence in dogs that had received intravenous injections of proteoses or in animals subjected to extirpation of the liver. There was ample evidence to support the view that fibrinolysis is the result of enzyme action, two possibilities suggesting themselves in explanation of the increased fibrinolysis occurring under pathological conditions, namely, an increase in the proteolytic ferment over an antiproteolytic ferment, or a diminution in or an absence of the latter permitting the proteolytic ferment to go on unchecked.

Goodpasture has made the first definite observation of increased fibrinolysis as a phenomenon accompanying pathological conditions, for he reports a series of four cases of atrophic cirrhosis of the liver in which the process of fibrinolysis was so active that the blood dissolved its own clot within a few hours at body temperature. He also proves that fibrinolysis is the result of enzyme activity, for the process is destroyed by the temperature of 65° C., inhibited by normal serum, and diminished in the presence of old plasma. On the basis of all available data Goodpasture concludes that increased fibrinolysis is the result of a diminution in or an absence of normal antiproteolytic substances.

In all of the author's cases there was a hemorrhagic tendency. The association with atrophic cirrhosis of the liver suggests a close analogy with the cases of hepatic injury resulting from phosphorus poisoning. The tendency to hemorrhage in cases of insufficiency of the liver cells can now be easily explained as resulting perhaps from a rapid dissolution of the clots that under normal conditions act as Nature's hemostatic. Although in these cases the fibrinogen content was below normal, it was not so far below normal as by itself sufficiently to predispose to bleeding.

The demonstration of active fibrinolysis in cases of advanced hepatic insufficiency therefore becomes a sign of eminently practical value in diagnosis and prognosis: first, as a means of differentiating those cases of obscure ascites in which one may be uncertain as to whether the heart or the liver may be at fault; and second, as a means of determining whether the hepatic impairment is in an early or a late stage.

ANTITYPHOID INOCULATION.

Facts as to the efficacy of antityphoid inoculation accumulate almost daily. Perhaps the most satisfactory statistics with regard to the value of the method are those afforded by the United States Army. As pointed out by Mayor Russell of the Medical Corps, U. S. Army, in 1911, it was made compulsory for all recruits in the army. The following figures showed the contrast between the state of affairs in the Spanish War and that in 1911. At Jacksonville, Fla., in the earlier campaign there occurred certainly 1,729 and probably 2,673 cases of typhoid fever with 248 deaths. The strength of the force was 10,579. At San Antonio when an American army was concentrated on the Mexican border in 1911, 13,000 men were encamped for about the same length of time as in the Spanish War and among these there were only two cases of enteric fever and no deaths, though the disease was actually present in the civil population of San Antonio and the troops were allowed to enter the town freely. According to Major Russell, in the army as a whole a great drop has occurred in the incidence of typhoid fever since inoculation was made compulsory. Reports from France are as favorable as those from this country. For example, during an epidemic of typhoid fever in Avignon, the garrison of the town consisted of 2,053 men, of whom 1,366 were inoculated. Among the unvaccinated soldiers 155 cases of typhoid fever with 21 deaths occurred, while among the vaccinated there was not a single case. All the soldiers lived under exactly the same conditions. Again, in Eastern Morocco among 962 vaccinated soldiers there was no case of infection, whereas among the nonvaccinated the morbidity was 38.22 and the mortality 5.51 per 1,000.

In the British Army in India the results of the method have been conspicuously brilliant. There the typhoid rate fell in five years from over 15 to under 5 per 1,000, and the death rate from over 3 to 0.63 per 1,000. During the year 1910 among about 70,000 men there was a total of 306 cases of enteric fever; 151 of these occurred in the 10,000 who were unprotected and only 155 in the 60,000 who had been vaccinated. Only 11.2 per cent. of the inoculated died and 16.1 per cent. of the uninoculated. It must be borne in mind that members of the white race in India are peculiarly prone to typhoid fever and that up to recent years this has been one of the main causes of sickness and death.

Figures dealing with the efficacy of antityphoid inoculation in the Italian and Japanese armies tend to show that the method has greatly decreased the death rate and morbidity rate from this cause. The Italian statistics are especially favorable, while the

heads of the Japanese Army have found antityphoid inoculation of so great preventive value that it has been made compulsory.

At the present juncture, the question is insistently of moment. Immense masses of men are gathered together in Europe under conditions necessarily the reverse of sanitary. In spite of all precautions typhoid fever is certain to break out, in fact, has already broken out. Consequently, any method calculated to protect individuals from contracting the disease should be employed without hesitation. Even if the method had not been proved to be as efficacious as it certainly is it should be practised. When an authority of the rank of Sir William Leishman declares that not only is antityphoid vaccination efficacious but the subsequent ill effects are slight and fleeting, a view which is endorsed by the great majority of the British medical profession, and when Professor Chantemesse of Paris goes so far as to state active belief that typhoid fever will gradually disappear during the present century just as smallpox vanished in the nineteenth century and when Italian and Japanese authorities, who have tested the method, are practically unanimous in giving evidence as to its value, scepticism must, to a great extent, vanish.

POLLUTION OF THE GREAT LAKES.

THE Progress Report of the International Joint Commission of the United States and Canada with regard to the pollution of the boundary waters of the Great Lakes, has been published recently. The publication is one of much value as it records the work of experts, so far as it has gone, in discovering the effect of sewage pollution, more especially of cities bordering on the lakes, on the health of the community and particularly with respect to the dissemination of typhoid fever. In Bulletin No. 77, prepared by Dr. Allan J. McLaughlin and issued by the U. S. Public Health Service, the extent of sewage pollution of the Niagara River and the danger to the public health were shown.

Attention has been drawn on several occasions to the menace of Niagara to the public health. Niagara City has long been somewhat notorious as a place in which typhoid fever is more prevalent than is fitting, and it seems obvious that just so long as the city of Buffalo, situated at the head of the Niagara River, is permitted to discharge all its sewage untreated into the river above the intakes of the public water supplies, will the Niagara River be a source of danger to those dwelling along its banks. Buffalo is not the only guilty community, for there are also several Canadian municipalities on the river and the sewage from these is discharged into the river untreated. The problem of how best to deal with the sewage of Buffalo, as also that of the other towns on the Niagara River, is being considered, and it is anticipated that in the not far distant future all the communities abutting on the famous river will deal with their water supply in a manner in keeping with modern methods and in the interests of public health.

The second factor in point of importance is the discharge of sewage by vessels. Not only do vessels contribute their quota to the sewage pollution of these waterways, but they menace the public health in other ways. Vessels are supposed to fill their drinking water tanks from mid-lake, remote from sources of pollution. But they frequently neglect to do this and obtain their drinking water from polluted sources.

It goes without saying that the effect of pollution of the lake waters on public health shows itself principally in the form of typhoid fever. Statistics demonstrate that several of the lake cities have a mortality from the disease which would not be tolerated for one moment in the large cities of Northern Europe, and this, moreover, where the conditions relating to filth and poverty are more obvious by far. In the past three years the death rate per 100,000 from enteric fever in Niagara Falls, N. Y., was 196; in Port Arthur, Ont., 179, and 330 in Sault Ste. Marie, Ont. Even in those large and prosperous cities in which it might be imagined that no trouble or money would be spared to ensure an uncontaminated water supply, the typhoid death rates are such as would shock a British or German public health authority.

However, the appointment of the International Commission on the Pollution of the Great Lakes is a step in the right direction, and it is to be hoped that the result of their labors will act as incentive to those concerned in matters of the public health in every State of the Union.

ABDERHALDEN'S SEROREACTION AND X-RAYED ORGANS.

SINCE organs which have been persistently *x*-rayed undergo changes, due perhaps to activation of the tissue enzymes, the thought lies near that they may give up foreign substances to the blood which cause in the latter the production of defensive ferments. It is also not improbable that radiations of a given portion of the body are able to provide changes in certain remotely seated organs—as the genital glands, liver, and brain. The first experiments in this direction, however, have met with negative results. At the medical section of the Naturwissenschaft.-medizinische Gesellschaft of Jena last summer (*Münchener medizinische Wochenschrift*, September 29) Eden reported that he had subjected both men and animals to intensive radiation. The former comprised chiefly victims of surgical tuberculosis and malignant tumors. The Abderhalden reaction exhibited no form of behavior which could be attributed to any positive action from the rays. The human subjects had previously reacted in accordance with their diseases, and no further change occurred. The rayed dogs who were healthy before the experiments afterwards showed reaction evidence of disintegrated brain tissue, but this was attributed to the action of the narcotic.

News of the Week.

Civil Service Examinations.—A competitive examination will be held December 12, 1914, for superintendent, Tompkins County, N. Y., Tuberculosis Hospital, salary $1,200 and maintenance for the superintendent. An unmarried man is preferred for this position as the hospital has no ac-

commodations for the family of the superintendent. Preference will also be given to residents of New York State. This examination is open only to male physicians, who are licensed to practise medicine in New York State. Persons desiring to enter the examination must file applications on blank form E-10 in the office of the State Civil Service Commission on or before December 8, 1914.

An examination will also be held on the same date to fill the position of laboratory assistant, qualified in complement fixation work, State Department of Health. $720. Open to men and women. The duties of this position are to assist in the work of the laboratory and candidates should possess an elementary knowledge of bacteriology and immunity, together with practical experience in the tests used in serum diagnosis, such as complement fixation or Wassermann reaction and the agglutinative and bacteriolytic reactions.

New York City Death Rate.—The death rate in this city for the week ending November 21 was 11.92 per thousand, during the corresponding week last year it was 12.14, the decrease being equivalent to a saving of twenty-four lives. During this year up to the present there has been a decrease of three-tenths of a point in the death rate, compared with the corresponding rate of 1913. The maintenance of this decrease to the end of the year will indicate a saving of 1,730 lives as compared with the mortality experience of 1913.

Against Fee Splitting.—At a meeting of the Medical Society of the County of Monroe, held in Rochester, October 20, a resolution was adopted "that the Society hereby expresses itself definitely as being vigorously opposed to this practice in any form whatsoever, that there is no justification of this practice even on economic grounds for it seems entirely improbable that there will grow up any adequate recognition of the value of purely diagnostic medical services, until this evil secret adjustment be abolished, and that a correct and sufficient fee for such services be openly and courageously charged in its stead."

Personal.—Dr. C. C. Bass of New Orleans has been awarded the medal of the Southern Medical Society for scientific research. This is the third year in succession that this medal has been given to Dr. Bass.

Dr. J. B. Carnett has been appointed surgeon to the Philadelphia General Hospital in succession to Dr. Edward Martin resigned.

The National Health Guard is the name of an association having for its object the promotion of public and individual health and to stimulate public interest in every wisely designed movement to prevent life-waste and upbuild national vitality. Those who enlist in this organization give the following pledge: "I will, in so far as my circumstances and opportunities will permit, make an earnest effort: (1) To inform myself upon the subject of personal, community, and household hygiene, and to myself obey the laws of health. (2) To encourage the practice of individuals having periodic health examinations to upbuild physical efficiency and to detect disease in time to check or cure it. (3) To give support and encouragement, and to urge my friends to do the same, to the public health service and officials who are laboring to protect the most precious asset of the nation. (4) To encourage schools, churches, social, and civic bodies and employers to give as a patriotic duty all consistent help in stimulating public interest in and in spreading knowledge of the rapidly advancing science of health and life conservation. (5) To cooperate with and advise the Life Extension Institute in its purpose to reduce life-waste and to guard and strengthen the vitality and vigor of our race."

Professor Rudolf Emmerich, chief of the department of bacteriology and hygiene in the Königliche Bayrische Ludwig-Maximilians-Universität, Munich, Germany, since 1902, died recently in his sixty-second year.

Harvey Society Lecture.—The fourth lecture of the tenth course of the Harvey Society will be delivered at the New York Academy of Medicine on the evening of Saturday, November 28, at 8:30, by Prof. Lafayette B. Mendel of Yale University. Subject: "Nutrition and Growth."

The Mutter Lecture, on "Surgical Pathology," will be delivered by Dr. F. H. Albee of New York City in the Thomson Hall of the College of Physicians of Philadelphia at 8 p. m., December 4, 1914. Subject: "The Fundamental Principles Involved in the Use of the Bone Graft in Surgery." After the lecture a reception will be given to Dr. Albee at the Hotel Rittenhouse.

Charitable Bequests.—In the will of the late William Endicott of Boston bequests are made of $25,000 for cancer research at Harvard University, $50,000 to the Beverly Hospital, $25,000 to the Massachusetts General Hospital, and $10,000 each to the Sharon Sanitarium, Y. M. C. A. and Instructive District Nursing Association of Boston.

The will of the late Jean Baptiste Guttin, a restaurant proprietor of this city, gives $4,000 to the French Hospital of New York.

By the will of the late Annie E. Matthews the sum of $5,000 is bequeathed to the Howard Hospital for the establishment and maintenance of a free bed in the name of Anna E. Ulmer to be dedicated to the use of female patients, and also the sum of $1,000 to the West Philadelphia Hospital for Women.

By the will of the late Jennie E. Disston the sum of $1,000 is bequeathed to the Germantown Hospital.

By the will of the late Emma L. Forrest the sum of $10,000 is bequeathed to the trustees of the University of Pennsylvania for the endowment of a room in the Agnew Pavilion of the University Hospital in memory of her husband, the late Dr. Morton H. Forrest.

Medical Society Elections.—The Southern Medical Association, at its eighth annual meeting in Richmond, Va., November 12-14, elected the following officers: *President*, Dr. Oscar Dowling of Shreveport, La.; *First Vice-President*, Dr. R. C. Dorr of Batesville, Ark.; *Second Vice-President*, Dr. McGuire Newton of Richmond, Va.; *Secretary*, Dr. Seale Harris of Mobile, Ala. The next meeting will be in Dallas, Texas.

The Southwesteern Medical Association held its ninth annual meeting in Galveston on November 10 and 11. The following officers were elected: *President*, Dr. J. D. Griffith, Kansas City; *First Vice-President*, Malvern B. Clopton, St. Louis; *Vice-President for Texas*, Dr. A. E. Sweatland, Nacogdoches; *Oklahoma*, Dr. T. H. Flescher, Shawnee; *Missouri*, Dr. Malvern M. Clopton, St. Louis; *Arkansas*, Dr. F. D. Holland, Jr., Fort Smith; *Kansas*, Dr. Ernest F. Day, Arkansas City; *Secretary-Treas-*

ver, Dr. Fred H. Clark, El Reno, Okla. The next annual meeting will be held in Oklahoma City.

The Georgia Sixth District Medical Society, meeting at Macon on November 11, elected the following officers: *President*, Dr. O. H. Weaver of Macon; *Vice-President*, Dr. Charles C. Harrold of Macon; *Secretary*, Dr. I. H. Adams of Macon. The Southern Illinois Medical Society elected the following officers at its annual meeting held in Mount Vernon on November 7: *President*, E. W. Lingle, Cobden; *Vice-Presidents*, Drs. T. H. D. Griffith, Springfield, and A. J. W. Armstrong, Centralia. The next meeting will be held in Harrisburg.

At the annual meeting of the Aid Association of the Philadelphia County Medical Society, held November 9, the following officers were elected for the ensuing year: *President*, Dr. Jacob R. Shellenberger; *Vice-President*, Dr. J. C. Wilson; *Secretary*, Dr. Lewis H. Adler, Jr.: *Treasurer*, Dr. John B. Turner; *Solicitor*, Francis C. Adler; *Directors*, Drs. James M. Anders, William M. Welch, J. Solis Cohen, Samuel D. Risley, Samuel W. Morton, Charles A. E. Codman, Isador P. Strittmatter, William S. Wray, and William T. Hamilton.

The following officers of the New York Division, Association of the Medical Reserve Corps, U. S Army, were elected November 14: *President*, Reynold W. Wilcox; *Vice-President*, Howard Fox; *Secretary*, Harold Hays; *Treasurer*, H. Sheridan Baketel; *Councillors*, Henry C. Coe, Herbert Lawson, Walter M. Brickner, S. Meredith Strong, Thomas Darlington, Frederick N. Wilson.

Obituary Notes.—Dr. ANDREW J. JACKSON of Matawan, N. J., a graduate of the Medical Department of the University of Buffalo, N. Y., in 1873, and a member of the American Medical Association, the Medical Society of New Jersey, and the Monmouth County Medical Society, died at his home on November 17, aged 72 years.

Dr. ANDREW SPRAGUE OLIVER of San José, Cal., a graduate of the Hahneman Medical College and Hospital, Philadelphia, in 1881, died at his home suddenly on November 8.

Dr. WILSON R. PRIEST of Concordia, Kan., a graduate of the Medical College of Ohio, Cincinnati, in 1886, and a member of the Kansas and Cloud County Medical Societies, died at his home, after a long illness, on November 9, aged 54 years.

Dr. AMOS DAVIS of Owensboro, Ky., a graduate of the Medical Department of the University of Louisville in 1874, and a member of the Kentucky State Medical Association and the Daviess County Medical Society, died at his home from Bright's disease, after a long illness, on November 10, aged 66 years.

Dr. EUGENE V. WEST of Tampa, Fla., a graduate of the Mebarry Medical College, Nashville, Tenn., in 1892, and in point of service the oldest neegro physician in the city, died at his home on November 5, aged 45 years.

Dr. AMOS H. FARISH of Perry, Ark., died at his home on November 3, aged 47 years.

Dr. JOHN AUGUSTUS HORGAN of Boston, Mass., a graduate of the Harvard Medical School in 1888 and a member of the American Medical Association and the Massachusetts and Suffolk District Medical Societies, died after a short illness, following a surgical operation, on November 11, aged 50 years.

Dr. SAMUEL P. BRUNDIGE of Marion, Ind., a graduate of the Medical College of Ohio, Cincinnati, in 1872, died at his home from paralysis on November 9, aged 77 years.

Dr. LEONARD W. CARPENTER of Trumansburg, N. Y., a graduate of the Cleveland, O., University of Medicine and Surgery, in 1865, a veteran of the Civil War, and formerly instructor in the Homeopathic Medical College, Cleveland, died at his home, after a long illness, on November 8, aged 81 years.

Dr. EUGENE A. HUTCHINS of Minneapolis, Minn., a graduate of the Berkshire Medical College, Pittsfield, Mass., in 1862, and a member of the Minnesota State Medical Association and the Hennepin County Medical Society, died at the Asbury Hospital, Minneapolis, on November 9, aged 76 years.

Dr. ELLA S. WEBB, formerly of Oxford, Pa., died at St. Paul, Minn., on November 15. She was graduated from the Women's Medical College of Pennsylvania in the class of 1885.

Dr. WILLIAM B. BULLOCK, for 56 years a practitioner at Wilmington, Del., died at Philadelphia on November 18 at the age of 90 years. He was a graduate of the medical department of the University of Pennsylvania and one of the founders of the Delaware Hospital.

Dr. JOHN E. STEPHENS of Joliet, Ill., a graduate of the Illinois Medical College, Chicago, in 1898, died at his home on October 31, aged 65 years.

Obituary.

CHARLES SEDGWICK MINOT, Sc.D., LL.D.

BOSTON, MASS.

PROFESSOR CHARLES SEDGWICK MINOT, Professor of Comparative Anatomy at Harvard University, and director of the Anatomical Laboratories, author of several works on embryology, and inventor of two widely used forms of microtomes, died at his home in Milton, Mass., near Boston, on November 19. Prof. Minot was born in Boston on December 23, 1852, and was educated in that city, graduating from the Massachusetts Institute of Technology in 1872, with the degree of B. S. He continued his studies at the Universities of Paris, Leipzig, and Würzburg, and in 1880 entered the Harvard Medical School as lecturer on embryology and instructor in oral pathology and surgery. In 1883 he became instructor in histology and embryology, in 1887 assistant professor, in 1892 professor, and in 1906, James Stillman professor of comparative anatomy and director of the laboratories. In 1912-13 he served as Harvard Exchange Professor at the Universities of Berlin and Jena.

The value of Dr. Minot's research work into the origin of life was widely recognized, and he was the recipient of many honorary degrees. In addition to the degree of Sc.D. received from Harvard in 1878, he received those of LL.D. from Yale, 1902; honorary Sc.D. from Oxford, 1904; LL.D., from Toronto, 1906, and LL.D. from St. Andrew's, Scotland, 1911. He was a fellow of the American Association for the Advancement of Science, and had served successively as secretary, general secretary, vice-president, and president; a corresponding member of the British Association for the Advancement of Science, the Société de Biologie, Paris, the Physikalisch-medizinische Sozietät, Erlangen, the Accademia Reale, Turin, and the Académie Royale de Médecine of Belgium; and a member of the National Academy of Sciences, the Association of American Anatomists, the New York Academy of Sciences, the American Physiological Society, the Massachusetts Zoological Society, the Boston Society of Natural History, of which he was president in 1897, and the Anatomische Gesellschaft, Jena.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

THE WAR AND THE SOCIETIES—EXHIBITIONS OF CASES AND NOTES.

LONDON, November 7, 1914

THE medical schools are feeling somewhat the effect of the war in lessening the new entries of students for this session, though to a less extent than many anticipated. The London Hospital has an increase over last year. Of its senior students about 80 have gone to the front as have also several of the staff, but the usual work is carried on. At St. Thomas's Hospital the number is only slightly under the average, and the same may be said of St. Bartholomew's, while at Guy's the average is reached.

The Red Cross Society is most active. Sir A. Sloggett, Director-General of St. John's Order, is at the front representing both societies and is assisted by Sir A. Crossley. The order has 107 hospitals in England with 4,610 beds, as well as 78 convalescent homes with 2,665 beds. A large proportion are in full work.

The war also intrudes into the proceedings of most of the medical societies, though it is early at present to look for more than notes and items of temporary interest. Several of the societies have been devoting themselves to the exhibition of cases rather than to set purposes.

The Royal Society of Medicine made a good show; the Section of Obstetrics and Gynecology opened with specimens and records of cases. Dr. Russell Andrews related a case of hemorrhage after the menopause set up by a rupture of a vein in the endometrium, in a patient of 49. A tumor was found reaching above the umbilicus; at operation it proved to be a degenerating fibroid; this did not bulge into the interior cavity, which was, however, enlarged and there were two dilated veins on the lining, one with a visible opening and blood came out of this on squeezing the organ.

Drs. Giles and Lockyer showed a case of ovarian pregnancy in a patient of 32 who sought advice for sterility—the period having missed once but having been resumed for six months. Ectopic gestation having been diagnosed, operation was performed when the tumor was found on the right side. With the epidiascope Dr. Lockyer demonstrated that (a) the pregnancy sac was surrounded by a capsule of ovarian stroma; (b) an amniotic sac in which no foetus had been found; (c) chorionic villi with their mesoblasts undergoing degeneration; (d) calcarious deposits in blood-clot around these villi; (e) decidual reaction in the connective tissue of the medullary part of the ovary, also in the cortical substance; no lutein lamina investing the sac. It seems that the embryo had died and the amniotic sac had become dilated by hydraninios.

Dr. Giles showed slides of chorion epithelioma and gave the histological report of Drs. Dudgeon and G. Ley; on this case Drs. Bell and Spencer made some remarks. Mr. Malcolm showed a fibromyoma uteri complicated with diffuse papilloma of the interior of the womb. A general opinion was expressed that the specimen was really an adenocarcinoma. Dr. D. W. Roy reported a case of puerperal eclampsia which was fatal through rupture of a subscapular hematoma of the liver.

The question of making an intestinal fistula after operation on the abdomen with the object of facilitating recovery was brought before this society by Mr. J. D. Malcolm in relation to the state often spoken of as septic peritonitis and thought to be due to intestinal paresis, but which Mr. Malcolm said would be more correctly spoken of as stasis on account of some peristaltic feebleness. When opium was freely given after every abdominal section the cases did well, but if no gases escaped from the anus the patients always died—not later than the fifth day and a slight spreading peritonitis was found P. M., but this could not be the cause of the symptoms and was only a consequence of the mode of death. Modern treatment, stimulation of the bowel and rational feeding, instead of opium and starvation was advocated and cases related in support of this plan: in two a small tube was inserted into the small intestine and in a third into the cecum, with immediate relief. In all three the bowel resumed its functions. In a fourth case a second operation was done, but the patient died. A fistula should not be made without necessity, but sometimes it would save a life—not in a septic case. In a weak patient when an expensive operation would be likely to be fatal the formation of a simple fistula might bring about a cure.

In the Dermatological Section Dr. Pringle, the president, showed a lichenous eruption in a female of 57. It occupied large areas of body and limbs and consisted of planate and acuminate papules. He doubted whether to class it as pityoriasis rubra pilaris, though he leaned to that diagnosis as did two or three members. Dr. Graham Little showed a case of lichen planus and one of granuloma on the site of an old pigmentary nævus. Dr. Sequeira showed a patient with indurated nodule slowly increasing on the chin, suggesting the diagnosis of sarcoid with which the president agreed. Also a case of myxosarcoma of the skin of face and forehead in a patient whose foot was amputated four years ago for chondrosarcoma. Mr. Samuel had a patient with symmetrical pigmention of the beard region so much like *x*-ray burn that several members expressed the opinion that it was such and that the patient was not giving an exact history. Dr. Adamson brought a case of nodular lesions on the face, giving an appearance of leprosy; there was also definite thickening of the nasal bones analogous to rheumatic nodules. The president said it reminded him of erythema diutinum. Dr. P. Weber considered it a form of leontiasis ossium. Dr. Pernet had cultures of favus and ringworm. Dr. H. MacCormack showed a case with lichenous lesions on the face, he thought was a tuberculiva.

The Æsculapian Society also had a number of cases shown by Dr. Ashdowne on the 23d net. Dr. D. Ross, past president, in the chair. 1. Acromegaly in a man of 37 admitted for hernia. 2. A man of 47 with tumor on left side of pelvis, extending to the inguinal region and round to the perineum, traceable through the obturator foramen; a second tumor higher up in the position of the descending colon. After admission to the hospital two or three ounces of blood passed. Operation considered inadmissible on account of extent of disease. 3. A boy of 9 fell from a swing ten years ago—three weeks later pain on walking came on. Tuberculosis was suspected and extension applied for eighteen months; this has been tried again lately. On admission dislocation of femur upwards and forwards with leg shortened (five-eighths inch) diagnosed. As he could walk now (he is 19) up to three miles without suffering, it was thought better not to inter-

fere. 4. Skiagram of stones in gall-bladder. There were some other cases of stone, one about 2 inches by ¾ inch found P. M. in the cystic duct of a woman who died at 88 and never had symptoms of stone. Another in a boy of 6 from whose right ureter a calculus 1 inch by ⅜ inch was removed; it had not caused obstruction of urine, a cul-de-sac having been formed. Later a second stone was removed. Gravel was still being passed.

Sir J. Crichton-Browne, addressing the Sanitary Inspectors' Association on the war in relation to sanitation, said the benefits conferred by Germany's contribution to it had been more than counterbalanced by her selfish ambition, and her recent crimes and outrages on civilization. Inasmuch as a good deal had been done in the past to reduce the ravages of smallpox, typhus, typhoid, and tuberculosis, so he believed still greater results would be achieved under the free and enlightened epoch which was about to open up. The starting point of this epoch would be knowledge gained in the war. The successful work carried out in camp sanitation, the open order and no overcrowding as opposed to the close formation in resisting typhus combined to prevent the devastation of armies in the past. Unfortunately typhoid is still a serious menace and he hoped anti-typhoid inoculation would be pressed forward. The wastage due to disease had lately been exceptionally small, and an Italian who had visited all the armies in the field assured him that the British soldier was the cleanest, best fed, and healthiest of all. With these moral and physical qualities we should not doubt their final success over dirty and demoralized millions, however courageous. When the Allies had squared accounts at Berlin we might perhaps "study war no more" for a time. But we should have an army yet awhile and in it a special sanitary corps under the army medical department and with suitable military rank. Valuable work would be done by it, *e.g.* in regard to tetanus, of which the bacillus can be attacked while localized in the wound; once diffused and combined with the nerve cells antitoxin serum seemed of little avail.

THE FLAT STOMACH TUBE; ITS USES AND LIMITATIONS.

To the Editor of the Medical Record:

Sir:—For the past ten years the writer has found that a flat stomach tube is of distinct service in certain cases in which the use of the ordinary stomach tube is beset with difficulties. Resembling the latter in every respect except that the cross-section is flattened rather than round, the flat stomach tube is adapted for the following uses: Conforming somewhat in shape to that of the esophagus and being more flexible than the ordinary stomach tube, the flat one may be introduced more easily and quickly. In nervous patients these advantages are appreciable. But the flat tube is not adapted for routine use. It cannot and should not be used for lavage, for the particles of food obstruct the lumen of the tube and render lavage difficult. It may, however, be used for the removal of a test breakfast or for the removal of the stomach contents of a patient when a prompt chemical analysis of even a small amount of gastric contents may suffice for purposes of diagnosis. The flat tubes are made in the various sizes. The ease with which they may be introduced is their chief point of superiority over the ordinary tubes. The fact cannot be emphasized too strongly that the flat tubes should not be employed for lavage.

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Progress of Medical Science.

Boston Medical and Surgical Journal.

November 12, 1914.

1. Cancer of the Uterus. With Special Reference to the Possibilities of Cure by a Radical Abdominal Operation. Farrar Cobb.
2. Cancer of the Rectum. D. F. Jones
3. Cancer of the Bladder. A. L. Chute.
4. Cancer of the Prostate. H. Binney.

1. Cancer of the Uterus.—Farrar Cobb states that the two most important questions in regard to this subject are: (1) How can the public and the medical profession be taught the importance of early diagnosis and the possibilities of cure by a radical operation? (2) In what cases is a radical operation justifiable? In answering the question as to what is an operable case, the author notes that if the entire pelvis is filled with a hard mass, the uterus fixed, and the vagina markedly involved, there is no doubt but that such a case is inoperable, but in many cases no bimanual examination, with or without an anesthetic, can determine positively that the case is not one for radical treatment, because fixation of the uterus and indurated masses in one or both broad ligaments are not infrequently due to inflammatory tissue, adhesions, pus tubes, or cysts. Even if fixation and induration of the broad ligaments is due to cancer, such cases should have the advantage of exploratory laparotomy, because it is certain some of the apparently desperate cases, even those involving the bladder, can be cured. Of Wertheim's cured cases there were no less than 10 per cent. that had been considered inoperable by very worthy men. The general condition of the patient must be considered carefully, and the long and tedious abdominal operation should never be attempted in feeble subjects; it is contraindicated also in the presence of marked adiposity. In such cases vaginal hysterectomy should be substituted. In certain of the adipose cases it may be possible to do a paravaginal or radical vaginal hysterectomy, the operation of Schuschardt and Schauta. The important factors in the operation are: (1) The preliminary preparation; (2) the anesthetic, with special reference to the prevention of shock; (3) the abdominal incision; (4) the freeing and handling of the ureters; (5) removal of the parametrium and glands; (6) control of hemorrhage; (7) prevention of peritoneal infection and implantation metastasis from the growth itself, and (8) drainage and after-treatment.

2. Cancer of the Rectum.—D. F. Jones concludes that the results obtained in carcinoma of the rectum depend almost entirely upon the character of the growth and its duration, and comparatively little upon the operation done; that is, they depend upon the vigilance of the patient and the vigilance and thoroughness of the physician and surgeon. Certain cases in which there is much tenesmus demand a radical operation, even when hopeless, simply for the relief it gives, which relief is not obtained in many cases with a simple colostomy. Theoretically the combined abdominosacral operation is the operation of choice. Practically the mortality is too high except in selected cases. The statistics of late results are not sufficiently good to warrant taking the extra risk in the obese, the feeble, and in men over fifty. The combined two-stage operation, if the second stage is done under spinal anesthesia, gives

a mortality between 15 and 20 per cent. A serious objection to this operation is the danger of infecting the denuded area with cancer cells brought through the lymphatics from the growth. The Kraske operation is the operation of choice in the obese, the feeble, and patients over sixty.

New York Medical Journal.

November 4, 1914.

1. Exophthalmic Goiter. R. S. Fowler.
2. Artificial Cultivation of the Rabies Virus. F. Proescher.
3. The Topical Employment of Tuberculin. W. W. Babcock.
4. The Operative Treatment of Contracted and Deformed Hands in Multiple Arthritis. G. R. Ellicott.
5. The Psychic Complex in Congenital Deformity. D. L. Sohn.
6. Remarkable Case of Double Compound Fracture. J Hund.
7. Narcotic Addition. P. M. Lichtenstein.
8. Fancies, Facts and Consumption. T. J. Mays.
9. A Study of Methods of Lavage. J. P. Sawyer.
10. The Present Situation in Tuberculosis. F. Tice.
11. Meningococcic Empyema. A. I. Rubenstone.

1. Exophthalmic Goiter.—R. S. Fowler states that in preparing patients suffering from this condition for operation and also from goiters of other types which present or have presented an overactivity of the gland, it is especially desirable that the fluid in the tissues be conserved. For this reason purging is contraindicated and for several days before the operation a large amount of water should be ingested. On the evening before and on the morning of operation a colon irrigation is given. Patients who have had the slightest dilatation of the heart should not be prepared for general but for local anesthesia, for the reason that in the hands of the most skillful anesthetist a slight accumulation of mucus in the bronchi might put too much strain on the already dilated heart. Iodine is not used to prepare the skin as its absorption might cause an increase of thyroidism. For the same reason antiseptics are not used at the operation. One-half hour before the time set for the operation, morphine sulphate, one-fourth grain, and atropine sulphate, one one-fiftieth grain, should be administered hypodermically. The operation should not be performed during an exacerbation of the disease. Lately there has been presented a method of anesthesia which fullfils important indications, namely, rectal ether anesthetization. For the prevention of fear on the part of the patient which would set up an acute hyperthyroidism, and the necessity of avoidance of any further burden on the heart through excessive mucus, rectal anesthesia is indicated. Complications are prevented by keeping from the patient the knowledge that she has been operated upon. The tissues are also furnished with a large amount of fluid to wash the blood free from the toxins or whatever substance has been thrown into the blood by traumatism to the gland and by traumatism set up through mental effect. In these cases it is well to give hypodermoclysis with 500 to 750 c.c. immediately after operation. In case the Murphy rectal drip is not retained on account of intestinal relaxation, repeated hypodermoclysis should be used (250 to 500 c.c. every three hours) in case hyperthyroidism develops. All patients are given fluids by mouth as soon as anesthetic vomiting has ceased, and a return is made to normal diet as quickly as the stomach will tolerate it. The immediate mortality under proper precautions is low. In the author's clinic there were three deaths in the last fifty cases. Ordinary goiter should have no mortality unless the tumor is of extreme size or presents cancerous degeneration. Exophthalmic cases always present an element of risk when brought late to the surgeon. For this reason they should be kept under observation until the time comes when the hyperthyroidism is at the lowest ebb. That is the time for operative interference and the method of operation should be as judiciously chosen.

2. Artificial Cultivation of the Rabies Virus.—F. Proescher points out that in several previous communications he described a microorganism found in smears and sections of the central nervous system of rabbits, dogs, and human beings infected with fixed and street virus. With a modified Gram stain and later with antiformin Gram, he demonstrated the existence of numerous cocci and bacilli. Further investigation showed that these microorganisms could be substantively stained with certain anilin dyes belonging to the thiazin group, methylenazur, methylenviolet, and toluidinazur, etc. It was found that only the carbonates or the free bases of these dyes were capable of staining these microorganisms, while the mineral acid salts gave inconstant or negative results. The inoculation of cultures into rabbits, rats, and a monkey produced rabies.

3. The Topical Employment of Tuberculin.—By W. W. Babcock. (See MEDICAL RECORD, September 5, 1914, page 437.)

9. Methods of Lavage.—By J. P. Sawyer. (See MEDICAL RECORD, September 19, 1914, page 529.)

10. The Present Situation in Tuberculosis.—F. Tice states that tuberculin reactions, either positive or negative, are of no material assistance in diagnosis. The degree of skin sensitiveness is no measure of the activity or latency of the tuberculous infection. Tuberculin as a therapeutic agent is rapidly losing in repute and the indications justify the prediction that it will soon be quite generally discarded. The important determination in any case is the amount of immunity as estimated by laboratory and biological methods.

11. Meningococcic Emypema.—A. I. Rubenstone reports a case of this condition and states that a review of the literature reveals extremely few reports of lesions outside of the cranial cavity from which the meningococcus was isolated, unless in association with meningococcic meningitis. The presence of the meningococcus in the nose, throat, and ear, of not only diseased, but of a percentage of healthy individuals, has been conclusively proved. Taylor reports a case of suppurating joint due to the meningococcus. The organism has been recovered from the blood in cases of sepsis by Liebermeister, Andrews, Portret, Simon, Gwyn, and others. Warfield reports a case of malignant ulcerative endocarditis from which he cultivated the meningococcus.

Journal of the American Medical Association.

November 14, 1914.

1. Some Factors Tending Toward Adequate Instruction in Nervous and Mental Diseases. W. W. Graves.
2. Present-Day Public Health Activities. F. E. Fronczak.
3. Disease and Poverty. J. N. Hurty.
4. Tuberculosis as a Cause and Result of Poverty. S. A. Knopf.
5. Some Experiences with Alcohol Injection in Trigeminal and Other Neuralgias. W. Harris.
6. The Relation of Physical Therapy to the Hospital Patient from the Point of View of the Internist. W. L. Bierring.
7. Six Years' Experiences at the Medicomechanical Department of the Massachusetts General Hospital. C. B. Bucholz.
8. County Health Organization in the United States. L. I. Dublin.
9. A Review of Current Hospital Topics. L. B. Baldwin.
10. The Tonsils as a Habitat of Oral Endamebas. Possibility of Systemic Complications of Oral Endamebiasis. A. J. Smith, W. S. Middleton, and M. T. Barrett.
11. Crotalin in Epilepsy. C. L. Jenkins and A. S. Pendleton.
12. A Comparison of the Wassermann and Luetin Reaction in 744 Individuals. E. B. Vedder and W. B. Borden.
13. The Diagnostic Value of the Sphygmomanometer in Examinations for Life Insurance. J. W. Fisher.
14. The Neurological Examination of Mental Cases J. Grinker.
15. Blindness Caused by Ophthalmia Neonatorum. R. J Tivnen.
16. Management of Delicate and Premature Infants in the Home. H. M. McClanahan.
17. Intracranial Hemorrhage in the Infant, with History and Necropsy; Report of a Case. J. W. Shuman.

5. **Alcohol Injections in Neuralgia.**—W. Harris cautions against the injection of alcohol directly into a mixed nerve, such as the sciatic, on account of the motor as well as sensory paralysis thereby produced. Many patients who have been thus operated on have escaped paralysis by their good luck in the operator missing the nerve trunk and injecting around its sheath. In chronic trigeminal neuralgia the first division is seldom involved alone, the second being usually also implicated. The supraorbital is the only branch of the first division which the author attacks. Attempts to reach the infraorbital branches are regarded as dangerous and needless. The second division of the superior maxillary nerve can be reached with advantage either at the foramen rotundum in the sphenomaxillary fossa or at the exit of the intraorbital nerve on the cheek. In the majority of cases the pain is referred to the upper jaw and the nerve must be attacked at the foramen rotundum; this is difficult while the other injection is easy. The author uses two routes for this posterior injection; the first, and preferably, through the cheek in front of the coronoid process and behind the superior maxilla. If the coronoid process of the mandible comes too far forward or the antrum bulges backward, it may be hard to direct the needle between these parts and in front of the external pterygoid plate so as to enter the sphenomaxillary fossa. In such cases the author tries to reach the nerve from behind the coronoid process, passing the needle through the cheek about 4 cm. in front of the middle of the internal auditory meatus on the line drawn from the incisura notch to the bottom of the ala nasi so as to pass over the bottom of the sigmoid notch on the lower jaw. With this the needle passes slightly upward and forward and the pterygoid plate is felt for. The injection of the third division at the foramen ovale is much more certain and easy. For this the author uses roughly Levy and Baudouin's line. Almost always he finds loss of taste occur immediately after injections of the third division of the fifth nerve confined to the anesthetic half of the tongue in proportion to the depth of the anesthesia. This lasts as long as the anesthesia and the author has seen it two years after injection.

6. **Physical Therapy.**—W. L. Bierring emphasizes the rôle of physical therapy in a general hospital. The best methods are not always the most costly and improvised apparatus may often be serviceable. The Brand bath is serviceable in typhoid fever and prolonged warm baths, hot packs, etc., are of value in various forms of cerebral irritability, skin affections, and in nephritis. Dry heat is of value in numerous neurotic and rheumatic troubles and within the past thirty years massage has come into favor as a well recognized therapeutic measure. In many diseased conditions a systematic combination of several forms of physical therapy is necessary to produce the best results and there can be no question that as physical therapy loses its proper relations and is neglected by the general hospitals, it favors the establishment of sects and pathies for its use which are distinctly undesirable.

10. **The Tonsils as a Habitat of Oral Endamebas.**—A. J. Smith and M. T. Barrett state that in connection with work recently carried on by Smith and Barrett indicating that the parasitic amebas of the mouth hold an important relation to the etiology of pyorrhea alveolaris and that by the use of emetine as an amebicide these organisms may be destroyed and the pyorrheal lesions cured, they have sought to determine whether these protozoa may not find their way also into the tonsils and there perhaps be of importance in determining or in maintaining certain of the inflammatory lesions of these structures, at least with or without associated systemic complications. At the present time only the first of these propositions can be said to be proved, that is, that these parasites actually at times involve the tonsils. The condition of the tonsils of persons in whom they have been found infested and the behavior of several positive cases with systemic complications after the administration of emetine, however, are decidedly suggestive and encouraging to continued investigation now in hand.

12. **Wassermann and Luetin Reactions.**—E. B. Vedder and W. B. Borden record the results of their investigations carried out in the Soldiers' Home at Washington, D. C. The Wassermann and luetin reactions do not give corresponding results. The plus reaction to the luetin test may be considered a positive reaction. The plus Wassermann, on the other hand, is not diagnostic unless confirmed by history or physical signs. But even if one count double plus and plus reactions as a positive indication of syphilis for both the Wassermann and luetin tests, and the plus minus and negative reactions as negative, it is apparent that while by the Wassermann reaction there are only 156 positive out of 744, or 20.82 per cent., by the luetin test there are 239 positives out of 744, or 32.11 per cent. The luetin test is therefore more delicate than the Wassermann reaction as a routine procedure. The authors have performed the luetin test on a considerable number of persons in whom syphilis could be excluded and have never obtained a positive reaction. The great majority of the patients in this series who gave a positive luetin reaction had some history or physical signs indicating syphilis.

14. **Neurological Examinations.**—J. Grinker criticises the common neglect of a thorough physical examination in mental cases. The mental picture seems to overshadow the neurological aspect in many institution examinations; even skilled examiners may be guilty of errors or oversights. The most commonly overlooked organic diseases in the supposedly insane are brain tumor, cerebral arteriosclerosis, syphilis, and nonspecific vascular brain diseases; and in private practice, drug addictions, postinfectious and posttraumatic deliriums, and the psychoneuroses. One of the most humiliating and dangerous errors is the mistaken diagnosis of insanity in a case of brain tumor. The resemblance of many drug addictions to insanity is also pointed out.

16. **Management of Delicate and Premature Infants in the Home.**—By H. M. McClanahan. (See MEDICAL RECORD, June 27, 1914, page 1195.)

The Lancet.

November 7, 1914.

1. Recent Advances in Science and their Bearing on Medicine and Surgery. Malaria and the Transmission of Diseases. Sir Ronald Ross.
2. The Wounded in the War. Some Surgical Lessons. D'Arcy Power.
3. The Intratracheal Administration of Chloroform. W. Dakin Mart.
4. Ether Anesthesia by the Intratracheal Method: a Report on 49 Cases. R. Llewellyn Jones.
5. Accessory Spleen Causing Acute Attacks of Abdominal Pain. R. C. Alexander and A. Romanes.
6. The Action of Drugs on Plants. J. C. Bose.

2. **The Wounded in the War.**—D'Arcy Power discusses a few of the surgical lessons which have been learned in a base hospital in London. Bullets and even pieces of shrapnel casing often passed through fleshy parts without doing much damage. The points of entry and of exit were clearly seen. Both had healed satisfactorily and nothing remained to be done except to feed and nurse the patient for a few days before he was discharged into a convalescent home. In other

cases the wounds of entry and exit were suppurating but the track which must have existed between the two was soundly healed. No sinus remained and so far it has not been necessary to lay open any such track. It seems clear, therefore, that the most frequent sources of infection are the skin of the patient or some subsequent contamination. The infection is not due to the clothing, for in several cases pieces of shirt or puttee were removed from wounds which had healed soundly and which had been reopened on account of the pain they had caused. The cases have become more severe as the battles have been fought nearer England. Gangrene due to an anaerobic organism has occurred in several cases. Early operation has been performed with success and the very great value of a free application of a 2½ to 3 per cent. alcoholic solution of iodine has been determined. This should be applied to the raw surface of the flaps at the time of amputation and care should be taken to allow of free drainage by not putting in too many sutures. A few cases of tetanus with a long incubation period have occurred, but the majority of the patients affected with this disease have not reached the base hospitals, as they have been treated at the stationary ones. The war has revealed an interesting series of cases which for the present must be called "nerve concussion," about the treatment and prognosis of which much has still to be learned. When they occur in connection with the spinal cord they may be the result of a blow from a bullet or piece of shell, perhaps no nearer than upon the pack which the soldier is carrying. There is no external wound but the patient becomes paraplegic. Such a condition is analogous to "railway spine," though it is not associated with neurasthenia at least in the early stages which have come under observation at the present time. The net result of the work appears to show that as in ordinary civil practice meddlesome surgery is generally bad surgery.

5. Accessory Spleen Causing Acute Abdominal Pain.—R. C. Alexander and A. Romanes state that the frequency with which the pathologist meets with accessory spleens at necropsies makes it rather remarkable that their presence is rarely noted by the operating surgeon. Adami and Nicolls note that they are found in 11 per cent. of all necropsies and that they may reach the size of a walnut. Their situation varies. They may lie in the gastrohepatic or gastrocolic omenta or even in the stomach wall itself. The author reports the case of a woman 25 years of age in whom attacks of abdominal pain were caused by the presence of an accessory spleen. The cause of the pain is attributed to congestion of the viscus from torsion of the omentum obstructing the return blood flow. There was no necrosis visible and there had been apparently no arterial obstruction.

British Medical Journal

November 7, 1914.

1. Some Observations on the Significance of Blood-Pressure Readings in Man. J. A. MacWilliam and G. Spencer Melvin.
2. The Barber-Surgeons Company. T. G. Lyon.
3. Insects and War: Mites. A. E. Shipley.

1. The Significance of Blood-Pressure Readings.—J. A. MacWilliam and G. Spencer Melvin emphasize the importance of estimating the minimal or diastolic pressure, a practice which is now becoming more generally recognized. With the easy applicability of the auditory method there is no difficulty in the way of its routine use. Apart from the influence of aortic diastolic pressure in determining the strain upon the closed aortic valves, and the resistance to the opening of these valves by the ventricular systole, the distending force of load which it imposes on the arterial tube is of prime importance. The properties of the arterial wall are such as to show relatively great effects from long-continued tension as compared with the transient application of distending force, as in the brief rises of pressure that constitute the systolic waves. The greater proneness of the leg arteries to degeneration is especially associated, in all probability, with the high diastolic pressure in the erect position, rather than with the concomitant increase in the systolic level which is also induced by the influence of gravity. The evidence available at present is insufficient to show in what measure the injurious effects of an excessive diastolic pressure are to be attributed to the influence of mechanical strain upon the tissue elements of the arterial wall, and to the influence of a high distending pressure on the flow of blood and lymph in the walls of the arterial tube. The more common conditions when the circulation is defective are: Low systolic and diastolic readings (as in hemorrhage, shock, etc.), or a systolic pressure which may be normal or even higher, attended by an abnormally high level of diastolic pressure, as in some cases of slow cardiac failure. Here the peripheral resistance is increased, keeping up the systolic pressure, notwithstanding a poor cardiac output, but this involves a high diastolic pressure—that is, a small pulse pressure and associated defective movement of the blood. It is only in a small minority of cases with thickened and contracted arteries that a notable reduction of the systolic reading is induced by local compression. If the pressure readings from two limbs differ markedly on account of the occurrence of a special form of closure in one artery as compared with the other, the pulse persisting much longer in one than in the other, it might be possible to elicit special evidence bearing upon the different conditions. In a case studied by the authors it was noteworthy that the systolic readings were much higher with the armlet on the calf of the leg than when on the thigh; the latter often nearly agreed with the arm. They conclude from such results that the systolic pressure was really the same in the arm and leg, though the latter pulse was strikingly cut down to one of very small volume, which persisted until the compressing armlet pressure had been raised much higher. The authors interpret this result as being due to a different form of closure in the arm and leg arteries respectively, and they regard the leg arteries as the ones in which the behavior of the tube under compression was peculiar. The presence of contraction—that is, muscular resistance—is very important in human arteries when associated with certain abnormal structural conditions, determining the occurrence of special features in the process of closure of the vessel by external pressure, and thus leading to different readings of obliteration pressure that do not correspond with differences in the actual systolic pressure.

Berliner klinische Wochenschrift.

October 5, 1914.

Schizothymia and Cyclothymia.—Kohnstamm characterizes schizothymia as follows: the simplest form is comparable to one aroused from deep hypnosis with a paralyzed arm. He is unable to remember anything about the onset of the paralysis. Characteristic of the schizothymiac are his amnesic troubles. Psychic shock may produce dissociation of the same sort. The restoration of memory continuity as effected by psychotherapy is known as palinmnesis. Schizothymic phenomena are comprised under what we call at present hysteria. In as far as the latter means nosophilia or love of or attraction toward disease, the author objects

to placing schizothymia in the hysterical category. The two conditions may, however, coexist in the same subject. The author makes use of the simile of the "sandbank" in connection with schizothymia, using that word in the sense of a shoal. If the depths of the water represent the deep recesses of the subconscious mind, the shoals are equivalent to every day consciousness. Disturbances arising in the former may make themselves felt in the latter. The psychic shock caused in a woman by the accidental suffocation with illuminating gas of two servant girls produced a state of insomnia associated with fear of escaping gas, and this in time culminated in a state of excitement which from its periodic recurrence was classed as cyclothymia. The author believes that related phenomena have a similar mechanism; in other words the cyclic character is not strictly endogenous, being determined by outside influence, just as are the recurring mental troubles of pregnancy or of certain seasons of the year. Genuine cyclothymia represents an alternation of exalted and depressed states such as culminate in manic-depressive insanity, and in the depressive phase we may see symptoms which properly belong to schizothymia. For psychoanalysis of the latter the author does not find Freud's method suitable, and prefers the Frank hypnotic procedure, which is at the same time diagnostic and therapeutic. Through the resulting palinmnesis the subject becomes capable of psychic orientation. Cyclothymia cannot be thus successfully dealt with—the patient can only be placed under conditions most favorable for the wearing off of his symptoms. The condition may disappear suddenly. Schizothymia may lurk under the picture of atypical cyclothymia. Here belong such conditions as periodical hysteria, anxiety, and compulsion neuroses, dyspepsias, neuralgias, etc. In conclusion he states that schizothymia is equivalent to "sandbank symptoms" or surface effects of deep-seated causes.

New Experiences in the Treatment of Smallpox Scars.—Unna, Jr., discusses a number of resources which are chiefly old. The indications are to level the protuberances and fill up the depressions. The most trustworthy procedure is polishing with smoothing stones, powders, pastes, and soaps. Compressed pumice stone answers well, but the ordinary commercial article will not do as good work, although it may be used in the absence of the other. Sand may be also used, especially in soap, and chalk is useful in pastes, etc. The skin must be irritated until it weeps slightly, after which it may be dressed with cold cream. Naturally in smallpox scars there is a wide field for ordinary surgery, for excision, leveling, transplantation, etc. On a smaller scale one may scarify crosswise with a very fine knife. The chief objection to electrolysis is the painfulness of the method. Much more recent than the measures thus far noted is iontophoresis with thiosinamin. Ten per cent. of the latter is added to a saturated solution of salicylic acid, and a pledget of cotton moistened therein is applied locally as the positive pole. The results from this method are said to be remarkably good. But carbonic acid snow is perhaps the most trustworthy resource, for not only does it reduce projections but fills out depressions as well. A very careful and elaborate technique is given for its proper use.

Münchener medizinische Wochenschrift.

October 13, 1914

"Traumatic Malacia" Following Fractures.—Gaza states that chance cannot be responsible for a certain group of phenomena seen in the bones after violence and especially since the *x*-ray era. These phenomena have been studied in the vertebræ (Kümmell's kyphosis), in the neck of the femur, and especially in the small bones of the wrist and foot. Köhler's disease, a term applied to softening of the scaphoid of the foot after violence, is one of the best known types. The author has seen two cases of so-called traumatic malacia in the semilunar bone of the wrist, the lesion described and named by Kienbock in 1910. In these cases a linear fracture had been in evidence and the presumption is that the softening does not occur save as a result of fracture. It will, however, be recalled that "Köhler's disease" was not originally traced to fracture nor do we yet know that such a traumatism is responsible for it, although in future cases this possibility must at least be rigorously excluded. It must be remembered that cases of atrophy and softening of certain bones and parts of bones while traceable to violence, have not been connected with latent fractures at all. The author sums up by stating that in such cases the lesion is a linear fracture accompanied perhaps by some crushing of the adjacent trabeculæ or followed by a certain amount of absorption of mineral matter. As a result the skiagrams show a macular lacunar clearing up. These changes are primary. At a later period more serious deforming alterations occur and we see such conditions as traumatic coxa vara, Kümmell's kyphosis, and perhaps Köhler's disease. There is often a prolonged period of latency between the primary and secondary alterations, and the joint surfaces may become involved. In the case of the wrist bones it may be come necessary to extirpate all the compromised tissues and interpose flaps of fat.

Two Abortive Cures of Syphilis in the Same Subject.—Hoffmann reports what is doubtless a unique case although one which in theory might readily be duplicated. A man 39 years of age contracted a chancre for which his attending physician made an injection of salicylate of mercury. Salvarsan was refused and patient next consulted the author who found a typical initial lesion, spirochetes present, enlarged proper lymphnodes, no secondary symptoms, Wassermann reaction negative. An inunction cure was at once begun, with weekly injections of old salvarsan. No secondary symptoms and Wassermann reaction negative during an observation period of about six months. At this period a "provocative" injection of salvarsan gave a negative result. During this period patient had received in all 0.82 gram old salvarsan and 4 grams blue ointment in 24 inunctions. Two years and two months later patient reappeared with a new primary lesion of the penis at some distance from the site of the first. Spirochetes were present in large numbers. The proper lymphnodes were enlarged. The lesion was small and the incubation period was over six weeks. The Wassermann reaction was at first negative. The lesion was excised, and was found to be histologically a chancre. The combined treatment was at once resumed. No secondary symptoms appeared but at the end of the first week the Wassermann reaction became positive, for one test only. The treatment comprised 42 inunctions and the salvarsan injections. Eight months after the second chancre was acquired the Wassermann reaction again became positive for a brief interval but there was no further variation even when the provacative injection was given. The Wassermann reaction was also negative in the spinal fluid.

Prevention of Tetanus in the Army.—Jakobsthal states that during the present war tetanus has proved to be more frequent than had been anticipated. In the majority of cases the wounds which became infected were ill-looking and ragged. The outbreak occurred soon after the arrival of the wounded, thus showing a

relatively remote exposure. This does not appear to have been so much the case in the Franco-Prussian war. The causes are as yet obscure. One may accuse the conservative management of the wounds or the increased amount of exposure to dirt in connection with earthworks, trenches, etc. What is to be done to check this infection? In all cases of shredded wounds soiled with dirt which reach Hamburg antitoxin is at once injected. There is, however, an insufficient supply of the latter at present so that the doses have to be restricted. Ordinarily 20 c.c. suffice for prophylaxis but if much time has already elapsed the quantities should perhaps be made larger, for there is hardly any likelihood of anaphylaxis. For the wholesale production of the serum a sufficient number of good, healthy horses is indispensable and all such have been pressed into war service. The army authorities could supply for this purpose otherwise sound horses with strained tendons. Antitoxin should be available at the field hospitals. Dirt must not be blamed for all the tetanus cases for the dressing materials may harbor the germs. At present a dried fern preparation from the East Indies (pengawar djambi) is being used for hemostasis. This has repeatedly been shown to contain tetanus germs.

Deutsche medizinische Wochenschrift.

October 15, 1914.

Anaphylactic and Apotoxic Poisoning.—Von Behring states that under anaphylactic poisoning belong all cases in which a specifically sensitized individual reacts toward the sensibilizing agent. This reaction comprises the anaphylactic shock and the subcutaneous phenomena. The sensibilizing agency, which is combined with protein, loses its power when the latter is broken down to the peptone stage. All proteins in nature possess this power of combination. The anaphylactic property does not reside in the sensibilizing substance but in the antibody to which it gives rise. The substance itself is termed anatoxin when it causes anaphylaxis and is simply an antigen when it first sensibilizes the individual. The anaphylatoxin has also been termed apotoxin, as it is believed to be formed when the sensibilizing protein is changed to proteoses. It has been shown that by combining *in vitro* an antigen with an antibody a substance may be obtained which has an apotoxin action. When this is tested in an ordinary nonsensibilized individual, the picture of anaphylaxis is produced. This the author terms anaphylactoid. The intensive studies of the past four years by the author and his disciples have brought about the belief that the phenomenon of anaphylaxis depends somehow on the bloodplates or, as they are sometimes termed, thrombocytes. In the phenomenon of anaphylaxis the initial act is the agglutination of the thrombocytes. The cerebral symptoms of anaphylactic shock appear to be due to resulting embolism in the small arteries. All substances which cause anaphylactoid in nonsensibilized animals appear to do so through this same property of agglutinating the bloodplates. In regard to the other component, viz., the serum poisoning, this is perhaps most intelligible in terms which involve physical chemistry. The toxic principle appears to be a protease, resulting from a peptolytic activity exerted by the so-called cytozyme which figures in ordinary blood coagulation. The concentration of the calcium ions of the blood, however, must also be invoked to throw light on anaphylaxis.

Etiology and Clinical Diagnosis of Actinomycosis.—Dressl sums up his article as follows: Actinomycosis in man and animals depends upon an anaerobic infection with a trichomyces commonly known as the actinomyces of Wolff and Israel. In many cases there is a mixture of infection due to the presence of anaerobic streptothrix. In addition to genuine actinomycosis there is known clinically a similar condition in which the pus contains exclusively these aerobic streptothrices in a virulent form. The pus contains characteristic granules large enough to be visible to the naked eye. These are composed wholly of felted streptothrices. On the other hand, in recent cases of genuine actinomycosis when the tissues have rapidly become dissolved by the disease the pus may contain no granulations. In such cases the diagnosis must lie between actinomycosis and streptothricosis and culture tests may be required for differentiation.

Human Anthrax.—Mathias and Blohmke report a fatal case of malignant pustule in a house servant who first visited a nose and ear clinic for acute suppuration in the frontal and ethmoidal sinuses. There were in addition swollen glands on the left side of the neck. Patient had been ill but two days and had a marked constitutional reaction. The glandular swelling was found to be the enlarged submaxillary, which had rapidly increased until it had attained the size of an apple. The left tonsil and adjacent fauces, and the nasal mucosa were red and swollen. There was some tenderness over the frontal sinuses. Aside from high fever (39° C.), pulse of 120, and great thirst the patient was free from other symptoms. Diagnosis, acute catarrh of the frontal and ethmoidal sinuses and inflammation of the left submaxillary gland. Nasal discharges showed ordinary pyogenics. Patient received hot baths and locally cocaine, and began to feel much better. A profuse epistaxis soon followed, requiring a tamponnade. Two days after admission he was taken suddenly with colic and diarrhea. The tonsillar swelling had extended and now interfered slightly with respiration. There was a large paquet of swollen glands at the angle of the jaw. Before the day was over the patient collapsed. Incision into the tonsil revealed no pus. The chief symptoms were motor restlessness, frequent superficial respiration, collapse pulse, progressive cyanosis, and colic. Mental state good, no convulsions, no vomiting. Stimulants like caffein and camphor were of little avail and death occurred early on the third day. Autopsy showed thoracic contents normal, purulent peritonitis of a peculiar type, the membrane appearing highly edematous and gelatinous in the principal folds. The wall of the stomach showed the same condition, as did the inflamed sinuses. These peculiar lesions were therefore characteristic of some infectious disease, which proved on animal inoculation to be anthrax. There was a history of occupational exposure to hides. Of the numerous symptoms only the following pointed to the true nature of the process—profuse nose bleed, the infiltrated gland paquet, the abdominal symptoms, and cyanosis of nonmechanical origin.

Abnormal Cysts on Shoulders.—Eris Pritchard reports the case of a twin, aged six weeks. The mother was confined at home and was attended by a midwife; the first of the twins was delivered head first; in this one the presentation was said to have been that of a shoulder (left). The midwife, without calling in assistance, performed version, and immediately after birth the two cystic swellings were observed on the left shoulder in the position which they still retained. The infant was brought to the author's Infant Consultations when it was eight days old. At this time the two cystic swellings were slightly larger than they had been. Although each fluctuated freely on palpation they did not appear to communicate. They were stated to have increased in size since birth. Three cubic centimeters of the fluid were drawn off with a hypodermic needle; it was blood stained, and partly coagulated on standing. The swellings appeared to be of the nature of abnormal and persistent capita succedanea.—*Proceedings of the Royal Society of Medicine.*

Insurance Medicine.

Unexpected Losses of Life Companies.—Dr. J. H. Florence, Medical Director Great Southern Life Insurance Company, enumerates a few of the leading unlooked for sources of loss to life companies:

Deaths by Violence.—This includes railroad, automobile, and all other accidents, suicide, homicide, and ptomaine poisoning. There is a chance that suicidal tendency might be suspected, if the medical examiner knew the applicant's mental tendency to avoid a history of family or financial trouble.

Tuberculosis.—While this disease is contagious, we should never overlook the inherited tendency. When a true family history is given there is no difficulty in rejecting an applicant if there is tuberculosis in the family and he is young and light weight as compared to height. It is the association with tubercular subjects that is important. Most companies postpone an applicant at least three years if he or she has lived in a house with a consumptive, and five years if it be husband or wife. The local examiner should make careful inquiries along these lines. The applicant may not know the importance of mentioning these facts, is passed, gets his policy, and in two years dies from tuberculosis.

Diseases of Circulation.—Under this heading would be remote heart defects, arteriosclerosis, but the one thing that is a nightmare to the companies is deaths from unreported syphilis. It is a constant occurrence to have deaths from paralysis and apoplexy in men above forty years, who probably have recent policies. No blame should be attached to the local examiner, as scores of such applicants have few, if any, visible signs of syphilis. While nodes, scars, and other evidences should be looked for, these cases often have had just enough treatment to obliterate these external signs, and yet have blood vessels ready to rupture. In these cases we expect some saving from the use of the blood pressure instrument at the time of examination.

Kidney Disease.—When policyholders die within two years of this condition there is but one conclusion to be drawn, the local examiner failed to do his duty. The careless doctor who takes his fee, states he has made a urinalysis but has not done so, is worse than a highwayman. Also the careless examiner costs the companies far more than the crooked one, as there are very few crooked examiners as compared to the careless ones.

Stomach Trouble.—Many applicants die soon after receiving policies from the different forms of stomach trouble. The conditions are unsuspected at the time of the examination, as the applicant looks healthy. A history of an attack of "acute indigestion" a few years ago may cover anything from a belch to cancer. Two recent deaths occurred in which the parties' policies a few months old gave histories of "acute indigestion from overeating, never went to bed"; one died of cancer; the other had an ulcer.

Life insurance companies do not expect impossibilities from local examiners, but good, thorough work is to be demanded. An error in detecting any of the above-cited conditions by the examiner can cost the company not less than one thousand dollars; hence, great care should be taken in the examination of each and every applicant that losses should be confined to the natural expected causes.—*Charlotte Medical Journal*, October, 1914.

Goiter in Relation to Life Insurance.—From a life insurance standpoint it is important to remember that goiter is an exceedingly common disease, that it may occur endemically, epidemically, or sporadically, and that it may occur in any country and in any climate. Dr. Alexander Mackenzie Campbell, Medical Director Preferred Life Insurance Company, Grand Rapids, Michigan, wrote to a number of companies in the United States asking for a statement of their attitude toward goiter, and from the replies received it appears that the majority of insurance companies at the present time refrain from accepting goitrous applicants—excepting smaller forms of goiter, which are without symptoms and which have made little if any progress during a period of five years.

Dr. Campbell believes that insurance companies should assume a somewhat more liberal attitude toward many of these cases, and says that while aware of the many ways in which goiter may seriously affect the health, yet he believes that it is in its incipiency a curable disease. Campbell also believes with Kocher that goiter is a surgical disease. A high percentage of cases may be restored to permanent health after a successful operation, and if the applicant can pass a satisfactory examination in every other way he should be accepted within a few months or a year after the operation. Charles Mayo considers that "if the patient, one year after operation for exophthalmic goiter, can pass the ordinary examination, there being no dilatation of the heart or kidney symptoms, they can reasonably be accepted by the insurance company.

In operation for simple goiter, if there were no degenerations or symptoms affecting the nervous system and heart, such persons could be accepted within a few months. In operation for simple goiter there is almost no risk. If complicated by degeneration of the gland, which has caused myocardial change, the mortality is about the same as that of exophthalmic goiter or a trifle higher. The mortality in exophthalmic goiter varies from 1 to 2 per cent. About 80 per cent. make a very good recovery; the remainder are improved, but operated upon too late for complete restoration of the degenerated organs." A plea is made for the early diagnosis of goiter in its various forms, for it is a common experience in practice, Campbell says, to see many advanced cases of this disease, particularly exophthalmic, where the diagnosis is not made until irreparable changes have occurred in vital organs.

One should always be on the alert in his interpretation of such symptoms as tremor, rapid pulse, exophthalmos, and low blood pressure in the examination of applicants for life insurance. In the light of the possibilities of the surgical cure of this disease it is Campbell's opinion that life insurance companies will be forced to change their viewpoint in their consideration of these cases. Applicants who have recovered from operation because of this malady should in many instances form as desirable a class of risks as most individuals who have been restored to health by operation because of other surgical ailments.—Medical Section, American Life Convention.

Book Reviews.

INTERNATIONAL CLINICS, a Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Medicine, Treatment, Surgery, etc. Edited by HENRY W. CATTELL, A.M., M.D. Volume III. Twenty-fourth Series, 1914. Price, $2.00. Philadelphia and London: J. B. Lippincott Company.

THIS volume contains twenty-six articles on Diagnosis and Treatment, Medicine, Electrotherapeutics, Surgery, Child Welfare and Medical Problems. Nearly a third of the volume is devoted to an article on Mr. Deaver's clinic in Philadelphia, and embodying a report of some seventy cases. By far the most interesting articles are two, one on the use of vaccines is pertussis by Alfred F. Hess, the other on the nephelometric method of analysis by P. A. Kober and S. S. Graves. Many of the other articles are of only slightly less interest.

EXPERIMENTS. A Volume for all who are Interested in Progress. A Complete Account of Experimental Work in Science, Invention, the Industries and the Amateur Field, with Practical Instructions and Working Directions. By PHILIP E. EDELMANN. Price, $1.50. Philip E. Edelmann, Minneapolis, 1914.

THIS small book is divided into two parts which contain, in the words of the title page, selected, grouped and graded experiments which may be repeated in a simple manner, including some of the most brilliant demonstrations in science, physics, chemistry, electricity, wireless communication, and mechanics. The second part sets forth briefly the principles of original experimenting. It is a book that the average small boy would treasure above all others, one that would lead him soon to the possession of a workshop of his own and to endless experimentation. It is fascinating and any reader would wish for the time and facilities to carry out the experiments described. The illustrations are for the most part adequate though in one or two places are wrongly numbered. Every boy should have one.

THE PRACTICE OF SURGERY. Second edition, thoroughly revised. By JAMES GREGORY MUMFORD, M.D. Lecturer on Surgery in Harvard University; Surgeon to the Clifton Springs (N. Y.) Hospital; Fellow of the American Surgical Association; Recently Visiting Surgeon to the Massachusetts General Hospital, etc. Octavo of 1032 pages, with 683 illustrations. Price, cloth, $7.00; half morocco, $8.50. Philadelphia and London: W. B. Saunders Company, 1914.

THIS is a second and thoroughly revised edition of Mumford's work, the first edition of which was reviewed in these columns in 1911. The first was good, this is better; for some of the shortcomings of the first edition have been remedied and, in most respects, we find that the text reflects the latest advances in the field of general surgery.

It is apparently inevitable, however, that omissions which strike the reviewer as important should occur, and that some subjects seem to deserve more extended notice. Coming under one or the other of these categories, we select the following: Sliding hernia of the large intestine should be clearly described, for, as pointed out by Moschcowitz, it occurs much more frequently than was formerly supposed; and the sacless type forms a very puzzling and dangerous complication for any surgeon not familiar with the condition and its treatment. The sections on the pancreas and spleen may well be amplified, for great advances have been made in the understanding and surgery of these organs in the past two or three years. Under the heading "Abdominal Ptosis," Coffee's work deserves recognition; while Lane's kinks, and Jackson's membranes have assumed an importance demanding more adequate description. Transfusion is referred to as a method of last resort, due in part to the tediousness of the operation. This applies as far as anastomotic methods are concerned, but not to the simple syringe method developed by E. Lindeman, of which no mention is made, although it presents but little technical difficulty, is certain as to results, and already widely used. The efficiency of the cystoscope in diagnosis and treatment does not seem to be appreciated, and certainly the Brown cystoscope, mentioned as a type by Mumford, has been greatly improved by Buerger; while above all, we find no mention of pyelography which has assumed almost paramount importance in the early diagnosis of hydronephrosis and many other renal conditions. Finally, artificial pneumothorax in the treatment of pulmonary tuberculosis, at least deserves mention; while surgeons throughout the world are making use of free fat and fascia transplantation, and it is a field of great promise, but we find practically nothing about it here. These defects are, however, trivial when we consider the unusual value of the work as a whole.

A TREATISE ON DISEASES OF THE RECTUM AND ANUS. Edited by A. B. COOKE, A.M., M.D. Formerly Lecturer on Diseases of the Rectum and Professor of Anatomy in the Medical Department, University of Nashville; formerly Professor of Anatomy and Clinical Proctology, Medical Department, Vanderbilt University; Fellow of the American Medical Association; Fellow and sometime President of the American Proctologic Society, etc. Assisted by WM. M. BEACH, A.M., M.D., Pittsburgh, Pa.; J. COLES BRICK, M.D., Philadelphia, Pa.; GEORGE B. EVANS, A.M., M.D., Dayton, Ohio; ALOIS B. GRAHAM, A.M., M.D., Indianapolis, Ind.; GRANVILLE S. HANES, M.D., Louisville, Ky.; LOUIS J. KROUSE, M.D., Cincinnati, Ohio; COLLIER F. MARTIN, M.D., Philadelphia, Pa.; FRANK C. YEOMANS, A.B., M.D., New York City; A. J. ZOBEL, M.D., San Francisco, Cal. Price, cloth, $5.50. Philadelphia: F. A. Davis Company, 1914.

THIS work is edited by a rectal specialist whose originally narrow viewpoint has necessarily been more or less tempered by the broadening influence of a long experience in general surgery. The result is that all the various phases are treated rationally and undue importance is not given to what are really trivialities, as is so often the case when the author has unconsciously become accustomed to consider everything merely in the light of its relation to, or influence upon, his specialty. More than half the contributions in the book are from the pen of the editor himself. The chapters by other authors are also well done, some particularly so. In addition to the sections covering the topics usually discussed in books on anorectal diseases, there are chapters on local anesthesia, the relation of rectal diseases to the general health, and on rectocolonic alimentation. The illustrations are almost uniformly good and to the point. In general we may say that the subject is covered very thoroughly; and that the teaching will be found in accord with what is recognized as the best practice at the present time, thus making it valuable for text-book use or as a work reference.

THE CLINICS OF JOHN B. MURPHY, M.D., at Mercy Hospital, Chicago. Volume III. Number III. Octavo of 215 pages with 54 illustrations. Published bimonthly. Price per year: Paper, $8.00; cloth, $12.00. Philadelphia and London: W. B. Saunders Company, 1914.

IN this number nearly the first third is given over to clinical talks on surgical and general diagnosis by Dr. Murphy and Dr. Mix, some of the more important topics being: Differential diagnosis between benign and malignant breast tumors before and at operation (in which we were glad to see the malignant nature of Paget's disease emphasized, as this cannot be done too often or too emphatically); differential diagnosis of gastric and duodenal ulcer; carcinoma of the stomach at the cardiac orifice; and the differential diagnosis of acute appendicitis, cholecystitis, and ascending urinary infection. In all of these important points are brought out in connection with the history, diagnosis, and operation of illustrative cases. A considerable part of the rest of the book is concerned with lesions of the tendons, bones, and joints.

CONTRIBUTO NUOVO ALLA ETIOLOGIA E PATOGENESI DELLA PELLAGRA. Di GIULIO ALESSANDRINI E ALBERTO SCALA. Price, 4.80 francs. Roma: Tipografia Nazionale di G. Bertero, 1914.

THE authors report ninety-four experiments on rabbits, monkeys and guinea pigs with injections of colloidal and gelatinous silica, aluminum, carbonate of soda and with different foods. Silica produced chronic intoxication in both colloidal and gelatinous states in all the animals, and the waters of the pellagrous zones containing clayey substances in suspension, produce the same intoxication when given to the animals in their food. The effects of this intoxication were obviated by intramuscular or subcutaneous injections of solutions of neutral citrate of soda. The authors conclude that the cause of the muscular atrophy observed in pellagrous patients is not mechanical but chemical and endogenous, and partakes more of a mineral than organic nature. Such muscular atrophy, they recall to the reader, is often found in mineral intoxications, such as arsenic, etc.

Society Reports.

AMERICAN ASSOCIATION OF IMMUNOLOGISTS.

First Annual Meeting, Held in Atlantic City, N. J., June 22, 1914.

THE PRESIDENT, DR. GERALD B. WEBB OF COLORADO SPRINGS, COLORADO, IN THE CHAIR.

An Historical Sketch.—Dr. MARTIN J. SYNNOTT of Montclair, N. J., gave a brief account of the way in which the idea of this society had been conceived and of the manner in which its organization was effected. He stated that the idea had first occurred to him, in 1912, that a "Society of Vaccine Therapists" made up of men who had worked in the Praed Street Laboratories might prove mutually advantageous to the members. He had therefore written to the men in the United States and Canada who had taken the course in the Inoculation Department of St. Mary's, and later to those who had studied with Metchnikoff, Ehrlich, Wassermann, and in some of the other famous laboratories of Europe. Dr. Gerald B. Webb had suggested the more concise and inclusive title for the organization, "The American Association of Immunologists," thereby widening the scope of the society beyond the original conception of the speaker. A first attempt at organization was made in Washington in May, 1913, during the time of meeting of the Association of American Physicians, but was not consummated until June 19, 1913, at Minneapolis, Minn., during the session of the American Medical Association. They had now sixty charter members and eight applications for membership. The speaker predicted that they would in a few years be one of the most important medical organizations on this continent, and said he believed with Sir Almoth E. Wright that the physician of the future would be an immunologist.

The Production, Through Immunization, of Specific Ferments Against Bacteria, as Detected by the Abderhalden Test.—Dr. GEORGE H. SMITH of Glenolden, Pa., presented this paper which was based on the fact first demonstrated by Abderhalden in his pregnancy reaction, that specific proteolytic ferments were elaborated by the body in response to the parenteral introduction of foreign protein. The writer stated that they had proposed to test the limits of this specificity of ferment production by employing bacterial proteins. Rabbits received immunizing courses with *Staphylococcus aureus*, *S. albus*, streptococcus, pneumococcus, *B. influenzæ*, *M. catarrhalis*, and with a mixture of all. The substrates were prepared from the organisms by washing and drying heavy suspensions. The technique of Abderhalden was employed, using 1.5 c.c. of serum and 10 milligrams of the substrate. The results showed that each serum was able to effect a marked degradation of the homologous substrate while with the other substrates reactions were negative. Several slight non-specific reactions were obtained with streptococcus and *Staphylococcus albus* substrates. It had been demonstrated that these were due to accidental infection. Sera from rabbits immunized with the mixture degraded all of the substrates. The results indicated a relatively high degree of specificity in ferment production.

Professor C. E. L. MILLER of Richmond, Va., said that Dr. Smith had given a very good demonstration of the problem he had attempted to solve. From the biological standpoint it fitted in with and corroborated what they had been thinking for some time. It was obvious that a unicellular organism must of necessity form a ferment if it was to live. If the protein food materials outside the organism were insoluble, as they often were, they must be made soluble by digestion that they might diffuse into the organism. To accomplish this the unicellular organism separated from itself something that they had designated an enzyme, and this power of enzyme formation was one of the striking and essential characteristics of unicellular organisms. It was becoming clearer and clearer that a human body was made up of a mass of cells that were in many respects still unicellular creatures; Nature in working up from the unicellular to the multicellular had not so much produced a new kind of creature as a colony or interdependent community of unicellular forms, each one of which to a large extent retained its primitive functions. The function of reproduction was well shown in the process of repair. The function of motion was uncertain in even the unicellular forms. The function of enzyme formation was probably involved in all cell nutrition and could now be demonstrated in the laboratory by means of the Abderhalden reaction. That each cell maintained to a large extent an independent existence capable of motion, nutrition, reproduction, and response to stimulation had lately been demonstrated by the actual cultivation of tissue cells without the body. All these factors worked together and tended to build up a view of the nature of our bodies that they had not held before. This work of Dr. Smith showed clearly the specific nature of the ferments produced. He had seemed to show the cells as possessing an intelligence. They were presented with the problem "Devise and produce an enzyme to dissolve the bacteria injected." This was an entirely new problem and yet the cells responded with an enzyme so perfectly adapted to its functions that it would dissolve the substance in question and nothing else. By using such enzymes they often distinguished between substances otherwise indistinguishable.

Experience with Abderhalden Serum Diagnosis Reaction for Carcinoma.—Dr. OSCAR BERGHAUSEN of Cincinnati, Ohio, read this paper. He said that in their work the technique of Abderhalden had been followed for the most part, the only important deviation being that the serum was subjected to a preliminary dialysis before adding tissue. It was found that the serum of carcinomatous patients was most apt to digest tissues which corresponded most closely to the affected region of the patient. These results led to the conclusion that probably the embryonal origin was of some importance and according to this assumption those tissues that most probably represented the anatomic pathology of the case were selected. For the most part it was found that serum from a carcinoma patient digested tissue of the same origin as the affected tissue. Although serum usually digested only certain tissues contrary results were occasionally obtained. The results of cases studied showed that with the exception of one case each of pregnancy, elephantiasis, empyema of the thorax, and tuberculosis of the spine all control cases gave negative reactions. Serum from malignant cases digested some form of malignant tissue in every instance.

Abderhalden's Pregnancy Test.—Dr. WILLIAM WHITRIDGE WILLIAMS and Dr. CLARENCE B. INGRAHAM of Denver, Col., presented this communication. After giving a brief explanation of the theoretical basis of the Abderhalden test, they stated that it had been applied to known and doubtful cases of pregnancy. Aside from the strict observance of the Abderhalden technique, the writers emphasized that the blood should be taken from a convenient vein under strict aseptic precautions with a dry needle kept in a sterile container. The serum should be allowed to clot spontaneously as centrifugalization frequently caused hemolysis. The serum should contain as few dialysable substances as possible; it must be absolutely free from hemoglobin and from formed elements. If any of these conditions were disregarded, experience had shown that incorrect results were obtained. In the series of cases tested only two were of value differentially. One was a fibroid of the uterus and the other an ovarian cyst. Both gave negative reactions. The earliest case to give a positive reaction had missed menstruation only four days. Another case eleven days post-partum reacted positively. Observations of toxemic cases with albumin in the urine and increasing blood pressure gave very slightly positive results with both the dialysis and optical methods. This confirmed the results obtained by Rubesamen in eclampsia cases. The test for pregnancy as worked out by Abderhalden might be considered a definite and reliable reaction.

Chronic Infections and Recovery with Immunity.—Dr. A. PARKER HITCHENS of Glenolden, Pa., read this paper. He stated that in the parenteral digestion of bacteria the bacterial proteins were digested by the specific ferments in order that they might be eliminated from the tissues. This effect sometimes failed while the poisonous action of the other part was always manifested. This being the case the suggestion forced itself upon them that there was a physical basis underlying the action of these two parts. That was to say the action of the poisonous part never failed because it was diffusible and the tissue offered no barrier to it, while the non-poisonous part was not diffusible, and under certain conditions the collection of cells in which it was located did not permit it to reach those cells capable of responding to its action. Accordingly, on the supposition that the molecule of the poisonous part was relatively small and that of the non-poisonous part

relatively large they might divide infections into three classes: (1) Those in which the bacteria were surrounded by a firm wall of inflammatory tissue so dense and so perfect that antibacterial ferments were unable to penetrate the bacteria. The non-poisonous part liberated by autolysis or by ferments within the focus of infection did not escape through the capsule and the resistance of the host was not increased. (2) Those in which the zone of inflammatory tissue was less dense and less perfect. The non-poisonous part of the protein molecule could not penetrate the barrier of inflammatory tissue, but specific ferments formed as a result of vaccination or auto-inoculation might penetrate in sufficient quantity to give positive therapeutic results. The staphylococcus furuncle was an example of this class. (3) Those in which the infecting bacteria were not surrounded by a zone of inflammatory tissue which inhibited the activity of the non-poisonous part and the resultant newly formed ferments came in contact with the bacteria without hindrance. The self-limited infections like typhoid fever were examples of this class. For obvious reasons infections belonging strictly to the first class could not be benefited by vaccine treatment. In the third class one might confidently expect much benefit from such treatment. Typical infections of the second class were no more difficult to treat than those of the third class. The diagnosis was made and the vaccine injected; as soon as the ferments had been produced in sufficient quantity the infection was overcome and the patient recovered. Such simple technique was effective in relatively few diseases, but one must not conclude that all other infections belonged to the first class; by far the great majority should be placed in the subvariety of the second class. Although they might react with little or no benefit to the mere injection of the vaccines, careful examination of other factors would reveal that with accessory methods of treatment positive results might be obtained.

Dr. VICTOR C. VAUGHAN of Ann Arbor, Mich., said that he and Dr. Wheeler had hit upon a method of splitting up bacterial proteins to get the poisonous and the non-poisonous portion. The poison was not destroyed by alcoholic solutions of potash 1/10 to 2/10 of one per cent. They had tried this and were able to split up colon, typhoid, and other pathogenic bacilli into poisonous and non-poisonous groups; they then tried the non-pathogenic organisms and found the same thing. The bacteria which produced the largest amount of protein poison was the B. prodigiosus. In round numbers it gave one hundred times as much poison per milligram as the anthrax bacillus. The conclusion they reached from this was that the infectious character of anthrax was not due to the poison it liberated, but to the capability of the anthrax bacillus growing in the tissues. They tried animal proteins, serum albumin, and serum globulin, and found the same poison. They also found poison in vegetable proteins, and as a matter of routine tested the non-poisonous parts, and to their surprise these gave at least a certain degree of immunity to the living germ. They had split edestin, which many claimed was a pure protein body, and got the poisonous constituent out of it. They went over a great many proteins and made the statement, subject to revision after more extended research, that all proteins contained a poisonous group. Of all the papers on experimental work produced within the last few years there were only two which appeared to be contradictory to this theory, one by Auer and Van Slyke, and one by Gibson, published in the *Philippine Journal of Science*. The work of White, Avery, and Wells seemed to point to the fact that the protein molecule did contain sensitizing groups. The Abderhalden test was a support to the theory of bacterial ferments and it was a biological law that when a living cell was stimulated by a foreign protein it tended to produce a ferment which digested that protein. If this were a law, further investigation might render protein sensitization of value in the prevention and treatment of disease. Every cell in the animal body must produce its own specific ferment; it could not receive and utilize its food in any other way. If one could educate the cell to produce a ferment which it had not produced, and he believed they did this with typhoid vaccination, the most reasonable explanation was that the body cells learned to digest typhoid bacilli. Dr. Vaughan said that he regarded the carcinomatous cell as so modified a cell that it produced specific ferments. The work done by J. W. Vaughan on cancer fitted in with this theory. He sensitized animals with cancer residue or the whole cancer cell. This led to an increase in the large mononuclear cells in which ferment was found which, when injected directly into cancerous tissue, produced in the patient all the symptoms of anaphylactic shock. He had experimented with this ferment and was inclined to say at present that the poison in its purest form was not a protein, whether it was the histamine of Barger and Dale or some closely related substance he did not know. He had made a great many experiments with the non-poisonous part of the tubercle bacillus and while he was not ready to publish his experiments thought he might say that the non-poisonous part of the tubercle bacillus did not protect guinea pigs in any way from inoculation with tubercle bacilli. He thought it was harmful, for those treated died quicker than the others that were not so treated. In a great many guinea pigs, in the later stages of tuberculosis, he had injected the non-poisonous part and within one-half hour the temperature began to fall and continued to fall for two or three hours. This hastened the splitting of the tubercle bacilli. With rabbits the non-poisonous part apparently emphasized the resistance to the tubercle bacillus, but rabbits were irregular in their reaction toward the tubercle bacillus, so they could not draw any conclusions. The non-poisonous portion of the tubercle bacillus was not harmful if given to rabbits intravenously.

Blood Platelets and Immunity.—Dr. GERALD B. WEBB of Colorado Springs, Col., presented this paper. He reviewed the history of blood platelets and showed that they probably contained or supplied opsonin. Blood platelets were found to be increased by an altitude of 6,000 feet, also by hyperemia of the marrow, and in carbon monoxide poisoning. Blood platelets were always increased in tuberculosis. The author found them decreased in measles during the attack. They were found increased in pellagra. Preliminary experiments suggested the possibility that the blood platelets could sensitize tubercle bacilli.

The Influence of Vaccine Therapy on Blood Morphology.—Dr. FREDERICK E. SONDERN of New York City said that the cause of vaccine therapy might be furthered by observing the relation between the administration of vaccines and the leucocyte count, the differential count, and the exact degree of existing anemia. No work had yet been done with this point particularly in view. In those acute general infections in which vaccine therapy had been supposed to be of benefit, blood examinations had shown hyperleucocytosis with a decreased polynucleosis. Even fatal cases showed a slight improvement in the blood picture with the use of vaccines. In reviewing the subject of vaccine therapy in acute general infections it was necessary to state that while it had met with some success in practice, it was still open to question from a theoretical standpoint, and should be considered as purely experimental. Autogenous bacterial vaccines had proved of value in cases of localized chronic infection. These were now used without the determination of the opsonic index. Further investigation should be given to those cases in which vaccine therapy was not successful. The successful use of vaccine therapy in chronic local suppurative processes seemed to cause an increased leucocyte count, a decrease in the relative lymphocytosis, and improvement in the anemia. In cases aggravated by vaccine treatment the leucocyte count was lower than before treatment, the relative lymphocytosis more marked, and the anemia increased. Further investigation was necessary to determine whether these blood changes were constant, and whether they might be taken as an index of the utility of vaccine therapy.

Dr. WILLIAM EGBERT ROBERTSON of Philadelphia, Pa., said that he had been interested in the clinical phase of chills in typhoid fever. The chill seemed to have a beneficial effect and was usually followed by a lower temperature, going to normal in a few hours and gradually rising again. Usually convalescence occurred. In the course of typhoid fever there was a very distinct lowering of the polymorphonuclears with a relatively greater increase in the lymphocytes. Giving the bacterins in large doses when it was possible to make a clinical impress on the case gave the same results, seeming to indicate that the cause of the chill was essentially acute bacteriolysis.

Vaccine in Relation to Mouth Infection.—Dr. JOSEPH HEAD of Philadelphia, Pa., read this paper, in which he contended that the treatment of mouth infections should include the removal of all infecting masses by local surgical treatment, and application of mouth washes, and a more or less extensive treatment with vaccines. As mouth washes a one per cent. solution of hydrogen

peroxide made slightly alkaline, or sodium silico fluoride in aqueous solution of a strength of 0.61 per cent. might be recommended. Their effect, since they were not germicidal, might possibly be due to a sensitization of the bacteria, thus allowing a more effective action of the body ferments. In connection with local treatment the vaccines gave excellent results. A stock vaccine was used containing the bacteria most frequently found in forty-two cases examined. The writer gave the technique for removing material from infected pockets for the preparation of an autogenous vaccine. The course of the treatment should be regulated with great care, according to the presence or absence of reaction. The blood count was of interest and might prove of value as a guide to dosage. The writer reported cases which showed the value of vaccine treatment in mouth infections.

Complement Fixation Tests in Infective Deforming Arthritis and Arthritis Deformans.—Dr. T. W. HASTINGS of New York City presented this communication in which he described the method by which the complement fixation test was applied to cases of infective deforming arthritis and arthritis deformans in order to determine, if possible, the etiological factor of the disease. The antigens used included various strains of streptococci, other organisms isolated from cases of arthritis, and polyvalent gonococcus antigens. A Wassermann test was made in every case. Of 43 cases of arthritis, 25 of deforming arthritis gave positive complement fixation and positive Wassermann tests; 19 cases of arthritis deformans gave positive tests, 17 reacting positively to streptococcus viridans, and four to a polyvalent gonococcus antigen. The 26 control cases, not arthritis, were with very few exceptions negative to complement fixation tests for streptococcus viridans. The results indicated that the streptococcus viridans was the probable causative agent in many cases of arthritis deformans. About 40 per cent. of cases of arthritis deformans should be considered as chronic infective deforming arthritis. The clinical manifestations of this condition were rarely due to gonococcus infections. When a positive reaction occurred with both a streptococcus and a gonococcus antigen, the reaction to the former should be considered the indicator of the causative agent, as there was often a latent infection with the latter in the genitourinary tract.

Comparative Wassermann Cobra, and Globulin Tests in Syphilis, with Report of One Hundred and Five Cases.—Dr. WILLARD J. STONE of Toledo, Ohio, presented this paper. He outlined in detail the technique of the cobra venom test and of Noguchi's butyric acid test for increased globulin, and stated that the comparative work upon the Wassermann and cobra venom reactions in syphilis had given very similar results. Of 105 cases examined by the author there was marked uniformity in these tests. There were some differences in outcome, but the discrepancies were not great. The result of the globulin test differed from the other two reactions in a larger percentage of cases.

Dr. JOHN A. KOLMER of Philadelphia, Pa., said that in a certain percentage of cases the cobra venom test was slightly more delicate than the Wassermann reaction, but not when active serum was used. They had been using antigens reinforced by the addition of pure cholesterin for the Wassermann reaction and had not been able to convince themselves that the cobra venom test was as delicate as the Wassermann test thus reinforced. Cholesterin antigens were possibly hypersusceptible and required close controls. Since using cholesterin antigen they had found correct positive results in tertiary syphilis in a larger percentage of cases than with the venom test, though he believed that the venom test did have a distinct value in the diagnosis of lues in certain stages. In the primary stage hypersensitiveness of the red blood cells rendered the venom test of little value in the diagnosis of syphilis.

Dr. RICHARD WEIL of New York City said that the observations of Kober showed that, in addition to the production of antihemolysis when venom was injected into animals, there was also a change in the red blood cells. He had tested a considerable number of hemolysins in order to see whether under any other conditions similar resistance developed on the part of body cells. It was found that the red blood cells of luetic individuals showed an increased resistance to cobra venom. In regard to the constancy of this fact, on which its value as a diagnostic measure depended, they had not made a sufficient number of tests to show anything definite. Other seemed to have established the fact that it was fairly characteristic. While under given conditions the speaker believed that the cobra venom test might not compare equally with the Wassermann reaction it would in a number of cases show positive results in luetic cases in which the Wassermann would be negative. It was certainly true that the Wassermann showed a considerable larger percentage in the total of positives.

Dr. JOHN A. KOLMER of Philadelphia, Pa., said that he also wished to make the point that the protein reaction in cerebrospinal fluid also fell far short of the Wassermann reaction in the diagnosis of syphilis of the cerebrospinal system. The globulin test was uniformly positive in various types of inflammation of the spinal meninges. Hence they used the globulin test to differentiate tuberculous meningitis from the so-called serous meningitis or meningismus. In the latter the protein reaction was uniformly negative, whereas in tuberculous meningitis it was uniformly positive.

A Note on the Preparation of Bacterial Vaccines.—Dr. WILLARD J. STONE of Toledo, Ohio, read this paper. He stated that some of the reactions following the administration of bacterial vaccines were due to the presence of extraneous proteins, derived either from the culture media or the soluble excretory products of the bacteria. To do away with extraneous proteins all bacterial suspensions used in the preparation of vaccines, with the exception of such fragile organisms as the gonococcus and pneumococcus, were washed with a high speed centrifuge until the supernatant salt solution no longer gave the biuret reaction. In standardizing the vaccines a suspension of living washed organisms was used and Dr. Spooner's method of counting employed.

Dr. A. PARKER HITCHENS of Glenolden, Pa., said that the effect of peptotoxins present in bacterial vaccines was relatively slight because the quantity was very small. When injecting large animals for the preparation of antibacterial sera enormous doses of the germs were administered and in such cases they saw the possibilities of peptotoxin. Formerly when it was the practice to inject unwashed bacteria they were compelled to use as a maximum dose a quantity less than 1/1000 the amount that they could now use, since they washed the bacteria even with very large doses symptoms af anaphylaxis were not observed.

Dr. JOHN REICHEL of Glenolden, Pa., related that in attempting to immunize cattle against contagious abortion with suspensions of dead bacilli of contagious abortion they had observed that when unwashed bacilli were injected intravenously severe and unusual symptoms followed almost immediately. It was subsequently shown that these symptoms were due to peptotoxin. They had also precipitated peptotoxin with absolute alcohol, and it was shown that the substance remained unchanged after boiling, and that it could be kept almost indefinitely.

Dr. JOHN A. KOLMER of Philadelphia, Pa., said that it had been their custom to wash vaccines grown on ascitic agar or blood agar, but not those that were made with organisms that would grow on ordinary nutrient agar. Dr. Kolmer also emphasized the necessity in counting the bacteria with a counting chamber of carefully filtering the dye before it was put into the chamber.

Dr. STONE said it was necessary to wash all bacterial suspensions grown upon nutrient agar. They had found that such suspensions would give a very marked biuret test after centrifugation. All agar-grown bacteria in salt solution suspensions would give nearly as strong a biuret test as suspensions of bacteria grown upon serum or in bouillon.

Autoserotherapy; also the Therapeutic Use of Inactivated Pus and the Value of Tuberculins in Serous Cavities.—Dr. WILLIAM EGBERT ROBERTSON of Philadelphia, Pa., read this paper, in which he gave an extensive review of the work in autoserotherapy from the time of its introduction to the present. As applied to pleural effusions of the serous or serofibrinous type, he said, it had proven of value in proportion to the incipiency of the tuberculous lesion. The injection of old tuberculin following the fractional withdrawal of fluids from the pleural cavity had given excellent results, especially in cases of long standing. Similar use of bacillen emulsion had proven less satisfactory. The reinjection of inactivated purulent exudates possessed some therapeutic value, although in general the results had not been uniform. Though inactivation destroyed the infectivity of the exudate, it was not necessarily sterile, so that it might possess the properties of a bacterin and also of a leucocyte extract.

Dr. C. MORTON ILLMAN of Philadelphia, Pa., said he

had had the opportunity of seeing many of these cases that Dr. Robertson had reported from the clinical standpoint, and had been struck with the marked regularity of the results. There was through the entire series much that was encouraging in their bacterin work. In the very beginning of their work with bacterial vaccines in America they had issued a warning against the promiscuous use of bacterins and other toxic products and they were beginning to recognize that the things they had feared from the toxic effects of bacterins were coming to pass. Throughout this meeting thus far one thing stood out clearly and that was that the cellular living tissues did react to the call for the production of digestive ferments to any one or a dozen active infectious agents or their products. He believed Dr. Vaughan's hypothesis was a reasonable fact.

The Experimental Basis of Tuberculin Therapy.—Dr. GEORGE BURTON GILBERT of Colorado Springs, Col., presented this paper, in which he reviewed the work done with tuberculin, and stated that it was evident that a sound experimental basis for the use of tuberculin had not yet been found. The writer described his experiments with two series of guinea pigs and concluded that the results of the work indicated that the tuberculin treatment given neither cured nor checked the course of the disease to any important extent.

Tuberculin Therapy: Its Present Imperfections and Future Improvements.—Dr. F. M. POTTENGER of Monrovia, Cal., read this paper. He declared that the fact that tuberculin had not succeeded in producing immunity was not an indication that it did not cause healing, for definite focal stimulation and healing had been seen to follow the administration of a tuberculin which had failed to produce a high degree of experimental immunity. Many of the faults ascribed to tuberculin were due to lack of skill in administration. Its value could not be estimated from the results obtained from its use upon experimental animals as the natural resistance of such animals was not comparable to that of human beings. Progress in tuberculin therapy depended upon an improvement in both the laboratory production and the clinical application. Work should be done in the laboratory in determining more exactly the constituents of the various tuberculins and in producing tuberculins of a definite standard.

Dr. GERALD B. WEBB of Colorado Springs, Col., said he did not think anyone could work in Wright's Clinic and not be impressed that tuberculin did some good. In tuberculin therapy it seemed that they had an instance in which it did not seem possible to completely prove the therapeutic value by animal experimentation.

Dr. JOHN REICHEL of Glenolden, Pa., said that the laboratory of the Pennsylvania State Livestock Sanitary Board was in possession of two cultures of tubercle bacilli, one of the human type without virulence for experimental animals, and another, a bovine culture, which was highly virulent, for experimental animals and for cattle. Tuberculins prepared with each of the two strains proved equally satisfactory in the tuberculin test of infected cattle. This would tend to show that tuberculins were not likely to vary so far as virulence was concerned, since the reactions with each of the strains was equally strong.

Dr. JACOB BRONFENBRENNER of Pittsburgh, Pa., called attention to the fact that inherent properties of different cultures of tubercle bacilli might be responsible to a certain extent for discrepancies in the results obtained by different investigators, as it was well known that pathogenic organisms were very apt to change their biological properties when cultivated on artificial media. Indeed, it seemed that the greater the difficulty with which the organism adapted itself to the artificial media, the more radical the changes it underwent when once cultivated. The reason for this seemed to be that in such cases the organism must markedly change its metabolism in the process of adaptation to the medium, if it was to become at all adapted. The tubercle bacilli seemed to be a striking exception to this rule as the oldest strains seemed to retain their pathogenicity. The speaker said he had been working with the tubercle bacilli cultivated by Besredka and he entertained the hope that this new tuberculin might be very useful as antigen in the complement deviation test for the diagnosis of tuberculosis as well as for treatment of the disease. In his diagnostic work he had obtained 98 per cent. of positive results in different cases of tuberculosis and only eight per cent. of positive results among non-tuberculous subjects. It was quite apparent that in many ways the tubercle bacilli of Besredka had acquired distinct properties. It seemed quite important that those who reported favorably on their experiments of tuberculin therapy should give as completely as possible the history of the tubercle bacilli used and the minutest details of their preparation.

Dr. F. M. POTTENGER of Monrovia, Cal., said that he wished to make his attitude toward the laboratory clear. He who studied the disease exclusively would fail and likewise he who devoted his attention entirely to the patient; but by recognizing that both must be treated the greatest success would be attained. There was quite a difference between experimental tuberculosis and tuberculosis as they knew it clinically. With reference to the treatment of tuberculosis with tuberculin, one of the most important principles to remember was that the administration of this remedy was an individual matter. A large dose for one patient and for one pathological condition was a small dose for another, and a dose might be exceedingly large if the patient had not been prepared for it, and yet be a small one when this tolerance had been established. Small doses given infrequently increased the patient's sensibility, while large doses given at the right time decreased hypersensitiveness and increased the patient's tolerance, but it must be remembered that large and small were purely relative matters.

Presidential Address.—Dr. GERALD B. WEBB of Colorado Springs, Col., made this address, taking as his subject "The History of Immunity." After dwelling on the life and work of Jenner and Pasteur, the speaker said that they were naturally proud to have with them in this country the one who took the next step forward as an immunologist, Thebald Smith, who showed, in 1886, that immunity from hog cholera could be produced by the inoculation of bacterial products. In 1890 came the discoveries of Behring and Kitasato on tetanus and diphtheria, and their antitoxins for these diseases which found ready acceptance with the profession. Koch, with his products of dead tubercle bacilli, was the first to treat disease with what later became Wright's conception of vaccines. Disastrous results followed Koch's experiments, but it was otherwise with Wright, who might undoubtedly be regarded as the founder of vaccine therapy. In his own words, "The fundamental principle of vaccine therapy, as I conceive it, is to exploit in the interest of the infected tissues the unexercised immunizing capacities of the uninfected tissues." After paying a fitting tribute to the work of Wright, the speaker said that after eight years' experience with vaccine therapy, and with the passing of the early enthusiasm, it was well to review briefly its present status. Ehrlich, fresh from his recent triumphs in immunology, expected that within the next five years advances in chemotherapy might lead to successful treatment of bacterial diseases in a manner similar to his cure of spirilla infections. Until the predicted discoveries might be made, Wright's vaccine treatment and the improvements which were rapidly developing seemed to be the best treatment at hand. Time had shown that the method was of undoubted value in infections due to many bacteria. On the whole they had to record more failures than successes. One could not but feel, however, that many of the failures must be due to the inability of the protective substance to reach the foci of infection. This had been especially urged by Wright and more recently by Hitchens. The brilliant work of Vaughan, the American pioneer in immunology, seemed destined to aid them greatly. The elimination of the toxic group of the protein molecule had already borne fruit, and the gratifying results of Rosenow, in his employment of autolyzed products of the pneumococcus in pneumonia, seemed to affirm his theory. It was yet too early to know how much better would be the employment of sensitized bacterins, but the theory of their usage was sound. Dr. Webb then referred to the work of Flexner, Swift, and Ellis, and, in conclusion, said he largely agreed with Wright that the physician of the future would be an immunologist, and, he would also add, a hygienist. The hygienist and the immunologist must work closely together, and Pasteur's prophecy that it was within the power of man to rid the world of infectious diseases would be eventually fulfilled.

The Relation of Parenteral Digestion to Immunity.—Dr. VICTOR C. VAUGHAN of Ann Arbor, Mich., made this address, in which he stated that cells were com-

posed of protein and required protein for their metabolic processes. The protein molecule as such was of no value, that was, digestion must take place before absorption or utilization could occur. In enteral digestion the cleavage was normally complete. Toxic products were further degraded as fast as they were formed. In parenteral digestion an analogous cleavage occurred, but the toxic products were carried throughout the organism before further splitting could convert them into simpler non-toxic fragments. All cells were provided with the necessary mechanism to insure a degree of cleavage. This power resided in the ferments elaborated by the cell. Not every cell could utilize the same fraction of the protein complex. Therefore, a selective action was manifested, each type of cell producing a definite type of ferment capable of acting upon the material supplied in such a way that it could become incorporated into the cell body. This conclusion reached by reasoning had been demonstrated by experiment upon digestion in unicellular organisms, in bacteria, and in leucocytic digestion. As a defense against foreign proteins, as, for instance, invading bacteria, cells elaborated two kinds of ferments, group and specific. The group ferments were normally present in the blood and tissues of all animals. They were, within limits, general proteolytic ferments, but differed in kind, in amount, and in efficiency. Specific ferments were called forth in direct response to the introduction of a foreign protein and were capable of degrading that protein only. The production and presence of these general and specific proteolytic ferments had a very important bearing, Dr. Vaughan said, upon the phenomenon of immunity.

Dr. Jacob Bronfenbrenner of Pittsburgh, Pa., said he would like to know whether a substance like tetanus toxin, for instance, was considered primarily toxic or whether it was simply so easily digested by ferments that the toxicity did not require any incubation period to show itself.

Dr. Vaughan replied that, of course, the word "toxin" had taken on a specific meaning. Toxin was a substance which produced an antibody when injected into animals. It might be said that all toxins were poisons, but not all poisons were toxins. The protein poison was not a toxin; it did not produce any antibody. Whether the toxins were ferments or not Dr. Vaughan said he could not say. If it could be proved that the toxins were ferments the whole subject would be cleared up. Abderhalden had shown by his optical method that the toxins did split up proteins. That was as far as they had gone. The most rational explanation was that when diphtheria toxin got into a child's body or when it was injected into a guinea pig it split up the protein of the body and set the protein poison free. It was the protein poison that killed. He did not say that this had been demonstrated, but toxins certainly were closely related to the ferments. They acted in very small amounts, in high dilution, and they were destroyed by high temperatures. The toxin would act in dilutions so great that they did not give the biuret test. That was a still further indication that it was a ferment. Dr. Vaughan said he had an antipathy to calling these ferments antibodies; one might as well call pepsin anti-meat, because it digested meat.

Dr. James W. Jobling of Nashville, Tenn., said that Dr. Vaughan had left little to be said. Dr. Vaughan had first aroused his interest in this subject and caused Strouse and himself to study the cleavage products of proteins when acted upon by the leucoprotease of human leucocytes. They were able to obtain toxic substances in this manner, and by fractionating the products they found that the toxins were present in the proteose fraction. They were unable to say whether there were actually primary proteases, or merely substances which were carried down mechanically with this fraction, though the ease with which they might be made non-toxic by the further action of trypsin and leucoprotease indicated that they were primary proteoses. They had been inquiring into the methods used by the body in preventing the formation of these toxic substances and had found that the antitryptic action of the serum was due to the unsaturated fatty acid radicals of the lipoids. These lipoids might be extracted by chloroform and when the chloroform extract was properly treated the anti-ferments might be obtained almost quantitatively. The serum treated with an excess of chloroform lost entirely its antitryptic action and it also lost its activity if treated with an oxidizing agent as iodine. Guinea-pig serum from which the anti-ferment had been removed became toxic for other animals of the same species, and this applied to all sera which they had tested. In the course of their work they had observed that bacteria, kaolin, and other substances would remove the antiferments from the serum and render it toxic. This was important in view of the work done with the so-called anaphylotoxins, and also suggested the possibility of their being a true autointoxication due to local or generalized absorption of antitrypsin. It was also possible that some of the metabolic disturbances leading to cirrhosis of the organs, etc., might have their origin in a disturbed ferment. When Dr. Vaughan stated "that live bacteria ingested proteins" did he mean that the bacteria took up and assimilated native proteins, or did he use the term in a more general sense and include the lower cleavage products?

Dr. Vaughan replied that he did not believe that any cell took a protein and absorbed it as a whole, but it might absorb it without splitting it far enough to liberate the poisonous group. He thought they could claim pretty good evidence that no cell could take a foreign protein and build it directly into its body. Dr. Vaughan also discussed the relation between the antitrypsin and the trypsin of the blood. Here lay a most important field of investigation. The balance between the proteins present in the blood and the proteolytic ferments must be something which was capable of the nicest kind of adjustment. From what he had said one could readily see that while he believed that the ferments of the body destroyed the invading organism life might be saved by an abundance of the antibody preventing the too rapid action of the substance which was destroying the bacteria.

Demonstration of a Simple Method of Making Cultures from Tissues, and Its Application in Arthritis Deformans.—Dr. Edward C. Rosenow of Chicago, Ill., presented this paper, in which he stated that up to the present time there had been no systematic bacteriological examination of the tissues of the body during infection. The author had devised apparatus which was efficient for this purpose and which he described fully. In preparing cultures from tissue emulsions, it was advisable to plant the emulsion deep in rather tall tubes of ascitic dextrose agar. With this method of planting there were afforded all the gradations between aerobic and anaerobic conditions, and growth was obtained from organisms ordinarily hard to cultivate. The method described had proven particularly successful in culturing cases of arthritis deformans, streptococci, staphylococci, and organism resembling *Bacillus mucosus* and *B. welcheii* had been isolated from fifty-four cases. Cultures made from the joint and also from the lymph gland draining the joint had frequently yielded the same organism. This fact would be of service in studying arthritis deformans. It would be of interest to discover how this microorganism acted upon the body to produce this form of disease.

Dr. Victor C. Vaughan of Ann Arbor, Mich., said he had followed Dr. Rosenow's work and believed it to be of the greatest importance scientifically and practically.

The Intraspinal Treatment of Syphilis of the Central Nervous System with Salvarsanized Serum of Standard Strength.—Dr. Hanson S. Ogilvie of New York City read this paper. He stated that in order to reach the diseased areas in syphilis of the central nervous system, intraspinal treatment as introduced by Swift and Ellis was strongly recommended. The author based his preparation of salvarsanized serum upon the method of Swift and Ellis, but he prepared his serum by adding salvarsan and subsequently heating *in vitro* so that the strength of the curative agent might be regulated. Thus he obtained a serum of known salvasan content. With a carefully perfected technique of preparation and administration of the serum there was little danger of severe reaction. In 50 per cent. of the treatment there was no reaction of any kind beyond a slight temporary weakness. It was important that the dosage should be small—within 1.0 mg. The results of the cases studied demonstrated that the laboratory evidences of active syphilis, as shown by the Wassermann reaction, in both the blood and spinal fluid, and the cell count, and globulin content, were reduced to a greater or less degree in every instance. In the majority of cases there was marked clinical improvement. The method was of interest because it furnished the means of giving salvarsan in small doses intraspinally without danger to the patient.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

TENNESSEE STATE BOARD OF MEDICAL EXAMINERS.

May 4 and 5, 1914.

(*Continued from page 866.*)

MATERIA MEDICA.

1. Give antidotes for arsenic, carbolic acid, strychnine, and chloral hydrate.
2. Describe the physiological action and give the therapeutic use of digitalis.
3. Differentiate between apoplexy and opium poisoning.
4. What is ergot? What are its most pronounced physiological actions?
5. Give indications for the use of the following: nux vomica; arsenic; belladonna.
6. What is mercury? Source; physical properties; uses; dosage? Remarks.
7. Give five drugs and their incompatibles.
8. Name two acids, two alkalies, and two mineral poisons. Symptoms, cause of death in, and their antidotes.

CHEMISTRY.

1. Define the following: allotropism; endosmosis; alloy; amalgam.
2. Select the five most important reagents for a uranalysis outfit, and state why you select each.
3. What is the explanation of souring and curdling of milk? How is soured milk supposed to prolong life?
4. What are ptomaines? Name some of the best known ptomaines.
5. Give the chemical names and formulas of the following: sugar of lead; flowers of sulphur; blue vitriol; white lead; red lead; baking soda; quick lime; lime water; lime stone; blue stone.
6. Point out the analogy between marsh-gas (paraffin) and the benzine series of hydrocarbons. Name two prominent members of each group.
7. Describe a test for (*a*) albumin, (*b*) sugar, (*c*) pus, (*d*) indican, (*e*) chyle.
8. How would you test milk for impurities? For adulterants?

PATHOLOGY.

1. Explain why and how obstructive disease of the coronary arteries causes myocardial degeneration.
2. What is the pathology of acute appendicitis, going on to suppuration?
3. Discuss primary, concurrent (or mixed), and terminal infections.
4. Give the pathology of acute anterior poliomyelitis.
5. In the case of a woman, who a few days after childbirth, is suddenly taken with dyspnea and cardiac syncope and quickly dies, describe the pathological conditions you would expect to find post-mortem.
6. Describe the appearance of the heart in an advanced case of mitral stenosis. What are the results of mitral stenosis on other organs? Explain how these results are brought about.
7. What part of the spine is affected in Pott's disease? Describe the pathological changes taking place in the bone in Pott's disease.
8. What is an "autogenous vaccine?" On what principle or principles is vaccine therapy based?

ANSWERS.

MATERIA MEDICA

1. Antidote for *arsenic* is freshly prepared solution of ferric hydroxide; for *carbolic acid*, sodium sulphate, or alcohol; for *strychnine*, tannic acid; for *chloral hydrate*, solution of potassium hydroxide, or strychnine.

2. DIGITALIS. *Physiological action:* It is a gastrointestinal irritant, it slows the rate of the heart, prolongs diastole, increases the force of the heart, it contracts the blood-vessels, and causes a rise in blood pressure, it also acts as a diuretic.

Therapeutic use: Digitalis is indicated in diseases of the heart: (1) when the heart action is rapid and feeble, with low arterial tension; (2) in mitral lesions when compensation has begun to fail; (3) in nonvalvular cardiac affections; (4) in irritable heart, due to nerve exhaustion. Digitalis is contraindicated in diseases of the heart: (1) in aortic lesions when uncombined with mitral lesions; (2) when the heart action is strong, and arterial tension high. Digitalis is also a diuretic; and it is also used in some forms of nephritis, exophthalmic goiter, pneumonia, chronic bronchitis, etc.

3.—

APOPLECTIC COMA.	OPIUM POISONING.
Deep coma; sudden onset. If any injury, only a scalp wound.	Can be aroused unless very deep.
Pupils unequal or dilated. Contracted in hemorrhage into the pons.	Pupils contracted to pinpoint size.
Pulse full and slow, often arteriosclerotic high-tension pulse.	Pulse rapid, may be irregular.
Respiration slow and irregular.	Respiration very slow—may be 6 to 8 per minute.
Temperature higher on paralyzed side, but lower in rectum.	Normal or subnormal.
Urine contains trace of albumin, but may be same as in uremia.	Normal.
Hemiplegia with convulsions on one side.	No hemiplegia.

4. Ergot is the sclerotium of the *Clavicceps purpurea.* It should be moderately dried, preserved in a close vessel, and a few drops of chloroform should be dropped upon it occasionally. It is not fit for use if more than a year old.

Ergot stimulates and causes contraction of involuntary muscle fibers, hence it is a vasoconstrictor, hemostatic, and oxytocic. It is also a cardiac sedative, it is an emmenagogue.

5. *Indications for the use of nux vomica:* As a general tonic or bitter; in indigestion, cardiac depression, impaired peristalsis, pneumonia, phthisis, amenorrhea, dysmenorrhea, impotence, some forms of paralysis, chorea, epilepsy, neuralgia, alcoholism, and urinary incontinence.

Indications for the use of arsenic: In stomach disorders, bronchial and pulmonary affections, diabetes, diarrhea, anemia and chlorosis, chorea, malaria, and chronic skin diseases.

Indications for belladonna: To relieve pain, relax spasm, check sweating, as a mydriatic, to check griping of purgatives; in asthma, to check fevers, in heart disease, shock and collapse, acute coryza, urinary incontinence, chordee, low delirium of fevers, mania, alcoholism; as an antigalactagogue, spasmodic cough.

6. *Mercury* is an absorbable metal. Its action on the circulation: In small doses it has a tonic effect; in larger doses it diminishes the number of red-blood cells, impoverishes the blood, and thus upsets the digestion, and disturbs the general nutrition of the body.

It is prepared from cinnabar by distilling it in a current of air. It is a bright metallic liquid, volatile, very heavy, insoluble in water, and readily unites with many metals to form amalgams.

Preparations and doses: Emplastrum hydrargyri; Hydrargyrum cum creta, dose. 4 grains; Massa hydrargyri, dose, 4 grains. Unguentum hydrargyri; Unguentum hydrargyri dilutum; Hydrargyri oxidum rubrum; Unguentum hydrargyri oxidi rubri; Hydrargyri oxidum flavum; Unguentum hydrargyri oxidi flavi; Oleatum hydrargyri; Hydrargyri chloridum corrosivum, dose 1/20 grain; Hydrargyri chloridum mite, dose (laxative), 2 grains; (alterative) 1 grain; Pilulæ catharticæ compositæ, dose 2 pills; Hydrargyri iodidum rubrum, dose, 1/20 grain; Liquor arseni et hydrargyri iodidi, dose 1½ minims; Hydrargyri iodidum flavum, dose, 1/5 grain; Liquor hydrargyri nitratis; Unguentum hydrargyri nitratis; Hydrargyrum ammoniatum; Unguentum hydrargyri ammoniati.

Uses: "Mercurials (especially the bichloride) are extensively used for antiseptic purposes in surgery and midwifery. The acid solution of mercuric nitrate is employed as a caustic for warts, chancroids, mucous patches, etc., and citrine and red precipitate ointments as stimulating applications to ulcers and sores. Mercurial ointments and washes are very serviceable in the treatment of parasitic affections, and also in a variety of other skin diseases, as well as in ophthalmo-

logical practice. Internally blue mass and calomel are largely employed as purgatives, and the latter is a good intestinal antiseptic. It is used in serous and other inflammations, and both it and the bichloride have been given in diphtheria. The most important use of mercury is in the treatment of syphilis. In order to secure the best results in this disease it should be commenced early and continued for a considerable time after all symptoms have disappeared. In tertiary syphilis it is commonly combined with the iodides. *Modes of administration of mercurials:* By the mouth; endermatically; by inunction; hypodermatically; intravenous injection; fumigation; inhalation; baths."—(Wilcox's *Materia Medica.*)

7. *Incompatibles of colocynth:* Alkalies, ferrous sulphate, lead sulphate, lime water, mercuric chloride, silver nitrate; of *copaiba:* Mineral acids, caustic alkalies, calcium hydrate, magnesia, water; of *creosote:* Acacia, albumin, nitric acid, oxidizers, and salts of copper, iron, gold and silver; of *aconite:* Acids, alkalies, hot water; of *alum:* Alkaline hydrates, borax, carbonates, galls, kino, lead acetate, lime water, magnesia, magnesium carbonate, mercury salts, phosphates, tartaric acid, potassium chlorate.—(From Potter's *Materia Medica.*)

18. *Hydrocyanic acid poisoning. Symptoms:* "Its action is always rapid. Relatively small doses cause an immediate sense of constriction of the throat, followed in one to two minutes by sense of pressure in the head, vertigo, confusion of intellect, and loss of muscular power. The pulse is quick, the respiration slow and stertorous. Tetanic convulsions and involuntary discharges of urine and feces occur, followed by paralysis. Death follows in from two hours to two days from asphyxia. When large doses are taken no subjective symptoms are observed. The patient loses consciousness in less than one minute. There is a short convulsive seizure, usually accompanied by evacuation of feces, after which the patient lies perfectly still, with no sign of life, save an almost imperceptible pulse and infrequent spasmodic respiratory efforts, in which inspiration is short and expiration protracted. Death follows in from five to twenty minutes."—(Witthaus' *Essentials of Chemistry and Toxicology.*) Death is due to paralysis of the respiratory center and of the motor ganglia of the heart. There is no antidote.

Symptoms of poisoning by oxalic acid: "The sour taste of the acid is rapidly followed by a burning pain, increasing in intensity, in the mouth, throat, and stomach, and persistent vomiting of a dark, 'coffee-ground' material. The pulse becomes small and imperceptible, and the patient dies in collapse, preceded frequently by convulsions, within half an hour. If the case be prolonged, swallowing becomes very difficult and painful; there are numbness and tingling of the skin; twitchings of the facial muscles; convulsions, frequently tetanic; delirium, and lumbar pain. Death occurs in some cases within three to ten minutes, sometimes almost immediately, and in some cases it is delayed for several days."

Cause of death, paralysis of nerve centers. Antidote, syrup of lime.

"The symptoms presented in cases of *poisoning by potash and soda* are so similar that one description will do for both. There is burning pain during swallowing, and an acrid, caustic taste. If the fluid penetrates to the stomach, there is persistent burning pain. Vomiting may or may not occur. When it does, the vomitus will usually be brown in color; it may or may not contain blood, and will simulate very closely in appearance that found after the taking of any of the strong acids. *Ammonia* presents rather more violent symptoms in proportion of its strength than does potash or soda, and on account of the irritating quality of its fumes symptoms due to its inhalation are very marked."—(Dwight's *Epitome of Toxicology*).

Cause of death is generally starvation due to stenosis of esophagus, or stomach, or pylorus or intestine. Antidote is vinegar, citric acid, or tartaric acid.

SILVER NITRATE POISONING. *Symptoms:* Pain; vomiting of white, cheesy matter, which becomes black in the sunlight; cramps; purging; depression; convulsions; coma or collapse. *Antidote:* Solution of sodium chloride.

The *symptoms of acute lead poisoning* are: "Metallic taste; dryness of the throat; thirst; severe colicky abdominal pains, referred particularly to the umbilical region, and relieved by pressure; pulse very feeble and slow; great prostration; constipation; urine scanty and red; violent cramps; paralysis of the lower extremities; convulsions, and tetanic spasms."

The antidotal treatment consists in administering "magnesium sulphate, which brings about the formation of the insoluble lead sulphate, while the purgative action of the magnesia is also useful. It should be preceded by an emetic, or by the use of the stomach tube."

CHEMISTRY.

1. *Allotropism* is the capability of a substance to assume different physical properties while retaining the same chemical properties.

Endosmosis is osmosis toward the interior of a vessel or cavity. (*Osmosis* is the passage of a fluid or solution through a membrane or other porous substance.)

Alloy is a substance composed of two or more metals.

Amalgam is an alloy containing mercury.

2. (1) Dilute acetic acid (to acidify alkaline urines before testing for albumin). (2) Nitric acid (to test for albumin and for bile pigments). (3) Fehling's solution (to test for sugar). (4) and (5) Hydrochloric acid and chloroform (to test for excess of indican).

3. *Souring of milk* is due to the formation of lactic acid and succinic acid from the lactose by microorganisms. *Curdling of milk* is due to the presence of rennin and lactic acid. Soured milk is supposed to prolong life by reducing intestinal putrefaction.

4. *Ptomaines* are basic nitrogenized compounds produced from protein material by the bacteria which cause putrefaction. *Examples:* Putrescin, cadaverin, cholin, neuridin, amantin, muscarin, mydalein.

	CHEMICAL NAME	FORMULA
Sugar of lead	Lead acetate	$Pb(C_2H_3O_2)_2$
Flowers of sulphur	Sublimed sulphur	S.
Blue vitriol	Cupric sulphate	$CuSO_4$
White lead	Lead carbonate	$(PbCO_3)_2$. PbH_2O_2
Red lead	Plumboso-plumbic oxide	Pb_3O_4
Baking soda	Monosodic carbonate	$NaHCO_3$
Quick lime	Calcium monoxide	CaO
Lime water	Calcium hydroxide	CaH_2O_2
Lime stone	Calcium carbonate	$CaCO_3$
Blue stone	Cupric sulphate	$CuSO_4$

6. The paraffin and benzene series are somewhat similar in that they both form halogen derivatives and also alcohols, aldehydes, acids, ketones, nitro compounds and amido compounds.

Two members of the paraffin group—Methane and ethane.

Two members of the benzene group—Benzene and toluene.

7. *Test for albumin in the urine:* The urine must be perfectly clear. If not so, it is to be filtered, and if this does not render it transparent it is to be treated with a few drops of magnesia mixture and again filtered. The reaction is first observed. If it be acid, the urine is simply heated to near the boiling point. If the urine be neutral or alkaline, it is rendered *faintly* acid by the addition of dilute acetic acid and heated. If albumin be present a coagulum is formed, varying in quantity from a faint cloudiness to entire soldification, according to the quantity of albumin present. The coagulum is not redissolved upon the addition of HNO_3.

For sugar: Render the urine strongly alkaline by addition of Na_2CO_3. Divide about 6 c.c. of the alkaline liquid in two test-tubes. To one test-tube add a very minute quantity of powdered subnitrate of bismuth; to the other as much powdered litharge. Boil the contents of both tubes. The presence of glucose is indicated by a dark or black color of the bismuth powder, the litharge retaining its natural color.

For pus in the urine: Acidify the urine with acetic acid, then filter it, and treat the filter with a few drops of freshly prepared tincture of guaiacum; a deep blue color denotes the presence of pus.

To examine for indicanuria: "The urine is mixed with one-fifth of its volume of 20 per cent. solution of lead acetate and filtered. The filtrate is mixed with an equal volume of fuming hydrochloric acid containing 3:1000 of ferric chloride, a few drops of chloroform are added, and the mixture strongly shaken one to two minutes. With normal urine the chloroform remains colorless or almost so; but if an excess of indoxyl compounds be present the chloroform is colored blue, and the depth of the color is a rough indication of the degree of the excess."—(Witthaus' *Essentials of Chemistry and Toxicology.*)

Test for chyle in the urine: "As the chyle contains

serum albumin it would respond to the tests for that substance. To make out the fatty character of the molecular basis, a portion of the urine should be agitated with ether and potassium hydroxide, which dissolves the envelopes, and melts the fat particles together as a surface layer, leaving the urine clear beneath. The microscopic character is much like that of milk—that is, it contains myriads of small bright round particles which dissolve in ether."—(Holland's *Medical Chemistry.*)

8. "Milk is adulterated by the addition of water, by dilution, by subtraction of cream or skimming, by both watering and skimming, by the addition of thickeners, coloring, etc., and by the addition of artificial preservatives; it is also regarded as adulterated when it is below a certain chemical or bacteriological standard which is prescribed by a state or municipality."—(Price's *Epitome of Hygiene.*)

To test, a lactometer and creamometer are necessary, and various chemical tests should be made for the presence of formaldehyde, boric acid, borax, salicylic acid, and sodium carbonate or bicarbonate. These tests are too lengthy to be described here; and can be found in standard works on Food Analysis.

PATHOLOGY

1. "The terminal branches of the coronary vessels are end-arteries; that is, the communication between neighboring branches is through capillaries only. The blocking of one of these vessels by a thrombus or an embolus leads usually to a condition which is known as —(*a*) *anemic necrosis*, or white infarct. When this does not occur the reason may be sought in (1) the existence of abnormal anastomoses, which by their presence take the coronary system out of the group of end-arteries; or (2) the vicarious flow through the vessels of Thebesius and the coronary veins. The condition is most commonly seen in the left ventricle and in the septum, in the territory of distribution of the anterior coronary artery. (*b*) The second important effect of coronary-artery disease upon the myocardium is seen in the production of fibrous myocarditis. This may result from the gradual transformation of areas of anemic necrosis. More commonly it is caused by the narrowing of a coronary branch in a process of obliterative endarteritis. Where the process is gradual evidences of granulation tissues are often wanting, and any distinction between the necrotic muscle fibers and the new scar tissue is difficult to establish. The sclerosis is most frequently seen at the apex of the left ventricle in the septum, but it may occur in any portion. In the septum and walls there are often streaks and patches which are only seen in carefully made serial section. Hypertrophy of the heart is commonly associated with this degeneration. It is the invariable precursor of aneurism of the heart."—(Osler's *Practice of Medicine.*)

2. *Appendicitis:* "In the mildest or catarrhal form there is merely retention of the contents of the appendix and slight disease (swelling and erosion) of the mucosa. The muscularis and serous coat may be congested and edematous, but are not extensively involved. The contents of the appendix are more or less mucopurulent in character. In the necrotic or gangrenous form the mucous membrane suffers rapid destruction and the muscular and serous coats are quickly invaded. Fibrinous peritonitis soon develops in the serous coat and over the adjacent intestines, either as a result of penetration of bacteria through the walls of the appendix, or in consequence of perforation of the walls. The local peritonitis serves the purpose of restraining the infective disease and prevents diffuse peritonitis. In cases of rapid gangrene, with early rupture or escape of abundant bacteria, general peritonitis may result before a restraining wall can be formed."—(Stengel's *Pathology.*)

3. By *infection* is meant the invasion of the living tissues by living microorganisms which grow and multiply at the expense of the host. If only one kind of microorganism invades the host, it is a *primary infection;* if two or more kinds of bacteria are associated in this invasion, the result is a *concurrent* or *mixed infection;* a *terminal infection* is one occurring after a long period of weakness of the host, when a microorganism which would be powerless under ordinary conditions causes an infective process which is often fatal.

4. *Pathology of acute anterior poliomyelitis:* "The primary changes are in the vessels of the anterior horn (anterior spinal artery), which are congested, distended, and surrounded by small-celled infiltration. Thrombosis is common, but not necessarily present. Secondary interstitial changes take place in the gray matter, and its multipolar cells undergo cloudy swelling and ultimate destruction. Degenerative changes can be traced into the anterior roots. Later, the motor nerve trunks show marked change, the fibers being smaller and fewer in number. The neuroglia becomes increased, and the anterior horn as a whole is sclerosed and shrunken. The muscles are pale and flabby; atrophy begins early and is well marked; and microscopically, they show the changes already referred to, as the result of destruction of their trophic center. In the epidemic form there may be vascular irritation and cellular infiltration in the higher centers, but the ganglion cells of the medulla, pons, and optic thalamus usually escape; Flexner describes extensive hyperplasia of lymphoid tissues, and necrosis of small groups of liver cells."—(Wheeler and Jack's *Handbook of Medicine.*)

5. "The *causes of rapid death in the puerperium* may be any of the following: Accidents of labor, such as hemorrhage and shock following placenta prævia, accidental or post-partum hemorrhage, rupture or inversion of the uterus; rupture of a hematoma situated either externally on the vulva or within the pelvic cavity; rupture of peritoneal adhesions or of a broad ligament or an ovarian vein; acute purpura hæmorrhagica; cerebral embolism or apoplexy; hemoptysis; pre-existing diseases of the respiratory or circulatory system so grave as not to withstand the strain of labor, which is followed by extreme exhaustion and rapid death.

"Analysis of the recorded cases of *sudden death* include the following causes: Heart failure which has resulted from rupture of the heart due to fatty degeneration, to a patch of fibroid degeneration, to acute myocarditis. Sudden arrest of the heart's action has followed primary thrombosis in the right side of the heart, the thrombus extending into the pulmonary artery, or more frequently the cause of death has been embolism of the pulmonary artery. Rupture of a cyst in the auricular septum of the heart, of an aneurysm, of the aorta itself, and an attack of angina pectoris have caused immediate death. Mental emotion, such as profound impression of sorrow, of joy, of anger, of exaggerated shame, of excessive pain, or of fear, has caused sudden death by producing syncope, the heart's action being interrupted by energetic and persistent excitation of the inhibitory nerves of the heart. Sudden death has followed the entrance of air into the uterine sinuses; a fatal case has been recorded from embolus of fat from the pelvic connective tissue, and death in the puerperium has followed rupture of a gastric ulcer and of a liver-abscess. The most frequent causes of sudden death in the puerperium, arranged in the order of their relative frequency, are embolism, entrance of air into the uterine veins, and heart failure, due usually to organic disease."—(American *Text-Book of Obstetrics.*)

The post-mortem findings will depend on the pathological condition present.

6. "In *mitral stenosis* there is an increase in the intra-auricular pressure toward the end of auricular diastole, due to the blood from the lungs flowing into an insufficiently emptied auricle; the consequent dilatation and stretching excite the auricle to very vigorous contractions, which become augmented in consequence of the obstruction to the discharge of blood. The result is an extraordinary enlargement (hypertrophy and dilatation) of the left auricle, which may attain dimensions three or four times the normal. Increased intrapulmonary pressure is followed by hypertrophy and dilatation of the right ventricle, which as in mitral insufficiency is the efficient factor in maintaining compensation. In some cases, for a time at least, the increased power of the left auricle serves to supply a normal amount of blood to the left ventricle, which in consequence presents no noteworthy deviations from the normal. In many cases, however, on account of associated mitral insufficiency, the left ventricle is somewhat enlarged; in most cases the amount of blood supplied to the left ventricle is less than normal, in consequence of which it is often said to become reduced in size (this is more apparent than real)."—(Kelly's *Practice of Medicine.*)

"When compensation fails the various organs of the body suffer congestion. The lungs are first affected in disease of the left heart (mitral and aortic disease).

The capillaries of the pulmonary alveoli become over full and encroach upon the lumen of the alveoli, or by elongation stretch the alveolar walls and render them inelastic. In either case proper respiration is prevented —a condition which is further aided by the retarded pulmonary circulation. As a result of these conditions, dyspnea (cardiac asthma), cough, and expectoration develop. In extreme cases edematous exudation takes place, and in long-continued cases cyanotic induration of the lung occurs. In such instances there may be continuous cough and respiratory insufficiency. When the right heart fails, the liver, spleen, gastro-intestinal mucosa, the kidneys, and the peripheral circulation suffer congestion. The liver may become greatly engorged, and in certain cases actually pulsates with each ventricular systole. The swollen liver-cells and the engorged vessels cause obstruction of the biliary capillaries, and consequently produce jaundice. To some extent this may be due to associated congestion of the biliary channels. Congestion of the gastro-intestinal mucosa may occasion various forms of gastric or intestinal derangement."—(Stengel's *Pathology.*)

7. *"Pott's disease":* The lower dorsal region is the commonest situation, but any part may be affected. The disease begins—(1) Under the periosteum of the anterior surface of the bodies of the vertebræ. The disease spreads to the adjacent vertebræ. The bodies and intervertebral discs are destroyed, so that a gradual curvature is produced. (2) In the interior of the bones, near the intervetebral cartilages, and rarely affecting more than one or two vertebræ. As the bones become destroyed the weight of the body causes the vertebræ above to sink down, and so more or less acute curvature results. The disease may run its course with or without suppuration."—(*Aids to Surgery.*)

8. An *autogenous vaccine* is one that is prepared from material derived directly from the patient who is to be inoculated with it. *Vaccine therapy* is based on the supposition that bacterial vaccines when introduced into the patient's body cause a condition of active immunity against the corresponding pathogenic germs or their toxins; it is further believed that they raise the opsonic value of the blood and so promote phagocytosis of the invading bacteria.

(*To be concluded.*)

BULLETIN OF APPROACHING EXAMINATIONS

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION.†	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan. 12
Arizona*	J. W. Thomas, Phoenix	Phoenix	Jan. 5
Arkansas	W. S. Stewart, Pine Bluff	Little Rock	
California	C. B. Pinkham, Sacramento	Los Angeles	Dec. 8
Colorado	David A. Strickler, Empire Building, Denver	Denver	Jan. 5
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Mch. 9
Delaware	J. H. Wilson, Dover	Dover	Dec. 15
Dist. of Col'bia	Geo. C. Ober, Washington	Washington	Jan. 12
Florida*	E. W. Warren, Palatka	Palatka	Dec. 2
Georgia	C. T. Nolan, Marietta	Atlanta	June 2
Idaho*	J. F. Schmershall, Jerome	Lewiston	April 6
Illinois	C. S. Drake, Springfield	Chicago	Jan.
Indiana	W. T. Gott, Crawfordsville	Indianapolis	Jan. 12
Iowa	G. H. Sumner, Des Moines	Des Moines	
Kansas	H. A. Dykes, Lebanon	Topeka	Feb. 9
Kentucky	J. N. McCormack, Bowling Green	Louisville	Dec. 16
Louisiana	E. L. Leckert, New Orleans	New Orleans	June 3
Maine	F. W. Searle, Portland	Portland	Mch. 9
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec. 8
Massachusetts*	W. P. Bowers, State House, Boston	Boston	Mch. 9
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor	June 8
Minnesota	T. McDavitt, St. Paul	Minneapolis	Jan. 5
Mississippi	S. H. McLean, Jackson	Jackson	May 11
Missouri	J. A. B. Adcock, Jefferson City	St. Louis	Dec. 14
Montana*	Wm. C. Riddell, Helena	Helena	April 6
Nebraska	H. B. Cummins, Seward	Lincoln	
Nevada	S. L. Lee, Carson City	Carson City	May 3
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	Dec. 29
New Jersey	H. G. Norton, Trenton	Trenton	June 22
New Mexico	W. E. Kaser, East Las Vegas	Santa Fe	Jan. 11
New York	H. H. Horner, Univ. of State of New York, Albany	New York / Albany / Syracuse / Buffalo	Jan. 26
N. Carolina	B. K. Hays, Oxford	Raleigh	
N. Dakota	G. M. Williamson, Grand Forks	Grand Forks	Jan. 5
Ohio	Geo. H. Matson, Columbus	Columbus	Dec. 8
Oklahoma	J. W. Duke, Guthrie	Oklahoma City	Jan. 12
Oregon	B. E. Miller, Portland	Portland	Jan. 5
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia	Dec. 1
Rhode Island	G. T. Swarts, Providence	Providence	Jan. 5
S. Carolina	H. E. Boozer, Columbia	Columbia	June 8
S. Dakota	P. B. Jenkins, Waubay	Pierre	Jan. 12
Tennessee	A. B. DeLoach, Memphis	Memphis / Nashville / Knoxville	May
Texas	W. L. Crosthwaite, Waco	Austin	June
Utah	R. W. Fisher, Salt Lake City	Salt Lake City	Jan. 4
Vermont	W. Scott Nay, Underhill	Montpelier	Jan. 12
Virginia	J. N. Barney, Fredericksburg	Richmond	Dec. 15
Washington*	C. N. Suttner, Walla Walla	Walla Walla	Jan. 5
W. Virginia	S. L. Jepson, Wheeling	Charleston	April
Wisconsin	J. M. Beffel, Milwaukee	Madison	Jan. 12
Wyoming	H. E. McCollum, Laramie		

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for all the details regarding the examination in any particular State.

Items.

Cubitus Varus Following Fracture of the Lower End of the Humerus.—P. Turner reports a case of a female, aged 13 years, who was admitted to the hospital in January, 1913, for deformity of the left elbow. Six and a half years before she had a fracture of the lower end of the humerus as the result of a fall. The fracture appears to have been treated with an internal angular splint. The deformity followed the fracture, and for the past two years the elbow has been so painful that it could scarcely be used. On admission full flexion was possible, but on straightening the arm it became markedly adducted at the elbow owing to the alteration of the carrying angle, and could be over-extended. Pronation and supination were normal. All movements caused much pain. At the operation the humerus was divided transversely immediately above the condyles, and the arm put up in a position of full flexion. Massage and passive movements were started at the end of two weeks. The axis of the forearm now bears practically the normal relation to that of the arm and the joint can be freely moved without causing pain. Full extension is however impossible. Functionally the arm has been greatly improved by the operation.—*Proceedings of the Royal Society of Medicine.*

Pathogenesis of Congenital Hemolytic Icterus.—A. Chauffard reports an interesting group of cases of this condition occuring in one family. This group comprised a father who was jaundiced from birth and twin daughters aged 17 years, both of whom were also icteric from birth. There was another daughter aged 8 years who was not jaundiced. In studying this group of cases the author has come to the conclusion that congenital hemolytic icterus has a pathogenesis of a dual nature. There is an hereditary factor either syphilitic or tuberculous and a factor consisting in the hemolyzing reaction of the spleen. Unfortunately up to the present time no cure has been obtained. The administration of neosalvarsan to the twins had a doubtful effect. Radiotherapy applied to the spleen has been reported by Pareso and Heully in 2 cases with appreciable results. Splenectomy has been reported as an important measure but the operative mortality is quite high.—*Annales de Médeeine.*

Case of Osteitis Deformans; Operation for Fractured Femur.—G. Taylor reports the case of a patient aged 56, who was admitted to the Middlesex Hospital on April 29, 1913, for a fracture of the middle of the shaft of the right femur. Attempts to secure proper apposition of the fragments by means of splints and extension were not successful, and on May 16 an operation was performed, and the fragments were fixed by means of a Lane's plate. Recovery was uneventful, and he was transferred from the wards to the out-patient department under the author's care on July 16. Before leaving the wards he was discovered to be suffering from osteitis deformans. Both femur and tibia were bowed; the upper part of the spine was fixed in its bowed position; the clavicles were enlarged and the bones of the upper extremity were also slightly curved. There appeared to have been no change in the dimensions of the cranium. The condition did not appear to have influenced the union of the fracture in any way. —*Proceedings of the Royal Society of Medicine.*

Abscesses of the Larynx in Childhood.—Descattes reports thirty cases of this condition which he regards as relatively rare. Laryngeal suppuration may occur following measles, grip, diphtheria, variola, scarlatina, and typhoid fever, but chiefly following diphtheria, measles, and grip. In retropharyngeal abscess the pus may be evacuated at the level of the larynx. In measles abscess formation about the larynx may be primary or may be secondary to a laryngitis, either diphtheritic or non-diphtheritic. In diphtheria perilaryngeal suppuration occurs, most frequently following intubation as the result of ulceration of the larynx. The symptoms of abscess of the larynx are obscure. There may be a tumefaction of the tissues of the neck or an edema of the glottis. As soon as the diagnosis is made or suspected, prompt incision from the outside is imperative.—*Rassegna di Pediatria del Prof. Cattaneo.*

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PRECANCEROUS DISEASES AND PRECANCEROUS LESIONS, ESPECIALLY IN THE BREAST.*

BY J. EWING, M.D.,

NEW YORK.

WHENCE and how does cancer develop? The two queries cover the subjects of the formal and the causal genesis of the disease. The formal genesis of cancer is a morphological study which traces the fully developed tumor to the cells of origin. The causal genesis is a physiological subject and deals with the factors which bring about the tissue changes observed.

Until the sources and developmental stages of cancer are rather fully traced the study of causal genesis must proceed under difficulties. Hence for many years minute attention has been given to the very earliest stages of carcinoma and no diagnosis of tumors can be regarded as satisfactory unless the exact cells of origin can be stated.

The formal genesis of a large class of neoplasms was disposed of by Cohnheim, and by many others before and after him, who traced the beginnings of tumors in congenitally misplaced and often embryonal cell groups. While it is still impossible to state how far the principle of Cohnheim's theory applies to tumor genesis, the comprehensive list of observed tissue abnormalities predisposing to tumor growth as catalogued by R. Meyer, R. Williams, and contributed by many others, far exceeds anything Cohnheim could have postulated. The theory may also be made to include structural abnormalities or tissue predispositions which are not revealed by obvious microscopical changes, but which there is strong reason to believe exist.

On the other hand, clinical observation has long asserted that the great majority of important tumors are not determined by congenital abnormalities in tissue structure, but arise from once normal but previously altered tissue cells, and that various forms of chronic inflammation are observed to precede the development of most tumors.

Thus Billroth observed that cancer almost never arises in a normal breast. v. Brunn, among 368 cases of cutaneous cancer of the limbs, found only 48 in which no previous alteration in the tissues could be demonstrated. v. Bergmann stated that primary cancer of the extremities without previous changes in the skin does not exist. In the various organs throughout the body it is universally recognized that certain pathological conditions are followed in a variable but high proportion of cases by carcinoma. For these conditions Orth employs the term "precancerous diseases," but it should be emphasized that these diseases possess in themselves not a single essential element of the cancerous process. They are merely observed to precede and favor the development of cancer.

A glance at some of these diseases serves to show how intimate is the connection between the so-called precancerous disease and the tumor process, and under what conditions the one follows the other.

Cutaneous Cancer.—In the skin Darier recognizes three distinct precancerous conditions: (1) Malformations, (2) non-inflammatory degenerations, and (3) inflammatory processes and their sequels.

(1) The chief malformation leading to cancer is the nævus, which becomes malignant in a small proportion of cases and under conditions which have not been clearly defined. Darier has treated them with many destructive agents and never saw cancer develop from the irritation. Yet the case of the nævus is distinctly different from that of the true precancerous lesion and might better be considered in a separate category. Melanoma springs fullfledged from the focus of origin without the long preliminary changes observed in strictly precancerous lesions.

(2) Senile and presenile degeneration of the skin takes the general form of keratosis, and is seen in the seaman's skin, and other disorders leading to multiple cancer. It affects exposed regions subjected to repeated irritation of sunlight, heat, and cold. There is often an hereditary element. There is first hyaline degeneration of the derma, sclerosis of vessels, and atrophy of the Malpighian layer with thickening of the horny layer. Then follow keratosis, scaling, papillary outgrowths, and elongations of deep papillæ. Then very gradually the invasive and destructive features of carcinoma are added. Yet the process in the senile skin is not always the same and Janeway has described as the initial precancerous lesion foci of very large hyperchromatic cells without notable hyperplasia or heterotopia.

In xeroderma pigmentosum there is a family cutaneous dystrophy occurring in infants, marked by dry atrophic, or pigmented, or telangiectatic patches in the skin. After eight to ten years epithelioma resembling the senile type often develops. Arsenical cancer takes much the same course.

(3) Cutaneous cancer of inflammatory origin. In the skin well-known forms of cancer follow in the cicatrical tissue from burns, tuberculous and syphilitic lesions, and amputation wounds. It is characteristic that a long period usually elapses before cancer develops in scars, and that the tumor is very apt to be multicentric or diffuse in origin. The most extensive cancer v. Bergmann ever saw, covering much of the trunk, was in a man of forty years who at four years of age suffered an extensive burn. Many cases, however, develop within

*Read at a meeting of the Practitioners' Society, October 9, 1914.

five to ten years. The entire area involved in the lesion is usually included in the resulting cancer. Letulle mentions a case of appendical carcinoma arising in an old sclerosed and atrophic organ, and the majority of these cases are preceded by chronic productive inflammation with fibrosis, according to Zaiger 50 per cent., according to Milner 85 per cent. Lupus carcinoma arises in the active lesions of the tuberculous process, but in 30 per cent. of the cases in the scar tissue (Steinhauser). The fact that it comes about the thirtieth year of the disease and never before the fifth shows that considerable cicatrization is an essential preliminary. Several cases of carcinoma in syphilitic scars are reported by Ashihara.

X-ray dermatitis shows a remarkable tendency to develop carcinoma through a process in which cicatrization is an essential factor. A period of three to eleven years is required for the appearance of the malignant process, which is preceded by necrosis of the tissue, occlusion of blood and lymph vessels, fibrosis, and overgrowth of epithelium (Porter, Wolbach). In the more chronic cases fibrosis and atrophy predominate and the lesion resembles premature senescence (Lindhorn).

The scarring of ulcers is a well-known condition predisposing to cancer. A familiar example is the eczematous and varicose ulcer of the leg which if given time occasionally results in epithelioma.

The relation of gastric ulcer to cancer still remains to be defined. Among recent writers Hirschfeld places the proportion of ulcers that become cancerous at 5 to 6 per cent., and summarizes clinical and statistical data indicating that the proportion is small. Boekelmann collects a series of estimates varying from 3 to 5 per cent. In Vienna 2 per cent. of the subjects coming to autopsy show scars of healed ulcers. In France opinions are widely at variance. Wilson and McCarty from the Mayo clinic report that 68 per cent. of their gastric ulcers were complicated by carcinoma. In my own material, both surgical and post mortem, the proportion is much less, and I sometimes find it difficult to distinguish between ulcerating cancer and cancerous ulcers. In no field is the minute analysis of the histological changes preceding cancer more difficult or important. As a rule cancer develops only in ulcers of long standing and after a preliminary period of multiple adenomatous growths on the margins of the ulcer.

Cancer Resulting from Chronic Productive Inflammation of Glands or Mucous Membranes.—The most notable example of carcinoma following chronic inflammation is probably that observed in the gall-bladder from cholelithiasis. The disease forms 5 or 6 per cent. of all carcinomas (Kaufmann), and is four or five times as frequent in women as in men. Gallstones were present in 69 per cent. of Musser's 100 cases; 70 per cent. in Futterer's; 85 per cent. in Zenker's, 91 per cent. in Courvoisier's, 95 per cent. in Siegert's, and 100 per cent. in Janowski's. The proportion of cases of cholelithiasis which develop cancer is placed by Rolleston at 4 per cent., by Slade at 18 per cent. Slade found microscopical cancer in ten of seventeen cases, 59 per cent. Yet Candler found only two gross cancers in 315 cases of gallstones among the insane. Since cancer rarely produces gallstones, the calculi cannot be regarded as the result of the tumor. The tumor arises early in the course of lithiasis and takes a papillary or glandular character, or late, and then takes the form of infiltrating or fibrocarcinoma.

Aschoff and Pels-Leusden believe that irritation by cholesterin granules in the tubules of Luschka's gland (branching off from the vesical mucosa) is a frequent source of gall-bladder cancer. Menetrier points out that the proliferating glands especially in the polypoid outgrowths apparently at the stage of simple adenoma are capable of invading muscularis and lymphatics.

A well-defined form of hepatic carcinoma arises from chronic irritation and stasis of the larger bile ducts.

There appears to be something in the chemical or mechanical nature of the irritation by cholesterin which is peculiarly effective in producing atypical proliferation of epithelium.

In the uterus chronic catarrhal endocervicitis precedes cancer in the great majority of cases (34 of 48, Polese). The cervical erosion is the most definite established lesion known to precede cervical carcinoma. Next comes leucoplakia of portio and canal which is often combined with erosion. Beckmann carefully watched the development of carcinoma in an erosion which he treated for five years. Early stages of the development of carcinoma from such lesions are described by Waldeyer, Ruge and Veit, Cullen, Scharenstein, Sitzenfrey, and others. I have studied three quite perfect examples of precancerous polyps of eroded cervices showing metaplastic overgrowth and just beginning invasion of the stroma by adenocarcinoma. In one case a squamous cell carcinoma is beginning lower down in the cervix.

For corpus carcinoma the chief definite etiological factor is the association with myoma, 10 per cent. of which, according to Olshausen, give rise to carcinoma in the overlying and chronically irritated mucosa. Local hyperemia and chronic endometritis are constant accompaniments of myoma, and ulceration is frequent. I find that many stages of inflammatory overgrowth up to adenoma and adenocarcinoma may be followed by routine study of these cases. Leucoplakia of the endometrium is chiefly associated with the corpus carcinoma of elderly subjects which takes the form of acanthoma or adenoacanthoma (Benckizer). Yet many cases of leucoplakia uteri run a prolonged benign course (Zeller).

Although Gebhard claimed that malignant adenoma commonly arises from the hypertrophied glands of chronic endometritis this simple explanation has not been fully verified. Heurlin in 44 cases failed to find any transitional stage or any glandular endometritis in the outlying mucosa. Yet 29 of his 44 cancers were diffuse. It seems probable that when corpus carcinoma develops on glandular hyperplasia it first passes through an adenomatous stage. In routine material I find such transition stages rather frequent, but clinical observations in this field are still inadequate to prove the close dependence of corpus adenocarcinoma on inflammatory processes. I have only once observed a very marked grade of glandular overgrowth recur as adenocarcinoma in curettings received after an interval of two years.

In the urinary bladder the great majority of cancers can be traced to previous or coexistent cystitis. The multiplicity of vesical papillomas indicates the existence of widespread lesions in the mucosa from which tumors may develop. Stoerk has traced a definite relation between cystitis cystica and multiple papilloma, and he and Cahen report cases of the former developing into carcinoma.

Specific vesical irritants as observed in anilin workers are especially effective in producing vesical carcinoma, chiefly at the ureteral orifices (Rehn, Leichtenstern). A high proportion (50 per cent.) of these tumors are malignant (Seyberth).

In Bilharzia disease there is a series of changes, including venous and lymph stasis, catarrhal cystitis, irritation from ova, and lithiasis, which have been shown by Goebel and others to lead in many instances to carcinoma.

In epithelioma of the penis, which forms from 1 to 3 per cent. of all carcinomas in males, phimosis and syphilis are very common antecedents. Demarquay found phimosis in 85 per cent. of his cases and Kaufmann saw balanitis with warty vegetations in 29 of 33 cases. Hebrews are practically immune. Thompson describes as a precancerous condition a catarrhal balanitis with desquamation followed by hypertrophy of epithelium and subepithelial connective tissue. Schuchardt calls this condition psoriasis preputialis.

Buccal and lingual cancer stands second according to Jessett in order of frequency, third according to Jacobson, and fourth in Winiwarter's statistics and shows a mortality of 75 per cent. to 90 per cent. (Warren, Meller). This disease is preeminently due to inflammation and local irritation. The combination of syphilis, tobacco, and bad teeth is present in a large group of cases and one of these factors almost always exists. While Meller found signs of lues in only 7 of 207 cases, Fournier regarded 155 of 184 cases as luetic. The syphilitic process usually takes the form of leucoplakia, of which 30 per cent., according to Fournier (15 per cent. Darier), develop carcinoma. In these cases there is hypertrophy and hyperplasia of epithelium, hyperkeratosis, lymphocytic infiltration of submucosa, papillomatous overgrowth, and finally destructive invasion of the deep tissues. All these processes require time. According to Darier the complication of an ulcer or fissure is usually necessary before leucoplakia becomes cancer. Other syphilitic lesions observed to precede cancer are wart-like hypertrophies, fissures, gummas, and chronic atrophic glossitis (Jacobson). The syphilitic process may completely heal while cancer develops later in the scar under a smooth epidermis. As long ago as 1872 these various buccal lesions were designated by Hutchinson as precancerous.

Physiological involution of organs and the complicating mechanical, nutritional, and inflammatory processes, precede the development of cancer chiefly in the breast and prostate. Definite neoplastic tendencies in the "maladie de Reclus" were first pointed out by Brissaud and by Schimmelbusch and confirmed by many later writers. It is especially in that form of chronic mastitis in which cysts and epithelial proliferation are prominent from the first that cancer is observed to develop, but no anatomical form of the disease is free from the dangers of malignant change. Bloodgood prefers to regard most of the cases as pure senile involution. Regarding the relation to cancer, opinions are as usual at variance. It is quite true that certain cases pursue a benign course for many years. Hence Delbet and many surgeons consider the disease as essentially benign although incurable. Against this conclusion stands a large body of clinical evidence which has been steadily increasing in recent years. Billroth stated that small cysts are very often seen about mammary cancers. Tietze described five such cases in detail and Verga reports a similar series. Tietze concluded that 10 per cent. of cases of chronic cystic mastitis develop cancer and Speese in 295 cases found 15 per cent. showing carcinomatous areas. Greenough and Hartwell found three cases of cancer in 30 of chronic mastitis, and Warren reported 15 in 150 cases (13 per cent). When one includes various suspicious areas histologically resembling cancer but not admitting of positive interpretation the proportion of precancerous conditions in chronic mastitis becomes much higher. In my material for the analysis of which I am indebted to Dr. B. J. Lee, it reaches at least 25 per cent. In cases of mammary carcinoma interstitial mastitis is practically constant but may be secondary.

Brodie, Brissaud, Reclus, Sourice, Schimmelbusch, Saar, and many others have declared that the step from chronic mastitis to carcinoma is short and often traversed.

In the prostate the chief condition predisposing to cancer is chronic prostatitis, usually with hypertrophy. The principal age of incidence of both conditions is the seventh decade when 68 per cent. of the carcinomas occur. Notable examples of the transformation of simple hypertrophy into carcinoma are recorded by many observers (Wolff, Kaufmann, Albarran, Halle, Greene and Brooks, Young). The evidence usually consists of a long history of hypertrophy in cases presenting carcinoma. At least 10 per cent. of prostatic cancers give such history. Among 500 cases of prostatic obstruction Young found 20 per cent. cancerous, and he states that about 15 per cent. of enlarged prostates after 50 years are cancerous. The proportion is placed by Albarran at 14 per cent.; by Walker at 16.5 per cent.; Wilson and McGrath, 15.5 per cent.; Freyer, 13.3 per cent. In most of these cases the process was interrupted by operation and its capacity to develop cancer was not revealed. Wolff saw carcinoma develop after incomplete extirpation of an enlarged prostate. Whatever the nature of prostatic hypertrophy may be it is clear that the influence of physiological involution is usually concerned.

Regenerative hypertrophy may be regarded as the predominant underlying influence in the development of certain forms of cancer, of which the best examples are seen in the thyroid gland and liver. In fish the functional overactivity and hypertrophy of the thyroid observed in crowded ponds where the animals are fed on protein diet leads in a small proportion of cases to maligant overgrowth, which is a specific form of cancer. This condition has been reproduced under experimental conditions and fully traced by Gaylord. There is reason to believe that the thyroid cancer of young girls and possibly at later ages sometimes arises under parallel conditions. Few cases of thyroid carcinoma develop in subjects with entirely normal thyroid history, but many follow goiter, interstitial thyroiditis and Graves' disease.

In the liver an important group of primary carcinomas or hepatomas represents malignant overgrowth of regenerating lobules following injury with degeneration or cirrhosis (Hanot, Gilbert, Menetrier.) Probably many tumors of the kidney, adrenal and hypophysis are of the same nature.

The transformation of benign into malignant tumors is a very frequent source of cancer, universally recognized, occurring in nearly all organs, and of prime significance in considering the origin of cancer. Many of these benign tumors are clearly

of inflammatory origin, and the organs may present every gradation between simple inflammatory overgrowth, adenoma, and carcinoma. The most striking example occurs in the gastrointestinal tract and especially in colitis polyposa. This disease affects both old and young subjects and exhibits an hereditary, individual, and local predisposition. In the early stages the epithelium presents a peculiar and excessive reaction to some irritant, and catarrhal symptoms are marked. Then follow localized polypoid outgrowths, multiple adenomas, and carcinoma. According to Quenu and Landel about half the cases develop carcinoma. Hauser found this combination the rule, and of 50 cases analyzed by Doering 31 of 37 fatalities were from carcinoma.

The transformation of single benign gastric and intestinal polyps into carcinoma has been described in detail in a series of communications by Menetrier. According to this observer gastric ulcer leads to cancer through the preliminary development of polypoid adenomas on the edge of ulcer.

The foregoing brief series shows how very numerous are the pathological processes, which in a high proportion of cases are known to be followed by cancer. The list might be still further extended. These clinical observations form the chief basis for the classification of many cancers in the so-called "irritation group." The data cited are almost entirely clinical. The events in sequence ending in cancer are merely observed to follow one another, but this sequence does not prove that there is any essential relation between the processes. It is, therefore, questionable if the term precancerous disease is legitimately chosen. In fact, many have claimed that when mammary cancer follows chronic mastitis, one disease has been grafted upon an entirely different disease. It has been affirmed that a pathological condition is either cancer or not cancer.

To combat this highly mechanical notion of biological processes it is necessary to show that there is an essential connection between the preliminary disease and the resulting cancer and this can be done only by close microscopical study of precancerous conditions. This study has fully demonstrated that an extensive series of structural changes takes place in the precancerous diseases leading up to the fully developed cancer, the one passing by insensible gradations into the other. It is not true that a pathological condition must be either cancer or not cancer. It may be neither the one nor the other. It may be in the process of becoming cancer. This process takes time, sometimes years, and may be accompanied by very striking histological changes which may be difficult to classify, since they lie between inflammatory and neoplastic hyperplasia. To this series of intermediate stages of hyperplasia revealed by the microscope in diseases clinically observed to pass into carcinoma the term "precancerous lesion" may be applied.

I believe, however, that only when the preliminary lesion shows a definite advance into the field of genuine cancerous change can the term precancerous be properly applied. Otherwise almost every form of chronic productive inflammation may be regarded as precancerous since in some instances the particular condition clinically passes into carcinoma. Yet not every case of chronic mastitis shows suspicious changes suggesting carcinoma. When any case does exhibit the suspicious structures then and only then can it be regarded as precancerous.

I believe, further, that a distinction should be made between precancerous lesions and miniature carcinomas. All the local signs of malignancy may be exhibited in comparatively minute foci of cells, and may be observed in chronic mastitis, and while the circumscribed lesion may not reveal its potentialities to the clinical observer the microscope detects the malignant capacities with complete certainty. Only in size do such miniature carcinomas differ from the established disease. Such lesions cannot properly be called precancerous since they exhibit the essential features of fully developed carcinoma, only on a small scale.

The data which support the principles here stated are derived from the microscopical study of cancer and precancerous lesions and their elucidation requires an analysis of the essential features of the carcinomatous process. Some features of this analysis may here be considered.

Histological Criteria of Carcinoma.—It must be noted that the histological criteria of carcinoma differ greatly in different organs and that only by clinical observation have we been able to determine and predict the momentum and the probable course of different malignant tumors. The significance of the various changes belonging to the cancer process must be learned for each organ. Moreover, cancer of the same organ exhibits in widely different degrees the histological features of carcinoma. Thus some malignant cancers of the thyroid differ so little from the structure of the normal gland that Cohnheim called them benign metastasizing struma, and Riedel, Oderfeld, and Steinhaus erroneously concluded that the normal alveoli of the gland might pass into the blood stream and produce distant tumors. Here the metastasizing property was developed far in excess of other carcinomatous features. On the other hand, extreme grades of somewhat atypical cellular hyperplasia with giant cells and ill-formed alveoli are observed in the wholly benign goiter of Graves' disease.

In the stomach a comparatively orderly adenomatous hyperplasia is usually malignant and may be found in distant metastases, while in the rectum a similar degree of glandular overgrowth constitutes a harmless polyp. It is extremely difficult to establish any universal criteria of the cancer process and I find that some who have attempted to do so encounter many difficulties. Thus Borst applying a somewhat rigid conception of carcinoma hesitates to accept many very malignant hepatomas as true cancers because they fail to show the local aggressive properties of many carcinomas and are mechanically forced to grow into the hepatic vessels. These few illustrations among many that might be cited, suffice to show that there are many morphological details in cancer processes, and that all are not equally developed in every genuine cancer.

Probably the best definition of the cancer process is "atypical and destructive proliferation of epithelium." Yet many well known forms of cancer fail to meet these requirements and it becomes necessary to analyze the process in much greater detail in order to admit many malignant diseases into the cancer category. This analysis requires the recognition of at least the following criteria of a malignant process: (1) Cellular overgrowth passing beyond that observed in other processes affecting the same tissue; (2) atypical qualities of the cells, metaplasia, anaplasia; (3) loss of polarity; (4) heterotopia; (5) desmoplastic properties; (6) local invasive and destructive properties; (7)

metastases. It will be observed that in each of these characters variations in degree are conceivable and, as a matter of fact, they are commonly observed to occur.

Any one of the above attributes of cancer may be almost exclusively represented in the disease. Excessive cellular overgrowth difficult to distinguish from a physiological type chiefly characterizes some thyroid cancers. Atypical qualities of the cells are the only safe criteria of early malignant papilloma of the larynx. Loss of polarity is the chief feature of certain large alveolar mammary carcinomas confined within ducts. A pronounced fibrosis about slightly altered prostatic alveoli was the most definite feature of a fatal case of prostatic cancer which I have recently studied. Local invasive and destructive properties first reveal the beginnings of some lymphosarcomas. Distant metastases are the chief evidence of malignancy in the peculiar thyroid cancers previously mentioned. Hence the diagnosis of cancer becomes a matter of judgment as to the significance of any one or all of the above features that may be combined in any one cancer. The disease is not always one and the same thing. On the contrary, it is a progressive process which has small and variable beginnings and unfolds more and more of its features as it advances to a fatal issue. It is from this point of view that the significance of precancerous lesions must be regarded. From this standpoint such lesions may be defined as pathological processes which show some, but not all, of the structural features which characterize fully established cancers of the affected organ.

To what extent, then, are the criteria of cancer presented in the various conditions designated as precancerous diseases? Time fails for a full discussion of the many precancerous lesions in the several organs, but a few illustrative cases may be considered, of which the breast is perhaps the most fertile field.

The gradual passage by many transitional stages of the nutritional and inflammatory changes of chronic mastitis into cancer has been traced by many observers and in such detail as to leave no reasonable doubt that these authors have been describing stages of one and the same process. It may be fully admitted that these stages in order to form an unbroken chain must usually be taken from a series of cases, no one breast furnishing them all. Constructed in this way the fabric of proof is without a break.

Prominent among the early changes is the development of small cysts of lacteal, interlobular, or intralobular ducts filled with puriform, fatty, or blood-stained material. Into these cysts project low papillæ of proliferating epithelium which gradually enlarge, exhibiting a grade of overgrowth which passes the inflammatory limit. No other neoplastic feature may be present and we speak of the lesion as papillary adenoma. Since the papillary outgrowths may recede after evacuation of the cyst many of these lesions in the breast and other organs must be regarded as inflammatory and not adenomatous. Yet in others the growth becomes progressive. Other cysts show marked increase in the size of the cells and nuclear hyperchromatism. Loss of polarity appears in disordered multiple layers of cells but there is yet no heterotopia, which is added when stroma or capsules are invaded by atypical cells completely displaced from their normal attachments. Or, loss of polarity may be prominent from the first when the cyst is lined by multiple layers of atypical cells. Thus may be traced the development of the series of cyst adenomas and carcinomas, many of which develop in chronic mastitis. In other cases cysts are not prominent, but an interstitial productive process affects the lobule. The acini show from the first a notable tendency toward overnutrition and overgrowth, interpreted by Brissaud as a neoplastic process. The acini assume the characters of ducts as in the fetal breast. The cells multiply producing lateral sacculi and many new regular alveoli as exclusively seen in one form of adenoma; or more often the cells multiply rapidly, become atypical, exhibit loss of polarity, heterotopia, and soon local invasive properties. By these stages many of the circumscribed hard fibrocarcinomas develop in chronic interstitial mastitis.

Periductal fibrosis affecting one or more isolated portions of the breast may lead to extensive proliferation of lining cells which in various phases exhibit simple overgrowth, later atypical cell characters, loss of polarity, diffuse growth within a limited segment, then heterotopia and invasive properties.

Both ducts and acini participate in the abnormal proliferative changes, but in most cases the acini assume the characters of ducts and the distinctions between the two structures are obliterated. The aberrant sweat glands described by Moullin, Dryfuss, and Krompecher are often involved, producing cysts lined by strongly acidophile cells. The tumors derived from these cysts contain large granular pavement-like cells. In other cases the proliferation of acini is the predominant feature.

In the single case of chronic mastitis the suspicious areas are usually multiple and often numerous. They are best detected by examination of the breast in the fresh condition when they appear as unusually hard shotty nodules, or as small cysts with softened walls, or as cysts with opaque cellular contents. Of ten such nodules chosen from one breast in a case of Gibson's I found three groups of distended ducts diffusely filled with atypical cells and one miliary cystadenoma. The whole breast may be uniformly affected or the proliferation may be most advanced and atypical in one segment. As a rule the suspicious areas are more abundant in the more advanced cases. In some very small and very atrophic breasts I have found distinct precancerous lesions or miniature carcinomas. These cases correspond to those in which a very small breast is everywhere transformed into carcinoma. Thus several different gross forms of carcinoma seem traceable to the types of precancerous changes observed in chronic mastitis.

The proportion of cases of chronic mastitis which may be classed as showing precancerous lesions depends largely on the standards employed in interpreting abnormal proliferation. It should be emphasized that considerable proliferation and desquamation of epithelium is seen in nearly all cases of chronic mastitis and senile involution and unless quite specific changes are demanded before employing the term precancerous, one must consider all cases of chronic mastitis as dangerous. Widely distended ducts diffusely filled with atypical cells, pronounced multiplication of alveoli with obliteration of acinar outlines, and miliary adenomas with areas of diffusely growing large atypical cells, would seem to require recognition as tending distinctly toward malignant growth. Some of these lesions closely

approach miniature carcinomas, but are restrained by the thickened walls of ducts or other fibrous barriers. The comparative frequency of such lesions in the breast at many ages suggests that when carcinoma is observed to follow trauma it is through the liberation of cells growing under confinement in the cysts and proliferating ducts of chronic mastitis. Likewise when carcinoma develops after imperfect extirpation of fibroadenoma the trauma may liberate and accelerate the growth of the suspicious areas often seen in or about benign tumors.

Notwithstanding the close resemblance of precancerous lesions in the breast to carcinoma the actual passage of the one into the other is not to be accepted without searching criticism.

It may be that the suspicious lesions never pass beyond the stage at which they are observed. Only a minority of cases of chronic mastitis develop carcinoma, while atypical epithelial proliferation is rather common. Moreover, not a few cases of chronic mastitis progress for years without malignant transformation. It is necessary to admit that the mere discovery of precancerous lesions does not assure in every instance that the process was bound to become carcinoma.

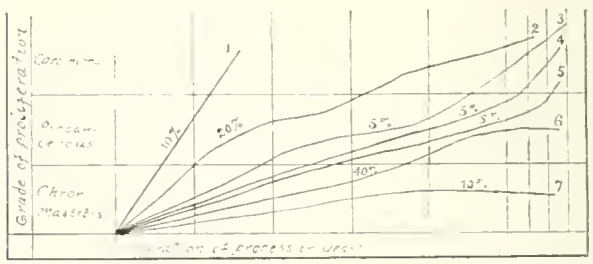
Nevertheless that some of the lesions do progress to carcinoma is a conclusion that cannot well be doubted. The series of transitional lesions in a series of cases or even in the same case is complete. The law of the momentum of pathological processes justifies the deduction that when atypical overgrowth begins and the conditions inciting it persist, the proliferation tends to become more and more atypical and active. In accordance with this law is the observed fact that a high proportion of cases of recognized mastitis develop carcinoma. Even more convincing is the still higher proportion of cases of carcinoma found to occur in breasts which are the seat of unrecognized chronic productive changes.

The most serious argument against the theory of precancerous lesions is the fact that many carcinomas are not proven to be preceded by such changes. Some of the very earliest cancers observed in the breast have been too far advanced to permit tracing them to their cells of origin. Ribbert states that no one has ever seen the beginnings of mammary cancer. Moreover, when cancer does develop in chronic mastitis it very soon overgrows and obliterates the original lesions. There is often a perceptible gap between the atypical proliferation and the smallest established carcinomas. Hence comes the impression that when carcinoma is grafted on mastitis a wholly new disease is added. I have seen rather numerous illustrations of the principle that when carcinoma develops in precancerous lesions the change may be sudden and the progress of the new lesion rapid. It appears that the precancerous lesions that become cancerous may reach the malignant form early in the course of the precancerous disease or without a period of slowly developing malignant properties. Hence there is no uniform relation between the progress of chronic mastitis and the resulting cancer and some chronic cases becoming established on a benign basis maintain that character throughout. Perhaps equally important as an explanation of the sudden unfolding of malignant characters is the release from mechanical pressure which proliferating cells experience when they once break the barrier of basement membrane.

The above conceptions may be elucidated by the diagram.

None of these considerations seems to me to seriously affect the interpretation of precancerous lesions as a preliminary stage of mammary carcinoma. Morphological and clinical studies as well as theoretical data accord in supporting this interpretation. There are other ways in which mammary cancers develop, but this is one and probably the most frequent. Clinical observations bearing on precancerous conditions in other organs have been presented at sufficient length to show that the breast is not peculiar in this relation but that the development of cancer from precancerous lesions is a principle of wide application. In each organ, however, the details of the changes from harmless to malignant epithelial proliferation are peculiar and require study and interpretation by themselves.

Important practical results follow acceptance of the doctrine of precancerous lesions. If inoperable advanced cancer is incurable, and localized cancer eradicable, the disease is preventable by dealing



1. Cases passing rapidly through the intermediate period of atypical or precancerous changes. 2. Prolonged period of precancerous changes with slowly progressing carcinoma. 3, 4, and 5. Rapid development of carcinoma or well established mastitis. 6. Late appearance of precancerous changes. 7. Prolonged chronic mastitis remaining benign.

with its preliminary stages. Precancerous lesions are not cancer. Practically they differ enormously from the established disease. They can usually be removed by trivial or safe operations, and they are sometimes amenable to less violent treatment. The therapeutic problem of dealing with cancer, as it were, before it exists, has made far greater progress than the doctrine of precancerous lesions. Gastric ulcers, lingual warts, fissures, and placques, eroded cervices, pigmented moles, and benign tumors, are everywhere excised, with the conviction that a malignant tumor may thereby be prevented, but the relation between the benign and the malignant process is still under discussion and often frankly doubted.

In the breast the therapeutic problem is unusually complex.

Although the majority of mammary cancers arise in previously altered breasts the preliminary changes often fail to attract the patient's attention. Yet there is a large group of cases which present lumps, nodules, cysts, and thickenings requiring diagnosis and treatment. While the decision in these cases belongs to the surgeon, the observations of the pathologist have an important bearing in this field. In general I think it may be said that gross and microscopical study tends to emphasize the dangers of benign tumors and chronic inflammations of the breast. The local removal of fibroadenomas, especially in young women, can be fully justified by the intact conditions generally found in the remaining portion of the organ. In older women I find these tumors more often multiple and associated with chronic mastitis, and in some cases carcinoma has developed after excision of wholly benign fibroadenoma. Its sources in these cases are not clear. Simple cysts in otherwise normal

breasts often spontaneously regress, but I find no adequate clinical study of the subsequent course of these cases.

A group of cases presents nodular thickening of one segment only, of the breast, partial chronic mastitis, and there are numerous records of the successful removal of the diseased segments. There are also numerous cases in which carcinoma has developed in the remnants of such breasts, or in the other breast. I have observed three fatal cases with this history. Hence partial extirpation for chronic mastitis must be regarded as only partial insurance of the life of the patient. The best procedure in these cases may be determined by the possibility of closely following the condition after operation. The practise of excising small portions of the breast and submitting them to hasty study by frozen sections, while not without value, is fraught with danger. The pathologist can pass only on the material examined, not on the whole breast. If any operation is performed on an indurated or cystic breast the whole affected area or the whole breast should be removed. The subsequent procedure can then be determined almost invariably by minute gross examination.

The treatment of established chronic mastitis when the condition can be recognized as such by clinical examination has not yet become uniform. Delbet appears to represent the practice of French surgeons in pronouncing the disease benign and not requiring radical treatment. He recommends that a strict watch be placed over these patients and believes that a malignant transformation can be detected in its early stages when operation is almost surely curative. Baumgartner only partially dissents from this view. Yet French observers first pointed out the dangerous tendencies of the disease and Cornil emphasizes them in his recent work. The treatment recommended by Delbet—compresses, incisions, and iodine injections—is ineffective, and the condition tends to become an increasing burden to the patient. The late stages even of the benign cases described by Billroth are suspiciously like scirrhus carcinoma.

In America I judge that surgeons are more and more inclined to believe, if not fully agreed, that diffuse chronic mastitis demands radical treatment. In 1905 Warren devised for this purpose the operation of plastic resection of the breast, leaving skin and nipple, and this mode of dealing with the disease, with appropriate restrictions, was fully endorsed by Gibson, not only for pronounced chronic mastitis, but for many benign tumors which are often associated with mastitis. While some unnecessary surgery may thus be done I think the study of precancerous lesions in this organ fully justifies the radical procedure.

Presarcomatous Lesions.—The occurrence of atypical productive inflammatory changes leading to sarcoma is not as widely recognized as are precancerous lesions, but is fully in accordance with established views regarding the nature of sarcoma. In fact, many sarcomas show such marked resemblance to inflammatory diseases that pathologists have long been prepared to accept, in a certain sense, the inflammatory or even the parasitic origin of certain sarcomas. The lymphosarcomas especially stand to-day in this position, and Borst among others anticipates the ultimate identification of this group of neoplasms with the infectious granulomas.

Relation of Tuberculosis and Syphilis to Lymphosarcoma.—That tuberculous lymphadenitis may pass rapidly or after several recurrences into lymphosarcoma has been long indicated by clinical observations. Ricker, in a case terminating after fourteen years, found frank tuberculosis associated with lymphosarcoma of neck, lung, adrenals, and spinal cord. Muller saw general sarcomatosis from a primary tumor of the breast, miliary tubercles being nearly coextensive with widespread sarcomatous tumors. Brandt described a case of apical tuberculosis with sarcomatous invasion of ileocecal region, pharynx, parotid, adrenal, and ovary. Inoculation of this pure sarcomatous tissue gave hyperplasia of intestinal follicles in guinea pigs, but inoculation of the tissues of these follicles gave frank tuberculosis in a second series of guinea pigs. Tuberculous intestinal ulcers associated with sarcoma of mesenteric and retroperitoneal nodes is described by Nothnagel, Freudweiler, and Munk. Since the discovery of tubercle bacilli in pseudoleucemic tissues by Weigert; in pure lymphoid hyperplasia by Brentano and Tangl; in generalized lymphomas of nodes, spleen, liver, and serous membranes by Sabrazes, only a slight difference has appeared to separate certain lymphosarcomas from the immediate or distant presence of tubercle bacilli or their toxins. Probably other infectious granulomas may also hold a similar relation, and various miscellaneous and undetermined infectious processes have apparently given rise to the disease.

The transformation of Hodgkin's granuloma into sarcoma has now been fully traced by several observers (Yamasaki, Karsner, Welch). In Welch's case the first nodes showed atypical tuberculosis or Hodgkin's granuloma, but when the patient died two years later there were sarcomatous tumors of lung, liver, and spinal dura. The transformation usually occurs in the late stages of the granuloma, but in a recent study I pointed out that tumors identical in structure with those following Hodgkin's disease are observed in sarcomas of recent origin and limited to the axilla.

In this study was reported a case of cervical tumors, probably tuberculosis, recurring four times in six years and terminating with the picture of endothelioma of lymph nodes. In this study it was also shown that an infectious granuloma, probably tuberculosis, may cause proliferation of the reticulum cells producing the large cell lymphosarcomas, or of the lining endothelium of the lymph sinuses producing a series of endotheliomas of lymph nodes.

The difficulty of distinguishing certain late syphilitic lesions in muscle and bone, socalled "sarcoma syphiliticum," is mentioned by many authors, and especially by v. Hansemann. The recurrence after operation, multiple appearance, and resistance to treatment also complicate the clinical diagnosis. While the active stages of these lesions strongly resemble spindle or round cell sarcoma, they tend toward necrosis and cicatrization, rather than to progressive growth. That true sarcoma may develop from such lesions seems quite possible, but satisfactory proof of this transformation is lacking.

In the healing of fractures and of wounds of the periosteum the histological picture usually shows very marked overgrowth of regenerating capillaries, bone, giant, and connective tissue cells, and resembles the structure of sarcoma. I have observed chronic processes of this type in which it was impossible to determine whether one was dealing with

inflammatory or regenerative overgrowth or early sarcoma.

Traumatic myositis ossificans appears to occupy a position intermediate between inflammatory and neoplastic processes (Berndt). The clinical history of established cases is that of a self-limiting productive inflammation, but the histology of the early lesions may be difficult to distinguish from bone sarcoma. It appears quite possible that the division of cases is accidental, some of the early lesions progressing as myositis, others as traumatic sarcoma. In a case studied in this laboratory and published by Coley the two conditions were combined. Kolisko finds that osteitis fibrosa may be followed by progressive changes leading to giant cell sarcoma of moderate malignancy.

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HEREDITY AND PREDISPOSITION IN LIFE INSURANCE.*

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THE attempt to discourse at any great length on such a comprehensive subject seems futile and discouraging at the outset, and this treatise will necessarily touch on only a few phases of the subject with the endeavor to apply the views to the realm of life insurance.

These theories which are at variance with one another are to a certain extent misleading and contradictory; however, there seems to be an underlying thought which appears to be more or less practical. At least one can accept what appears to be based on scientific principles and reject what is impossible to believe. Just how far we should be guided by these principles in life insurance work—that is, in the selection of risks, is also a problem, and it is not the intention of the writer to lay down any well-defined rules or laws in this regard. We are to-day guided to a great extent by our past experiences, or the experience of others, or the combined experience of all, and therefore the query, "Why permit ourselves to be influenced by theories which never have been absolutely proven?"

On the other hand, if *heredity* and *predisposition* are of no value from a medical insurance standpoint, why do we inquire into the family history of our applicants?

What bearing has age and causes of death of parents, grandparents, and near relatives? Why do many companies ask their applicants if there is any record in the family history of insanity, cancer, or tuberculosis? This would indicate that we place more or less importance on this history.

*Read at the 25th annual meeting of the Association of Life Insurance Medical Directors, October 7 and 8, 1914.

There appear to be legitimate grounds for believing that physical or mental qualities or tendencies are transmitted from ancestor to offspring.

Many theories have been handed down to us by early investigators and it would not be amiss to briefly outline a few of these views.

Darwin's Theory is that each of the different cells of the body gives off "gemmules" or germinal particles which are capable of reproducing their kind. This was called the "Hypothesis of Pangenesis." He asserted that numbers of these gemmules are being given off continually from all the cells of the body and circulate through the blood and finally settle down in some part, principally in those regions in which the development of offspring will take place later on, *i.e.* buds or germ cells. As gemmules from all the cells of the body are aggregated in these cells, they invest the latter with the power of developing into a new and complete organism.

He also believed that the germ was not exclusively composed of gemmules derived from the organism in which they were formed, but consists at the same time of a very large number of gemmules which are derived from parents and ancestors even of very remote generations. It was also asserted that on account of each cell being represented by a great variety of gemmules a selection must take place. As only one gemmule can form the required cell, the rest must remain dormant.

Therefore, according to his theory, a number of gemmules which have remained dormant are transferred from one generation to the next. These, under certain conditions, become active and bring into existence ancestral traits which had disappeared in the parents. This explains, according to his theory, the variations in individuals of the same race, type, or species and through this selection there is a survival of the fittest.

Weissmann's Theory is a continuity or immortality of germ plasm. He maintained that germ substance is directly abstracted from the developing ovum and preserved without essential alteration to become, by giving rise to sexual elements, the germ substance of another generation, by the corollary that the whole nature of the animal or plant depends upon its germinal substance, and that the resemblance of the offspring to the parent is due to every gonoblast containing some germinal matter.

According to Weissmann, the cells of the embryo are separated into two kinds: (1) The germ cells which become sexual elements, and (2) the somatic or body cells used as building material (Somatoplasm) of the individual.

Naegele's Theory resembles Weissmann's to a certain extent. He believed that the formative force resided in a specific material substratum called "idioplasm" which was essentially identical with Weissmann's "germ plasm." This "idioplasm" was claimed to be the nuclear substance and the essential factor in the function of heredity, and the nucleus, therefore, the organ of hereditary transmission.

De Vires' Theory was called "Intracellular Pangenesis." This was to the effect that the nuclear substance of the germ plasm was composed of minute particles which he called "pangenes," which were not cells but the bearers of the properties of the cells. The entire cell he called the "Protoplast," and its independent parts "Pangenes."

In the nucleus he claimed were nuclear rods which he also called *idants* and *chromatin* rods, which are composed of an ancestral plasm which he called *ids*, each representing "an individuality."

He also maintained that the doubling and multiplication of these *idants* prior to fertilization explains the variety or variation of form and character of the subsequent individual.

Galton accepted the theory of "gemmules" but rejected the idea of Darwin that they circulated through the blood and that the "gemmules" compose the germ cells.

Mendel believed that every organism is made up of *determinants* in which are contained an aggregation of characteristics and dominating traits that have been inherited from a previous generation. He also maintained that there were organisms of the same species in which the dominant type was absent or deficient. This was called by Mendel a *recessive* type. If two dominant types are crossed, the result will be a generation of the same dominant type. However, if a dominant type is crossed with another of the same species which has but a single *recessive* characteristic, the result will be that 25 per cent. of the succeeding generation will be of the *recessive* type and 75 per cent. of the *dominant* type, though not in the same degree. Also, if one of the *recessive* type mates with another of the same type, all of the succeeding generation will be *recessive* or defective.

The views of these early investigators are somewhat complex and some of them would not stand the strictly scientific test; however, they all show considerable study and we cannot help but feel that they have all benefited science.

Their work was progressive and many of the main principles are accepted at the present time. Whether or not we call the agent through which the characteristics are transmitted, "gemmules," "germinal particles," "cells," germ plasm," "determinants," "idioplasm," or what not, the principle is the same, and whether or not these circulate in the blood or by just what process the result is brought about, may never be proven, and, in spite of a certain amount of scepticism, we are compelled to believe there may be some truth in these views.

A recent article appeared in the MEDICAL RECORD by Dr. Thomas E. Satterthwaite of New York on "Some Problems in Genetics." He believes that matings of any sort should be amenable to some sort of regulation, by medical, legal, moral influences or otherwise. He cites the notorious Jukes family and the liberty is taken of quoting from this article in regard to this family:

"Somewhere between the years 1720 and 1740, a hard drinking backwoodsman of our State, known to us as Max Jukes, was the first in a family that up to the year 1877, either in direct or collateral lines, by marriage or cohabitation, numbered upward of a thousand individuals. Of these, 709 were actually traced in the course of their investigation. Three hundred or thereabouts were computed to have died prematurely; 50 of the females were common prostitutes; 40 of the women had specific diseases, contaminating 440 persons; 60 were habitual thieves; 7 were murderers, while very many others were in various ways burdens on the State. When the inquiry closed in 1877 it was estimated that the family had cost the State $1,308,000, or more than a thousand dollars apiece for each of the 1,000 persons in whom there had been Max Jukes' blood, besides causing widespread degradation and

the physical harm to the community that has been described."

He also outlines the history of the Kallikak family: "Back in Revolutionary times a man by the name of Martin Kallikak took advantage of a feeble-minded girl. Of their 480 descendants, 143 were feeble-minded, the greater part of the number falling below mediocrity, while none of the remainder had any special ability. Later Kallikak married a respectable Quaker girl, 'of good ancestry,' it is said. From this union there were 496 descendants whose histories were traced. All of these but two were normal mentally, and the two exceptions were not feeble-minded."

Within the past few months the *Literary Digest* commented on an article written by the physician in charge of the Indiana State Prison. This physician has made a study of moral defectives and maintains that certain persons exist, not insane nor otherwise abnormal, who simply are unable to refrain from crime because of defective nervous organization. This condition he calls "Constitutional Immorality" and prefers this name to "Moral Insanity" or "Moral Imbecility."

A quotation from this article is as follows: "These unfortunate moral defectives we generally find to be burdened with an evil heredity, a harsh, unrelenting tyranny of ancestral defect. Many of them are ignorant and do not rise above the level of the feeble-minded; in marked contrast others are highly educated persons who assent to the general propositions concerning right and wrong, and frequently delight to discuss moral customs and laws in order to exploit their casuistic and argumentative powers, but to them the concrete application or moral or legal restraint is a hardship which they cannot understand."

This physician evidently believes in heredity and predisposition as regards defects in the moral make-up of certain persons and his statements certainly appear to be worth considering, and while there is "a cast wealth of clinical material of psychiatric nature going to waste in our penal institutions because of a lack of scientific curiosity on the part of well qualified investigators," we are compelled to believe there is an element of truth in the theory.

It is stated there are many infirmities that may be inherited, such as epilepsy, chorea, deafmutism, and various mental disorders. It is also asserted a person afflicted with any of these who mates with another similarly affected will, under certain circumstances, transmit them to the offspring, who will in turn hand them down to succeeding generations.

Karl Pearson claims that statistics prove that 75 per cent. of all deaths are due to inherited diseases. If this is true, family history certainly is an important factor in the selection of life insurance risks.

Dr. Paul Waterman of this city presented an able paper on "Heredity" before the Hartford Medical Society on May 18 this year. With his permission the following is quoted: "A selective death rate means that a certain proportion of a community or species in any given generation will die as the result of constitutional causes, as the result of weakness or susceptibility inborn in the individual. As long as the environment of the species remains constant the value of the selective death rate is unity or 100 per cent. As conditions of environment change, its value is lessened, and at present for civilized communities it is assumed to be between 50 and 75 per cent. In fact, extensive statistics have placed it at 60 per cent. Our present environment, working chiefly through the forces of sentimentalism and democracy, has tended very markedly to diminish this value still further because we do our utmost to protect the weak from death. This procedure would impose its additional burden on each generation, but without any marked cumulative effect on succeeding generations, if it were a fact that all types or classes of human beings were equally fertile, if each group according to its fitness produced an equal number of offspring with every other group; but this does not seem to be the case, because it appears that the fitter stocks are less productive at present, that the less fit or unfit stocks are more fertile, and when we add to this the fact, or what appears to be a fact, that 12 per cent. of those born in this generation will produce 50 per cent. of the members of the next generation, we can realize that we are facing a theoretical degeneration rather than an evolution."

The Doctor has two suggestions which he concedes are difficult to put into practice; first, to eliminate the unfit by segregation; and, second, to stimulate the procreation of the fit. It cannot be denied that some such procedure would be of benefit to the race in general and would result in a lowered mortality, but whether or not this is feasible is left for your determination.

As far as eugenics is concerned only a few words will be submitted. It would appear to be a problem which, up to the present time, remains unsolved. Numerous suggestions have been presented and it is not unreasonable to suppose that legislation may deal with the matter to some extent in the future. In fact there has recently been an effort to prevent the propagation of the feeble-minded. The sexual instinct in this class is greatly developed and, having no particular sense of responsibility, they increase rapidly.

Dr. Victor Vaughan says: "There must be laws governing and preventing the marriage of the unfit."

The principles of practical eugenics up to the present time seem to result in two schemes: the first, which proposes to better the race by breeding of individuals who are free from any defective strain; and, second, to prevent the mating of two defective strains.

We will, however, leave this matter to be solved by those who are particularly fitted, by devoting their time, energies, and investigations in that direction.

In the *Encyclopedia Britannica*, under the "Empirical Study of Heredity," appears the following: "The fundamental basis of heredity is the separation of a mass from the parent (germ plasm), which under certain conditions grows into an individual resembling the parent. Every character found in a parent may or may not be present in the offspring. When any character occurs in both it is generally spoken of as transmissible and of having been transmitted. In all kinds of reproduction the characters of the class, family, genus, species, variety or race, and of the actual individual are transmissible. The transmitted characters are anatomical down to the minutest detail; physiological, including such phenomena as diatheses, timbre of voice, and peculiarity of handwriting; psychological, pathological, teratological, such as syndactylism and all kinds of individual variations.

Either sex may transmit characters which in themselves are necessarily latent—as, for instance, a bull may transmit a good milking strain."

Also it is stated that (1) a child may inherit the anatomical constitution of either parent and with that a special liability of failure to resist the attacks of a widespread disease; (2) the actual bacteria may be contained in the ovum or possibly in the spermatozoon; and (3) the toxins of the disease may have affected the ovum, or the spermatozoon, or, through the placenta, the growing embryo.

In the first two cases the offspring cannot be said in any strict sense to have inherited the disease. It is also stated that "these two, heredity and environment, are the master influences of the organic world." There would hardly appear to be any doubt that some diseases are passed on from one generation to another. This, however, in some cases cannot be claimed to come under the domain of heredity, but, more strictly speaking, is an infection of the parental germ cell.

Syphilis is the main and prominent disease which falls in this class. Other diseases, such as carcinoma, epilepsy, etc., have been claimed to belong to this class; however, we cannot say positively that such is the case owing to the failure of laboratory experiments to prove it.

As regards tuberculosis, it cannot be claimed that the disease is hereditary, as was once supposed. It is claimed, however, that the transmission of abnormal predispositions and the infection of the germ might combine to bring about the transference of this disease from one generation to another.

We therefore see how closely heredity and predisposition are allied.

There appears to be an inclination on the part of life insurance workers to attach less importance than formerly to a family history of tuberculosis, and in a paper produced by Dr. Symonds two years ago, it was shown by actual experience that at certain later ages it could be disregarded altogether. The time has not come, however, when the majority of life companies entirely disregard it in the earlier ages.

If our ideas change from time to time, it would seem to be merely following the laws which have been worked out by these early investigators. Darwin and others claimed that environment played an important part and, in regard to tuberculosis, this may be the essential feature which seems to lower the mortality. And, again, in the selection of life insurance risks, there is a real selection.

In scrutinizing an applicant for life insurance, we would look with doubt on one who admitted tuberculosis in the family history, who was considerably under weight, fragile, and who did not manifest ordinary resistance. It would indicate to our minds that this individual inherited the anatomical constitution of a parent, and we would be inclined to believe that there was a special liability of failure to resist the attack of the disease.

Then why is there a disposition to be more liberal as regards family history? Environment would be one explanation, and that means education.

As stated above, we do our utmost to protect the weak from death. We know more about tuberculosis than we did fifty years ago. Science has done a great deal for us. We do not consider an individual who suffers from incipient tuberculosis as doomed. In companies that accept sub-standard risks, there is a large class of these so-called "arrested" or "cured" cases and the experience on these has been favorable. This shows what environment and education will do and would hardly seem to prove that the laws of heredity and predisposition are entirely upset.

Then, again, we accept only the very best of risks submitted. There is, as has been said before, a real selection. Only the more robust and those who manifest a power to resist disease are accepted. This does not prove that the predisposition is not present. It would merely seem to indicate that by education the lay people at large have progressed and that more stress is put on environment, mode of life, proper food, habits, and those matters which tend to a betterment of their general welfare.

These may be the factors which tend to lower the mortality.

A family history of other diseases, such as mental and nervous disorders, early deaths in the family from apoplexy or other degenerative disease, still plays some part in the selection of risks.

Whether or not medico-actuarial figures show a lessened mortality over figures in years gone by, that alone would hardly prove that there is nothing in heredity or predisposition; on the other hand, it might prove that we are improving in our method of selection, also that environment is an important feature. We cannot entirely disregard the theory that "like begets like." The history of the Jukes family would tend to prove something.

We much prefer that the risks we accept show no history of tuberculosis, insanity, suicides, early deaths from apoplexy or degenerative diseases in their families.

What conclusions can be derived from the above and can these ideas be applied to the realm of life insurance?

We are guided to so great an extent at the present time by experience and actuarial figures that there may be a disposition to disregard everything else.

Whether or not we claim to believe any of the above theories, we unconsciously show our inclination to place some importance on the main principle of heredity and predisposition by the manner in which we scrutinize and delve into the family history. We are not compelled, however, to believe that because a parent died from tuberculosis the offspring must do likewise. We are led to believe that no microbic disease is hereditary, and the reappearance of the disease in the next generation may be due to an infection of the germ or germ plasm, so-called, or, in other words, the process is started before the offspring is born.

It can safely be said that the inheritance of a predisposition to a disease is not inheritance of the disease. Heredity than appears to be secondary to predisposition so far as transmission of disease is concerned, in as much as we inherit predisposition rather than disease. We inherit anatomical and physiological characteristics and in this manner are predisposed to disease. This appears to be the limit of heredity, according to modern thinkers, and to that extent only can it be applied to the realm of life insurance and the selection of risks.

Predisposition is difficult to define; however, we may illustrate by stating that the body is a machine which is made up of delicate parts.

If all the parts work in harmony, there is a good working machine, which gives promise to run the allotted time. However, if some of the delicate

parts are defective, there is friction which would indicate that the life of the machine is limited. These delicate parts are the anatomical characteristics which we inherit and upon them is computed the period of existence. Therefore, if there is not harmony of the parts, there may be a predisposition to disease. In other words, we may say such individuals lack resistance. In our selection of risks, therefore, predisposition has been in the past and still continues to be a factor.

As stated before, environment is an element which at times appears to offset and upset the laws of heredity and predisposition; however, not to the extent of defying the main principles, which will probably stand the test for a considerable time.

The writer does not wish to convey the idea that he is a disciple of any particular doctrine or creed, nor can he claim to have thoroughly covered such an exhaustive subject in such a brief treatise; however, certain principles are accepted by all investigators in this line and appear to be of some value to workers in life insurance.

CHRONIC PROSTATITIS AND ITS TREATMENT BY THE GENERAL PRACTITIONER.

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CHRONIC prostatitis is a very common condition. In a greater or lesser degree it is present in a very large percentage of the male population of every civilized country.

Causes.—One of the most important factors in the etiology of chronic prostatitis is gonorrhea, but gonorrhea does not play the same relative rôle in the causation of chronic prostatitis that it does in the causation of acute prostatitis. In the latter gonorrhea is by far the principal factor; other causes play but a subordinate rôle. This is not so in chronic prostatitis; while, as we said, gonorrhea does play a very important rôle, other factors are also of great importance. Among those factors we may enumerate chronic urethritis of whatever origin; masturbation; sexual excesses (that is, too frequently repeated natural sexual intercourse); coitus interruptus; complete abstinence, particularly if accompanied with excitation, mental or physical, without gratification (it is remarkable how the over-use, abuse, or non-use of a function frequently leads to the same result); a steady, long-continued sedentary life; catheterization; stricture, and long-continued cystitis.

A chronic prostatitis following a gonorrhea, or other forms of urethritis, may be chronic from the very start or it may be the end stage of an acute or sub-acute prostatitis.

Symptoms.—The symptoms of chronic prostatitis may vary from the mildest to extremely severe. There are cases of prostatitis which are symptomless, or practically symptomless, and there are cases which assume the character of a very serious malady.

It might be asked how we know that a man has prostatitis if it gives him no symptoms whatever. Of late years a good many men before getting married, or even before becoming engaged, come to the physician for a sexual examination. They tell him that they feel all right in every way, that there is absolutely nothing the matter with them, but that they want him to make sure that they are all right. Some of them may have had a gonorrhea, some of them have absolutely no venereal history. In a certain percentage of these men who complain of no symptoms whatever we find on examination distinct evidences of prostatitis. The prostate is either enlarged and "boggy," or only boggy, and on expression we obtain a fluid which gives unmistakable evidences of a mild grade of inflammation.

Pathologically, the condition in the prostate may vary from a simple congestion to an extensive suppuration. In the majority of cases, however, the symptoms of prostatitis are pronounced, and may be classified as local, sensory, urinary, sexual, and general nervous.

The *local* symptoms are those that we discover by an objective examination. The prostate is usually enlarged, soft, boggy; either soft throughout or soft in some spots and hard and nodular in others, more than normally sensitive on pressure, and exudes a turbid lumpy secretion on expression.

The *sensory* symptoms are heaviness and a dragging sensation in the perineum, pain in the prostate and perineum, and pruritus ani or itching around and within the anus. The patient cannot sit comfortably for any length of time in one place and likes to shift his position. A symptom that can be frequently observed by the careful observer is that the patient when sitting down will sit on the edge of the chair, and if the chair permits it, on one buttock only. Walking is less annoying to him than sitting or standing. He feels most comfortable lying down. While the pain may be limited to the prostatic region, it may, as is easy to understand with an organ so rich in nerves as the prostate, radiate to various parts of the body, to the testicles, urethra, penis, thighs, and small of the back. The pain may also radiate to the kidneys and simulate the pain of renal colic. Personally, however, I have not seen such cases; in renal colic the pain is too acute, too sharp, to be mistaken for the dull, gnawing pain of prostatitis. Still some authorities claim to have seen such cases.

A very frequent and most annoying symptom is a leaden heaviness in the calves of the legs, and also a burning in the soles of the feet. These symptoms make themselves particularly noticeable in the afternoon, around four o'clock. I have been able to diagnose prostatitis in a great number of cases from these two symptoms alone. With the cure of the prostatitis these symptoms disappear.

The Urinary Symptoms.—One of the most common symptoms is the *frequency* of urination. The patients may have to urinate every two hours or every hour, and if they happen to drink some irritating liquid like beer, may have to urinate every fifteen or twenty minutes. They also have to get up in the night from one to four times. Another symptom is the urgency of urination. There is a difference between frequency and urgency. A person may feel like urinating frequently, but if he is unable to urinate at a certain time it may cause him no effort to retain his urine; in the case of urgency, however, when the desire to urinate comes on it must be complied with instantly or the patient is apt to wet his underwear. There is a disagreeable, perhaps scalding, sensation on urinating, and there is dribbling of urine after the act. The size and character of the stream is often unaffected, though as a rule it is smaller than usual. The

urine itself is frequently turbid, and contains many bacteria and a large amount of phosphates; in fact, *phosphaturia is one of the most common symptoms in prostatitis.* Whether it is a direct result of the prostatitis or whether it is caused by the nervous condition induced by the prostatitis is an open question.

The *sexual* symptoms are briefly summarized in imperfect erections and premature ejaculations. The libido may be diminished, but as is so often the case whenever any irritative condition exists in the prostate, maye be greatly increased, causing the patient to indulge to excess, thus still further aggravating his condititon.

The *general* and *nervous* symptoms produced by an irritated or inflamed prostate are literally legion. First there is a general irritability, a physical and psychic irritability. The patient responds much more quickly to external stimuli, such as changes in temperature, and he gets very easily upset over little things. Then there is a general depression. This depression expresses itself not only in a lack of desire for work and a lack of interest for things, but in a general despondency. The patient may occasionally become deeply melancholic, and this to such an extent that he may harbor suicidal ideas. If the condition lasts long he may become a victim of sexual neurasthenia, with its legion of symptoms, but to discuss the latter here would lead us too far and we must refer the reader to special books on the subject.

Treatment.—While prostatitis, as we have seen, may be a serious complication, giving rise to numerous annoying symptoms which make the patient wretched, diminish or destroy his usefulness, and may even lead him to suicide, there is one bright feature about it, and that is that it is very amenable to treatment.

While we may not change the secretion in a suppurating prostatitis to such a degree that it does not contain a single pus cell, still practically all cases of prostatitis (and it is quite safe to leave out the word practically) may be improved to such an extent that they will give no symptoms and the patient will not be aware of their existence.

The treatment of prostatitis, as of all diseases of the genitourinary organs, is both general and local. The patient must guard against constipation. The diet must be bland, strong spices and condiments being eschewed, alcoholics must be reduced to a minimum, and everything must be done to raise the general condition of the patient from below par to par or above par. Cool baths and douches are useful for the general system, but hot sitz baths are necessary for the prostatic condition. It goes without saying that any pathological condition in the urethra, such as a posterior urethritis, or a stricture, or colliculitis, or a seminal vesiculitis, must be treated concomitantly.

Prostatic Massage.—There is one measure, however, which is more important in the treatment of chronic prostatitis than all other measures combined, and that is massage of the prostate.

It is quite remarkable what rapidly beneficial effect a massage of the prostate will produce on the patient's condition, both local and general. It constitutes one of the most gratifying methods of treatment in the venereal specialist's work. Without the patient being told what the massage was for, what it was expected to accomplish, he will either at once or at the next visit volunteer the statement that he felt immediately better, that not only did he feel an improvement within the rectum and perineum, but he felt generally better. In fact, even a mere examination of the prostate, in which you sweep the finger around the gland to determine its contour, size, and consistency, and in which you do hardly any expression, produces a beneficial effect. There is no exaggeration in saying that the effect of prostatic massage is often simply marvelous.

While we are more interested in facts and in the effects of certain treatment than in the explanations of the why and wherefore, still the reasons for the strikingly beneficial effect of prostatic massage have always been of great interest to us. And while we can pretty well explain the rationale of its action, further studies on the subject are certainly in order. Some reasons of this beneficial action are self-evident. Where the prostate contains a large amount of catarrhal or purulent stagnant secretion, the mere mechanical removal of this mass, which diminishes the size of the organ, relieving pressure on neighboring organs and nerves, is beneficial. Then the massage itself and the removal of the secretion improves the circulation in the prostate and in the periprostatic veins and lymphatics. It tones up its musculature so that new blood reaches its various recesses, and its tissue, as well as its numerous nerve plexuses, become better nourished.

Technique of Massage.—The way to perform massage properly and effectively is to have the patient, standing with his legs well apart, bend over a chair or the examining table, firmly supporting himself with both hands. The index finger of the gloved hand, over which an extra finger-cot may be put on, well annointed with petrolatum, (for rectal examinations I prefer petrolatum to the water soluble lubricants) is introduced gently into the rectum, and the prostate is gently but firmly massaged, first from the right side toward the median line, then from the left side toward the median line, then a few firm, pressing strokes are made from above downward. Special pressure is applied to any indurations that may be encountered, or to any specially soft spots.

When the massage is completed the patient is told to get up gradually and slowly from his stooping position, and is given a glass to urinate in. The urine washes away the prostatic secretion.

This is for ordinary cases where there is little discharge, and that chiefly catarrhal. But where there is much discharge and of a purulent character, it is best to have the patient urinate first, then fill his bladder with a 2 per cent. boric acid solution, then massage him, then tell him to urinate, and after he urinates it is well to instil into the bladder a dram or two of a 1-1000 solution of silver nitrate, instilling a few drops of the same solution throughout the urethra. This is to prevent any infection from the prostatic secretion.

Massage in the Horizontal Position.—Some physicians perform prostatic massage with the patient lying on his back, or even on his side. I am opposed to this position, because it is much more unsatisfactory than the standing-stooping position. The finger can never reach quite as far with the patient lying down as with the patient standing up and pushing his prostate against the finger. Nor can the physician's finger ever get such a leverage with the patient in the horizontal position as when the patient is standing. For the mere purpose of examination the recumbent position may be suffi-

cient, and when the patient is of an extremely nervous temperament, subject to fainting spells, that position must sometimes be chosen, but it is never the position of choice, and we can never be sure of giving the patient a thoroughly satisfactory massage in that position. Another point, perhaps not of so much importance, but still of some importance, is that when the patient is stooping down, the secretion, through gravity, has a tendency to run out of the urethra; in the recumbent position it is sure to flow back into the bladder.

Abuse of Prostatic Massage.—There is no therapeutic procedure, beneficent as it may be, that cannot be abused or overdone. This is true of massage. Useful as it is, much damage may be done by it if it is performed too brutally or too frequently.

There must never be a digging of the finger tips into the prostate; there must be only a pressure with the entire palmar surface of the finger. Too much force must not be used, or the inflammation instead of being allayed may be increased in severity, or even necrosis may be caused. Nor must the massage be performed too frequently, but here no dogmatic statement can be made as to what constitutes frequency. Some patients can stand massage every other day, some only once a week or once in ten days.

Massage must not be performed when there is acute inflammation in the prostate or an acute exacerbation of a chronic inflammation.

Besides the aggravation in the condition of the prostate itself that the too frequently or too brutally performed massage may cause, it may also cause an epididymitis, a seminal vesiculitis, and even sciatica. Not too much zeal in the best of causes!

A Few Minor Points.—1. Some patients come to the office with full recta, the feces pressing on the prostate. This not only makes it unpleasant for the physician, not only interferes occasionally with the proper performance of the massage, but induces in the patient a desire to defecate. Such patients should be told always to empty their bowels before coming to the physician's office. If they cannot do it spontaneously they should take an enema.

2. Where the secretion from the prostate is so profuse as to run from the urethra, the patient is instructed to support himself with one hand only, holding in the other hand a small glass under the penis to catch the secretion.

3. Be on your guard and watch your patient very carefully when giving him the first massage, for some patients faint after the first massage. Let the patient get up from his stooping position very slowly, make sure that he is not pale, and that he has no sensation of fainting. If he complains of a sense of weakness the best thing is to lay him down on the examining table or couch for a few minutes.

4. In some obstinate cases of prostatitis I have found the introduction of a potassium iodide-iodine suppository (see No. 2 of the formulas below) followed by a gentle massage for 5 to 7 minutes very beneficial. The massaging apparently causes a much greater absorption of the K I and iodine than a mere introduction of the suppository.

Hot Rectal Douches.—Another useful measure, but altogether secondary to massage, is the application of hot water to the rectum by means of one of the numerous prostatic psychrophores. This may be done two or three times a day for about fifteen to twenty minutes each time. The psychrophore is best given into the patient's own hands and he is shown how to use it.

The hot rectal tube applied for about fifteen minutes before prostatic massage makes the latter more efficient, permitting us to express the secretion more readily. Suppositories of various composition, the formulas for which will be found below, also form occasionally a useful aid in the treatment. A morphine and belladonna suppository inserted by the patient before he comes to the physician's office is useful in allaying the irritability and making the prostate less sensitive, and thus permitting us to manipulate it more efficiently than we otherwise could.

℞ Iodoformi, gr. i
Morph. sulph., gr. ¼
Ol. theobromæ, gr. xxv
M.f. supp. No. 1. Tal. dos. xij
Sig. One t. i. d.

℞ Potassi iodidi, gr. ij
Iodi puri, gr. ¼
Morph. sulph, gr. 1/6
Ol. theobromæ, gr. xxx

℞ Ichthyol, gr. ij
Potassii idodidi, gr. iij
Morph. sulph., gr. ¼
Ol. theobromæ, gr. xxx

℞ Bism. iodo-resorcin-sulphonatis, gr. ij
Zinci oxidi, gr. v
Ol. theobromæ, xxv

℞ Antipyrini, gr. v
Sodii iodidi, gr. iij
Ol. theobromæ, gr. xxx

℞ Morph. sulph., gr. ¼
Ext. belladonæ, gr. 1/6
Ol. theobromæ, gr. xxx

Where a psychrophore and the apparatus necessary to run a current of hot water are not obtainable, the patient may inject into the rectum 6 to 8 ounces of hot water, as hot as he can bear it, and retain it for about ten minutes. Instead of hot water a saline solution, or a saline solution with 5 grains of antipyrin and 5 grains of laudanum, is often preferable. It is, however, well to bear in mind that some recta cannot bear repeated hot-water injections without severe irritation, and they cannot be continued for any length of time. The rectal psychrophore, however, can be borne without irritation.

Atony of the Prostate and Prostatorrhea.—There is a condition of the prostate which deserves consideration by itself, under a separate subdivision. It is not an inflammation of the prostate and no inflammatory products are contained in its secretion, but the whole prostate seems to be relaxed, atonic, and this condition is best described as atony of the prostate. Its ducts are dilated and on mere touching of the prostate with the finger a large amount of prostatic secretion oozes out from the urethra. The secretion may be quite normal or somewhat catarrhal in character. The symptoms of atony of the prostate, however, are the same as of the other forms of prostatitis, except that the sexual features are more markedly exaggerated. Particularly is premature or precipitate ejaculation a prominent symptom. Prostatorrhea is simply a further stage in the development of prostatic atony. In prostatic atony the application of the finger produces a discharge of secretion, in prostatorrhea the prostatic secretion runs out spontaneously or at the end of micturition (prostatorrhea mictionis) or after defecation (prostatorrhea defecationis).

The treatment of atony of the prostate and of prostatorrhea is in general the same as of the other forms of prostatitis. Massage plays here the same important rôle. But instead of hot-water irrigations or applications, cold water is of more benefit. And it is also in this condition that faradization with the prostatic electrode in the rectum and the other electrode over the symphysis is very useful.

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THE QUESTION OF INTESTINAL STASIS.*

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I FEEL greatly honored at being asked by your president to read a paper to you on this occasion. I regret that I am not going to introduce much that is either new or original, but I shall endeavor to present a few of the recent teachings along this line. First, I want to present one of my case reports.

CASE.—In January, 1911, Miss M. B., unmarried woman, 32 years of age, came to consult me regarding a chronic dyspepsia. She told me she had no appetite and was always uncomfortable when she ate; and that she suffered from an obstinate constipation. At irregular intervals she had felt twinges of pain in the region of the appendix. She admitted that cathartics, rest in bed, and "restricted" diet always gave her relief, but that upon returning to work her symptoms returned.

Upon examination, I found the patient worn out and emaciated. Her skin was dark—almost dirty—and there were areas of deep pigmentation under her eyes. Her heart, lungs, and pelvic organs seemd normal. Palpation of right iliac fossa gave tenderness on pressure. I watched her a couple of weeks, and at each examination I found tenderness in the same place. I diagnosed a chronic appendicitis and advised removal of the appendix. Upon opening the abdomen, I found a mild catarrhal inflammation, the appendix kinked and slightly adherent to the cecum. Recovery uneventful.

In April, 1912, fifteen months later, this patient came again to see me, reporting an obstinate constipation. Her complaints at this time were: marked distress after eating, indefinite abdominal pains, exhaustion after least efforts, and marked despondency. Her suffering was increased by a progressing arthritis in both wrists and by disturbed vision (in fact, she was wearing glasses). Her operation had not relieved her as I hoped it would, and she was disgusted with me as well as with her life. I now tried proper supports and exercises, as well as free regular evacuations. One year of this treatment showed no improvement.

In June, 1913, this patient went down to New York and consulted Dr. Gerster, by my advice. The *x*-ray plate showed a greatly distended and elongated cecum, reaching into the pelvis. The transverse colon was prolapsed almost to the pelvis. The stomach did not extend below the umbilicus. Dr. Gerster's diagnosis was chronic intestinal stasis. Two weeks later he performed a short circuit operation. The rapidity with which every symptom of her profound toxemia disappeared was spectacular. Her appetite has improved, she has gained in weight, her bowels are regular, and she says she has not a pain or an ache.

This case illustrates well in every detail a profound toxemia of the body tissues, caused by a continuous poisoning. It belongs to a class of cases so often neglected, or else dismissed with attention only to one of the several end results, such as constipation, dyspepsia, or neurasthenia. Here was a case where I had failed to get at the real first cause of the trouble, and its study has brought forth the subject of this paper.

*Read before the New Haven County Medical Association, Waterbury, Conn., October 22, 1914, and by title before the Waterbury Medical Association, February 9, 1914.

Definition.—The term intestinal stasis was first introduced to the profession in 1903 by Sir Arbuthnot Lane of London. He described it as meaning a delay in the passage of fecal material along the alimentary tract, a delay far in excess of the normal twenty-four hours. The next year, 1904, Metchnikoff published his remarkable essay, characterizing old age as a disease originating from tissue poisoning by toxins generated in the gastro-intestinal tract. Both these men began to recognize alimentary toxemia and its evil consequences about the same time. Prior to this the causes of constipation had been little understood and their treatment most unsatisfactory. But with the realization that poisoning results from fecal delay, with the better understanding and knowledge of the relationship of the alimentary tract to the many ills affecting the human body, as brought out by these two famous men, then, and then only, began real scientific investigation concerning the evils of waste retention and waste absorption.

Physiology.—Before we discuss the various theories concerning the causation of stasis, I want to recall to your attention very briefly four physiological facts about the normal alimentary tract which concern us in this subject.

1. The most important part of digestion and absorption takes place in the stomach and small intestines, where normally there should be no putrefaction.

2. Dr. William Mayo was the first to point out the importance of the high fixation at the splenic angle, which acts as a muscular sphincter. This splenic angle divides the large intestine into two portions. The portion of the colon proximal to this flexure concerns us most in the study of stasis, and I want especially to emphasize these points regarding it: The ingesta from the ileum is held back here and churned by an antiperistalsis, which begins at about the middle of the transverse colon and travels backward through the ascending colon and cecum. This allows water and the final nutritive material to be absorbed, and gives this first portion of the colon an assimilative function like the small intestine. There is here an ideal flora for putrefaction and bacterial activity. It is here where most often we find membranes and adhesions and most commonly fecal delay, and it is usually in this very region that the most severe grades of toxemia originate. In the second portion of the large gut, distal to the splenic flexure, waste material travels rapidly and, therefore, bacterial changes and absorption are at a minimum. Here we have a storage house, where delay causes little or no toxemia.

3. The ileocecal valve also plays a very important rôle in the welfare of human beings. History tells us that it was not until 1842 that its double function was recognized, that of a sphincter and of a valve, for it moderates flow into the cecum and prohibits regurgitation. Its integrity is essential to health, and its efficiency is due to the oblique manner in which it enters the cecum.

4. And lastly, I want to remind you that, normally, fecal material is delayed for a definite period at three points in its passage: (1) In the stomach, by the pyloric valve; (2) in the terminal ilium by the ileocecal valve, and (3) in the cecum and first portion of the large intestine by antiperistalsis.

Causes.—For years we have recognized a good many contributory causes of constipation, chiefly dietetic and hygienic errors, as well as the fact that man assumes the erect and sedentary posture during

the greater portion of the twenty-four hours. These faults are common to us all and increase with civilization. But it was Mr. Lane, and about the same time Dr. Robert Morris of New York, who first began to recognize the connection of certain adventitious bands in the abdominal cavity with intestinal delay. Shortly after this Jackson described his famous membrane; then followed Charles Mayo, Gerster, Hertz, and Pilcher, all master minds, in a great international discussion regarding the etiology and relationship of these membranes to stasis.

Mr. Lane's theory is that these bands are evolutionary; that they are Nature's efforts to overcome a constantly overloaded colon. Mr. Lane has pointed out that they are commonly found at certain definite points, namely, at the pylorus, at the duodenojejunal juncture, at a point one to three inches from the terminal ileum, at the appendix, or at any of the regular flexures. The bowel being held firmly by adhesions at a fixed point, tends to drop on either side, producing an angulation known as Lane's kink.

Lane and his followers are firm in their belief that these are not inflammatory but evolutionary, arguing that they occupy definite positions and that their thickest part is always away from the gut.

Other men take the point of view that they are congenital. Pilcher, Mayo, and Gerster regard them as the result of oft-repeated attacks of peritonitis, associated with chronic colitis. Adami proves to his own satisfaction that bacteria penetrate the coats of the intestines, and believes that stasis, through the agency of bacteria, may produce these pericolonic membranes.

However unsettled we are at present upon the actual formation of these membranes, I believe we have reached a certain stage of understanding regarding them, for surely that white fibrous band originating from the mural peritoneum, or that gossamer vascular veil, which Eastman declares to accompany at least 75 per cent. of chronic appendicitis cases, interfere with the fecal stream, whether they occur as a result of stasis or result in stasis. The same relationship exists between ptosis and stasis—when ptosis is present it is almost sure to increase fecal delay—while on the other hand stasis does increase and may actually cause ptosis, for the greatly overloaded colon drags upon its mesenteric attachments until it prolapses. Dr. Eastman in a recent paper has brought out clearly this very interesting relationship between stasis, ptosis, chronic colitis, and adhesions, and to these four conditions I want to add incompetency of the ileocecal valve. Certainly I believe it should be added to these, if we are to believe all the data coming from the Battle Creek sanitarium, which show the proportion of the cases of stasis with an incompetent ileocecal valve as 1 to 6. Briefly, Eastman sums up his conclusions: It appears that each of these elements may cause any one or all of the other four, or may itself be caused by the other four. An intelligent treatment of any or all of these different factors must be based on an understanding of this mutual relationship. These conditions have always been closely associated with the study of stasis and have caused much confusion. It would appear, therefore, that this explanation was both rational and a most helpful advancement.

Symptoms.—The symptoms of stasis are those produced by obstruction, and those resulting from toxemia. In consequence of an obstruction, we have indigestion with more or less indefinite and irregular pain, usually associated with constipation. The character of the pain and discomfort is dependent upon the amount of obstruction, and its locality is most often about the cecum, even as high as the last rib, or it may be over the sigmoid. But these symptoms from the mechanical abnormalities are very trivial as compared with those brought about by the daily absorption of the toxins, which produce such severe poisoning. The clinical picture of such sufferers is well known to all of us—the change of temperament, the inability to concentrate on anything, the marked depression, the countless neurasthenic worries. These patients complain of headaches, loss of appetite, and loss of weight; they are drowsy and often have to lie down during the day. The toxins, in excess, circulate throughout the body and cause degenerative changes in every organ and in every tissue.

I will abstract briefly from Sir Arbuthnot Lane's admirable description of these: Probably the vessels, the liver, and the kidneys suffer the most. The next most conspicuous result is the removal of fat from the body tissues. We see this in the formation of wrinkles, in the marked prominence of the bones, and often in the sagging of the kidney and pelvic organs. The breasts waste and become flabby, and areas of induration in the upper and outer zone are noted, which later show cystic degeneration. These breast changes are so characteristic that they are by many considered a barometer of the degree of stasis. The resistance of mucous membranes is markedly lowered, so much so that organisms easily obtain a foothold and multiply, *i.e.* involvement of stomach, duodenum, bile-ducts, and of pancreas is commonly a secondary result. In the eye, degenerative changes of the cornea, of the lens, or of the muscles of accommodation may occur, while in the joints a chronic rheumatoid arthritis develops. In most cases pyorrhea alveolaris is present.

A world-wide discussion, and by some, even ridicule, at once sprang up as the result of such broad and entirely new assertions which classified as end results these very common diseases, hitherto unthought of in connection with alimentary toxemia. But to-day the literature on the subject shows the gradual change of belief toward Lane's arguments.

Diagnosis.—In the diagnosis of stasis a most careful history of the patient is very important. This often begins with poor digestion, increasing constipation, and general abdominal pains, commonly about the cecum or sigmoid. These pains are accompanied by no inflammatory signs and are greatly relieved by lying down. The general pigmentation of the skin and the unexplained neuralgias, myalgias, and arthritis cases must certainly be regarded as significant. Small, hard fecal balls, sometimes interrupted by diarrhea, and the appearance of an excess of indican in the urine are quite characteristic, too. A lozenge of charcoal given the patient while he is on regular diet seems to give the most reliable information in estimating the amount of delay in the passage of food. And lastly, most important of all data, is the *x*-ray picture, carefully done and properly interpreted.

Treatment.—For purposes of treatment cases of stasis may be divided into three groups, medical, surgical, and borderland.

Medical Group.—Every case is medical at first, and 90 per cent. can be either cured or helped by medical means. We must learn to make our diagnosis just as early as possible, and to realize that the treatment will vary according to the peculiari-

ties of the individual case. Of all the means at the command of the internist, I want to mention five that have proved most efficient to me. First, the use of liquid paraffin oil. This substance has no chemical action and is not absorbed in the intestinal tract. It acts as a lubricant, protecting the mucous membrane and prohibiting bacterial growth. In its use, however, we should take precautions to secure oil that has been thoroughly purified, in view of the fact that it is known that persons engaged in paraffin work are subject to cancer. These noxious substances, however, are soluble in water and may be removed by a special purifying process. Second, another helpful medicinal agent is the combination of urotropine and benzoate of soda. This chemical reaction liberates formaldehyde, which is directly destructive to the colon bacillus. Third, in a great many of the cases where putrefactive symptoms predominate, I am in the habit of using a pure culture of *Bacillus lactis bulgaricus*, and very often with marked improvement. Fourth, I would urge careful examination of the rectum and anus. Many distended colons owe their origin to an unusually tight or spastic sphincter, a dilatation of which is helpful. Fifth, a proper fitting belt may be an important aid. There are hundreds on the market, but most of them have their defects. They have uncomfortable perineal straps, or ill-fitting and improperly placed pads. The form of support adopted by Lane consists of a pad placed in the median line just over the symphysis, held in place by steel springs encircling both sides of the body below the crests of the ilium. This exerts a pressure upon the lower abdomen, from below upward, assisting to raise the intestines from the pelvis and to empty the accumulated feces.

Surgical Group.—These cases are the late ones which all other methods have failed to relieve. There is left but one surgical procedure, namely, some short-circuit operation. Lane cuts off the ileum about two inches from the ileocecal valve and joins it to the sigmoid. He renders the entire colon useless, and in some cases removes it. Mayo joins the end of the ileum to the side of the transverse colon, leaving the greater portion of it with its omentum, which prevents most of the adhesions. He removes merely the cecocolon. Both operations seem radical and have been severely criticized, yet surgeons are everywhere reporting successful results.

Borderline Cases.—The cases in this group are surgical, too, for some interference is necessary. Just how much repairing can be done with impunity is still a question. Our primary efforts must be to relieve constrictions, with as little plastic work as possible, and the treatment must be decided upon after the abdomen has been opened. I believe certain general rules should guide us. Always explore the terminal ileum, the competency of the ileocecal valve, the appendix, and the cecocolon. Constricting bands should be cut transversely near their parietal attachments, and sutured longitudinally. Cover in all denuded edges. That characteristic thin membranous veil, spreading out to enwrap the colon, need not be removed in toto, merely ligate any cord-like fibers. If gentle, firm pressure upon the ascending colon and cecum causes the previously empty ileum to become distended, then the ileocecal valve is incompetent. Dr. Kellogg suggests a bit of repair work for this condition. He says: Rotate the colon outward, and it will be seen that normally there is a narrow muscular band passing just behind the ileocolic junction. This is called the haenula and serves to pucker and invaginate the gut. It is this band that is usually ruptured when the valve is incompetent. Now insert a suture through the seromuscular coats of the colon and ileum at such points as will cause a slight invagination of the ileum, and then place another suture through the separated ends of the haenula. This simple procedure repairs the valve.

The surgical procedure, appendicostomy, is very often advantageous and should not be forgotten, especially in those cases where the appendix is normal and where we have freed the intestines from many adhesions. The colon here has lost its proper function for so long a period that daily irrigations through this opening keep it free from fecal accumulations and greatly assist in its early restoration.

For the treatment of severe grades of ptosis, several reefing methods are suggested, rather than stitching fast organs that are normally movable.

These plans are but an outline of what is being attempted toward benefiting such sufferers.

I have reviewed carefully a good part of the current medical literature, and I believe these few words represent the trend toward which the subject has progressed. It is surely one of the great big subjects before the medical profession to-day. Its chain of symptoms and consequent sequelæ may vary in severity with different patients, yet they form one clear clinical entity. Certainly the stage of recognition has passed, nor do we any longer doubt the existence of these characteristic ileopelvic bands, or the colonic veils, or the incompetent ileocecal valve, or a ptosis of the colon. The question of stasis to-day is the problem of eliminating waste from the body. Our future work must be to explain the actual toxic substances, their composition, their properties, the nature of immunity, and lastly, to find the best means of help for these sufferers.

TWILIGHT SLEEP IN PRACTICE.*

By W. H. W. KNIPE, M.D.,

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THE wonderful results obtained by Krönig and Gauss in Freiburg by the use of dämmerschlaf, or twilight sleep, in obstetrics, have led many men to attempt the same results by the use of scopolamine and morphine. These attempts were frequently unsuccessful and in some hands the results were so bad for the mother and especially for the child, that these authorities were led to condemn the method without reserve. The bad results were due to (1) a poor preparation of scopolamine, (2) to the use of too much morphine, (3) to the attempt to achieve absolute painlessness in childbirth, (4) to a technique which was entirely different from that used and recommended by Gauss.

Other authorities in Europe have reported excellent results, where they have carried out to the strictest detail the method advised by Gauss, and where they have used preparations that were stable. In this country, several years ago, scopolamine and morphine were used in obstetrics to a considerable extent, but the results were so bad that the method was cast aside by all obstetricians. It is needless for me to add that the method then used by us was wrong, and that our preparations were not stable.

*Read before the Section in Obstetrics of the New York Academy of Medicine, October 27, 1914.

and that we made too free use of morphine and gave entirely too large doses of scopolamine.

At the present time there will be many men who will attempt to give the twilight sleep without following the Gauss method, and, perhaps, without using proper preparations of the drug; and we may look forward to some bad reports on that account. It is essential for those of us who are using the Gauss method in this country to follow it out in every detail, and to be sure that our preparations are stable. At Freiburg and elsewhere in Germany, by men who have been trained in Freiburg, there have been reported 8,000 cases of twilight sleep with very excellent results, both for the mother and for the child; and it would seem that with similar technique and care, equally good results may be obtained by those who follow the Gauss method.

Conditions Necessary for Success.—1. In the first place, the physician should have a thorough knowledge of obstetrical forces and conditions so that he may know when interference is indicated.

2. After the first injection is given he must give all his time to that patient until the child is delivered. This, of course, is impossible in a general practice unless a man is willing to sacrifice his general work for his obstetrical case.

3. A proper preparation of scopolamine must be used which will not decompose; and morphine, or one of the morphine derivatives, must be used with extreme caution.

4. The environment must be such that a reasonable quiet and the absence of bright light are obtainable. The ideal place for the conduction of twilight sleep, therefore, is a hospital. Gauss and Kroenig have laid so much stress on this that they have never delivered a patient in twilight sleep outside of the Frauenklinic.

Technique.—After the first injection of scopolamine and morphine, the patient must be watched and her reaction to the pupillary, the motorcoordination, memory, and Babinsky tests noted. Gauss lays great stress upon the memory tests, and maintains that a twilight sleep cannot be properly conducted and the proper doses given unless the memory tests are properly carried out. Soon after the first injection the patient will show some drowsiness and will sleep between the pains, though awake during the pains. There is considerable dryness of the throat and mouth; there is extreme thirst at times, frequently marked flushing of the face, sometimes irregular movements of the hands, and at other times there is motor-restlessness of a more or less degree.

One must strive to get along with the least possible dose of morphine, and by freeing the patient from any external excitement or stimulation, one is able to keep the dosage of scopolamine down to a very low figure. The idea in twilight sleep is to keep the patient neither in a zone in which impressions are perceived and stored in the memory and in which the patient is awake, nor in that zone in which impressions are not perceived, are not stored in the memory and the patient is therefore in a state of narcosis, but in that intermediate zone between these two, where perception is present but in which there is no memory of events occurring at this time. In this correct twilight zone the patient gives evidence of painful sensations and may even cry out with the pain, demanding help. But after the ordeal is over, if the method has been properly carried out, the patient has no memory of these pains nor of the birth of the child. Gauss maintains that a condition of absolute painlessness in twilight sleep during childbirth is an admission of overdosing and brings with it those direful results which have caused so many men to discard the method.

Dosage.—The first dose consists of morphine hydrochloride, 0.01, injected subcutaneously with a record syringe; and while the needle is still in place a second syringe containing .0003-0.00045 scopolamine hydrobromide solution is inserted and injected. This first dose of morphine is never to be repeated, except under the most extraordinary conditions. In half, or three-quarters of an hour after this first injection some object in the room is shown to the patient to test her memory. This same object is again shown in 20 to 40 minutes, and if the patient remembers the object—which is generally the case—a second injection of 0.00015, 0.0003, or 0.00045 scopolamine is used, according to the reaction of the patient. If at this first test the memory is absent the second dose is withheld until further tests show return of memory. The third and succeeding injections follow according to the tests, using 0.00015 or more of scopolamine as necessary. The essential point in the proper induction of twilight sleep is a gradual scopolamine technique, beginning with small doses and reaching the twilight zone slowly. It requires from one and one-half to two hours for this twilight zone to be reached, and if one has not that time at his disposal it is better not to attempt to achieve amnesia but to seek only a diminution in the amount of pain.

Different people show different reaction to scopolamine and, therefore, the working time of a definite dose of the drug varies. After the twilight zone is reached one may frequently carry a patient along with 0.00015 scopolamine for a period of one or two hours; and the insight with which one determines, from the memory tests, the amount of drug necessary to maintain the twilight sleep, is the art of twilight sleep. By the use of the memory tests one may give new small doses of scopolamine for a long time without any cumulative effect. However, there may be certain periods of the labor, or certain events during the labor, which may have made an impression upon the patient's memory, or the patient may think that she has felt the entire labor, when, as a matter of fact, she has slept most of the time.

The failures in twilight sleep, Gauss maintains, are due to: (1) Attempts to force the condition in a short time. (2) Beginning the injection too early in labor. (3) Attempts to achieve absolute painlessness. (4) The use of too much morphine and too large doses of scopolamine.

Instead of morphine one may use narcotine morphine meconate, or pantopon, although Gauss still uses morphine in all his private cases—and my own experience leads me to do likewise.

They are testing a method of routine injections at Freiburg at the present time, the object being to simplify the technique and to do away with the memory tests. This method was published by Siegel and consists of: First Dose.—Narcophine, 0.03; scopolamine, 0.00045; wait 45 minutes then give second dose, scopolamine, 0.00045; wait 45 minutes and give third dose, narcophine, 0.015; scopolamine, 0.00015. The succeeding doses are given every hour and a half, and consist of: Scopolamine, 0.00015, and with every third dose: narcophine, 0.015. So that narcophine would be given at the third, sixth, ninth dose, etc., in addition to the scopolamine. This is the method that most men who

have visited Freiburg during this last summer have seen tested and which they assume is the Freiburg treatment, when, as a matter of fact, it is simply being tested upon the fourth class patients and is not used on the private cases. This routine method gives fair results as far as the mother is concerned; but there is a large percentage of children who are born with oligopnea and apnea; and while in a hospital with proper attention these babies all are made to breathe, in many cases it requires considerable stimulation, artificial respiration, hot and cold baths, intratracheal catheterization to bring them around. So that one could not conscientiously recommend this routine method for general use. While many children with oligopnea will spontaneously breathe and cry if left alone, those in the deeper varieties require resuscitation. This condition is probably due in this method to the repeated injections of the narcophine. We must also realize that any drug as powerful as scopolamine cannot be used in the routine method when we are dealing with subjects of varying susceptibility.

*Drugs Used.**—Scopolamine hydrobromide is put up in ampoules with mannit, so that 1 c.c. of the solution will equal 0.0003 scopolamine, and if prepared in this way the scopolamine is stable and does not decompose. Morphine hydrochloride is put up for hypodermic injection in the usual way, so that 1 c.c. of the solution will equal 0.01 morphine hydrochloride. If pantopon is used 1 c.c. equals one-third of a grain; of narcophine, 1 c.c. equals ½ grain (0.03).

There are certain disadvantages in the conduction of twilight sleep, because it requires the constant presence of a nurse skilled in this treatment, or better, the constant attendance of the physician who must give all of his time to the patient. It is not easy to carry it out—it requires experience in the method and considerable obstetrical knowledge, because the patient's outcries do not force interference where it may be indicated. The average physician is accustomed to giving very much larger doses of morphine and may find it difficult to diminish his dose. The physician may find it difficult to secure a stable solution of the scopolamine and if an unstable one is used very bad results may ensue.

Again, attention must be paid to many details, such as darkening the room, preserving quiet, stopping the ears, covering the eyes, and so forth, that may be difficult to accomplish in many places. The induction of twilight sleep requires not only a technical knowledge of the method for using scopolamine and morphine, but also good obstetrical judgment based on an adequate understanding of obstetrical forces and conditions; and the method is, therefore, best used by the obstetrician.

If the drugs have been improperly used, there is considerable danger from the direct effect upon the child itself, and the effect of the drug upon the period of labor, prolonging the length of labor to such an extent that the child's life is in danger. A moderate overdosing with scopolamine or morphine is very apt to give a condition of oligopnea or apnea. While these conditions may not be serious in the hands of experts, they may prove fatal unless proper measures are instituted.

That deep asphyxia of the child may ensue after an unwarranted dose of scopolamine or too large a dose of morphine has been demonstrated.

*Stable scopolamine solution has been made by Mr. Yaeger, chemist at Gouverneur Hospital, and used in the hospital cases. Mr. Otto Boeddiker, apothecary, 6th Ave. and 54th St., has made a stable solution, according to my directions, which is satisfactory.

All of this would seem to argue for care in the administration of the drugs. When scopolamine and morphine have been used carefully, and where the doses have been gauged according to the patient's susceptibility to the drug the child should be born crying lustily.

Twilight sleep undeniably demands more care, more thought, and more knowledge than a normally conducted labor. This increased attention paid to childbirth must result in better obstetrics by the general practitioner. This in turn will increase the respect of the public for obstetrical care and obstetrics in general will be held in higher esteem by physicians themselves. As a result of all this there will be fewer stillborn children, fewer mothers sacrificed, and the number of invalids following neglected labor will diminish markedly.

Inasmuch as most obstetrical cases must be attended by the general practitioner—and then frequently in communities where no hospital exists—it will become necessary to establish local hospitals where the physician may send his patient to have the twilight method administered by a nurse or physician trained in this method. When the time of delivery approaches the physician may be notified so that he may deliver the child in the hospital. This seems to me the practical solution of the problem of how the large mass of the population are to receive the benefit of twilight sleep, for, of course, it becomes impossible for a man with an active general practice to give the uninterrupted attention to his obstetric cases that the twilight method demands; and unless continued observation of the patient in twilight sleep is carried out by some one accustomed to the technique it is better not to attempt the method at all.

That there are certain dangers to an improperly conducted twilight sleep is admitted by all; that there are wonderful advantages in a properly conducted twilight sleep must be admitted by those who will take the trouble to investigate this matter. To attain the same good results that they have in Freiburg it is only necessary for us to follow their method and to give sufficient thought and study to the method to master it.

59 West Fifty-fourth Street.

"BACK TO THE SOIL."

THE RELATION OF PULMONARY TUBERCULOSIS TO SOIL FORMATION.

By JOHN NORTH, A.M., M.D.,

TOLEDO, OHIO.

Why does not every person have pulmonary tuberculosis? The tubercle bacillus is everywhere. We are all exposed to the direct cause. We cannot have tuberculosis without the bacillus of tuberculosis, but this cannot grow and develop unless there is a proper soil for its growth. Some persons seem immune to tuberculosis. Why some persons are immune and others not, has been a subject for dispute among medical men.

Over forty years ago my attention was drawn to calcium and its use in the treatment of tuberculosis after reading Begdie, Coghill, Bell, and others on the use of calcium in tuberculosis. I have devoted a great deal of time in endeavoring to find out why all persons are not tuberculous. I have come to the conclusion that one of the most prominent causes is "lime starvation," as Russell calls it. Calcium is indispensable and essential in both plant and animal life. Every tissue in the body contains

its normal proportion of calcium. If from any cause the calcium becomes deficient, animals become more susceptible to tuberculosis. In all cases of incipient tuberculosis there is a deficiency of calcium and the elimination of calcium salts from the body is increased. Croftan (*New York Medical Journal*, June 12, 1909) has been experimenting with calcium in tuberculosis with animals, and finds an increased excretion of lime salts in tuberculosis. A. Robin states that while normal blood contains 8.39 to 9.109 per thousand parts of inorganic matters, principally lime salts, the blood in "pre-tuberculosis" and in the early stages of tuberculosis contains only from 6.38 to 7.85 per thousand. The elimination of inorganic matter is also excessive in pulmonary tuberculosis. Analysis of the organs of five consumptives and two healthy persons succumbing to accidents showed that the proportion of inorganic matters in the lungs of the healthy averages 12.04, while in the tuberculous lungs it averages only 7.9 parts per thousand. The contrast was still greater in the analysis of the bones in both cases. I could cite a number of such reports to substantiate the importance of calcium in tuberculosis, but this is sufficient at the present time.

The calcium found in the system comes originally from the soil. I have been endeavoring for a number of years to collect evidence to prove whether there is any relation between the prevalence of pulmonary tuberculosis and soil formation. I find that there is a direct relation between pulmonary tuberculosis and "humid and arid" soils.

Professor Hilgard of the University of California, in his work on "Soils," divides them into humid and arid soils. The following table from his work gives the average analysis of a large number of soils in different parts of the world:

	Average of Soils	
	Humid, 466	Arid, 313
Insoluble matter	84.013	70.565
Soda	.091	.264
Soluble silica	4.212	7.266
Lime	.108	1.362
Potash	.216	.729
Magnesia	.225	1.411
Br. oxid manganese	.133	.059
Peroxide of iron	3.131	5.752
Alumina	4.296	7.888
Phosphoric acid	.113	.117
Sulphuric acid	.052	.041
Carbonic acid		1.316
Water and organic matter	3.644	4.945
Total	100.178	99.993

By examining the above table we find that there is not much difference between humid and arid soils, except in the amount of calcium that they contain, estimated as oxide of calcium. The average of oxide of calcium in humid soils is .108 per cent., some soils containing even less, while in arid soils the average of oxide of calcium is 1.362 per cent. In some parts of New Mexico the percentage of oxide of calcium runs as high as 4.97, showing a great range of the amount of calcium in various soils. In speaking of humid and arid soils, I shall refer to the average amount of oxide of calcium in the soil without reference to the other ingredients making up the soil, as the object of this paper is to show the relation of calcium soils to the prevalence of pulmonary tuberculosis.

From the survey and analysis made in the United States, the following States are classified among the humid soil regions: Rhode Island, North and South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, Kentucky, and Ohio. The average of oxide of calcium in these States is only about .27 per cent. All of these States show a high mortality from tuberculosis. Arkansas and Kentucky show the lowest proportion of calcium, .08. Ohio, the largest, with .28 parts per hundred. The following States are classified as belonging to arid soil regions: Montana, Idaho, Wyoming, Colorado, Utah, Arizona, Nevada, New Mexico, and California. These States show an average of 1.43 parts of calcium oxide per hundred, the highest being Arizona, which shows 2.37 parts. A number of States that are not classified as either humid or arid, have arid regions or show a large proportion of calcium in their soils. The arid soil States mentioned above are recommended as states with good climates to send tuberculous patients. I am satisfied that the soil formation has more to do with these States than climate or altitude. Some States are not put in either the humid or arid lists, have regions with a higher percentage of calcium. These regions are noted for their successful treatment of tuberculosis, as, for instance, Asheville, the Blue Grass region of Kentucky, the Adirondacks and a number of other places.

The death rate in some of the arid States, as given in the vital statistics of the census bureau, is much higher than in some of the humid States. This high death rate is among the residents of other States who have been sent to these regions and have died. The death rate from tuberculosis among the native residents is very low. Exact statistics on these matters are difficult to procure.

Certain regions have limestone substrata, with limestone outputs, and yet the soil is deficient in calcium salts and have a decided humid soil, such as we have in northwestern Ohio.

The soil of the Philippine Islands is humid, containing a small amount of calcium. A. G. Sison, in the Bulletin of the Manila Medical Society (September, 1910) says that tuberculosis is very prevalent in the Philippine Islands. Over one-third of the patients who apply for treatment in the dispensary are suffering from tuberculosis. Isaac W. Brewer (*Journal of the Outdoor Life*, September, 1910) states that the death rate in the Philippines, outside of Manila, was 210 per thousand as aginst 172 in the registered area of the United States, and that in Manila alone there was a death rate of 486 per hundred thousand as against 89 in the city of St. Paul, Minn. Emil Krulish of the Public Health Service of Alaska, in his report under date of January 22, 1913, says that tuberculosis is present in all forms, especially in the pulmonary and glandular types. Krulish places the degree of tubercular infection among the native population at 15 per cent. The valleys and low lands of Alaska have very humid soils. Japan is another with a highly humid soil. "Kitasato contributes an article on this subject to the *Zeitschrift für Hygiene*, lxiii, 1909. The conditions in Japan are peculiarly interesting as there are comparatively no cattle in Japan and consequently human tuberculosis is entirely independent of the bovine type. He examined the sputum of 152 consumptives continuously to detect the possible presence of bacilli of the bovine type but always with negative results, the human bacilli being found constantly in pure cultures. Statistics show that the disease is becoming more prevalent in Japan. Ireland is still another country that is in

the humid region and it is well known that tuberculosis is very prevalent in Ireland. A great many other instances might be mentioned showing that tuberculosis is more frequent in humid than in arid regions.

As I mentioned before, all the lime needed in the normal tissues comes from the soil. So we will have to go "back to the soil" to get it. How can this be done? A great many do not take the proper food or do not eat food containing enough lime. The modern methods of preparing, preserving, and cooking foods eliminate the lime or convert it into forms in which it cannot be utilized in the system. As a result we have lime starvation. In such cases we must resort to lime medication. Some writers advise persons in good health to take calcium in some form every day to keep up the normal equivalent of calcium.

Is there any benefit to be gained by our knowledge of the relationship of tuberculosis and soil formation? People living in arid regions have more lime in the system than those who live in humid regions. There is less tuberculosis among the people living in arid regions. Plants and vegetables grown in arid regions have more lime in their composition than those from humid soils. In arid regions the air contains more dust which is loaded with lime and as a result the inhabitants inhale lime dust, which has proven to be beneficial. A practical application would do much in the fight against the "white plague." I most heartily approve of every effort that has been made to combat the latter. But it has seemed to me that there is a missing link in the chain constituting the immunity and prevention of pulmonary tuberculosis.

Is calcium that link? Shall we go "back to the soil?"

414 Nicholas Building.

A NEW COMBINED HEAD-MIRROR AND FACE-PROTECTOR.

By MAX UNGER, M.D.,

NEW YORK.

I BEG to submit to the medical profession a new appliance for use as a reflector and face-protector when working about the nose and throat.

This reflector is made of a watch glass, 9 inches in diameter and silvered on the convex side. A strip ¾ inch by 4 inches is left unsilvered at the level of the eyes, to look through. The mirror is set in a light metal frame, which is attached to a headband by a regulation universal joint.

The focal distance is about 9 inches. The mirror is large enough to cover the face, while the large reflecting surface insures a very brilliant light. The weight is about 225 grams and can be easily worn with an ordinary headband. The long strip of clear glass enables the physician to use either eye or both, as he wishes. This does away with the eye strain attendant on the constant use of one eye, as is required by the usual head mirror. This is especially important in throat work, in which a one-eye focus is unnecessary.

The protective property of this reflector is appreciated when one wishes to examine the nose and throat in a case of diphtheria, syphilis, tuberculosis, or other infectious disease. A further advantage is the fact that it does not give offense to sensitive patients, as an obviously protective addition to an ordinary head-mirror may do. I have found this mirror especially satisfactory when operating for the removal of tonsils and adenoids or for opening a peritonsillar abscess, as it catches

the blood and pus which is ordinarily coughed, in large quantities, into the physician's face.

1045 Fox Street

Medicolegal Notes.

Foundation for Opinion Evidence.—A physician testified that he partly founded his diagnosis that the plaintiff in an action for personal injuries had a fracture at the base of the brain on a history of the case told him by some one else, the admitting of the evidence over objection was not substantial error, since the physician saw the plaintiff soon after he was injured, and the injuries on the face plainly told all the history, which was that he had fallen from a hand car onto his face, and there was no suggestion that the history told to the witness was incorrect, and where the whole matter could be cleared up by putting another question to the witness.—Leora vs. Minneapolis, St. P. & S. S. Marie Ry. Co., Wisconsin Supreme Court, 146 N. W. 520.

Charitable Hospital Not Liable for Servants' Negligence.—The Supreme Court of South Carolina holds that it is contrary to public policy to hold a charitable institution liable for the negligence of its servants, when it has used due care in selecting them. A hospital which was originally incorporated by several physicians and charitable bodies, but later conducted by the physicians alone under the same charter, under which no profits could be realized and all receipts were devoted to the maintenance of the institution, and which derived its revenues from gifts, bequests, and fees paid by patients, and which treated some patients entirely free, and charged others more or less, according to their circumstances, is held to be a "charitable corporation," which is not liable for its servants. A private charitable hospital is exempt from liability for its servants' negligence, the same as a public charity. In an action for injuries alleged to have been sustained by the negligence of the defendant's nurses in placing the plaintiff in a bed where there were hot bottles that burnt her severely, while she was unconscious, after undergoing a surgical operation, it was held that the fact that the plaintiff paid for her room and attendance did not render the hospital liable for the negligence of the nurses. The fact that the hospital was a training school for nurses did not destroy its charitable nature, that being a mere incident to the main purposes for which the association was chartered.—Lindler v. Columbia Hospital, South Carolina Supreme Court, 81 S. E. 512.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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TRAUMATIC SHOCK AND TRAUMATIC ASTHENIA.

THE subject of surgical shock has recently acquired a new and vital interest, and the methods of its prevention along the lines laid down by Crile illustrate how well a carefully worked out theory may be applied in practice. The doctrine of anoci-association regards shock chiefly from the important viewpoint of the defensive reactions of the individual to his environment. The older writers who discerned clearly the clinical manifestations of shock placed emphasis exclusively upon these manifestations, and although they were able to delineate every essential feature of shock, they failed to supply the means for its prevention.

An important study of shock from the viewpoint of its fundamental clinical signs and its neurological aspects is contributed by R. Benon to the *Revue de Médecine*, July 10, 1914. Dupuytren was among the first to devote considerable attention to this subject, and it was he who first clearly defined the essential elements of shock as "a more or less pronounced incapacity to carry on the functions of the mind and to produce muscular movements." Benon believes that modern writers have not added any important details to the earlier picture. He defines shock as a simple traumatic asthenia of various grades, appearing after any injury, whether accidental, surgical, or obstetrical; and the result of physical pain, emotional stress, or cerebral commotion. Three types are distinguished: the average, the mild, and the severe, the last being synonymous with the cases of posttraumatic stupor of the alienists. In the average case the two features that stand out are the amyosthenia and the so-called anideation. The former is characterized by the more or less complete suppression of muscular movements; the latter, by the inhibition of psychic activity. These phenomena may exhibit many grades of intensity and may be accompanied by accessory manifestations such as bradycardia, slowing of respiration, etc. In the mild cases there may be no or only a transient loss of consciousness, but the cerebral and muscular asthenia is clean-cut. The severe cases of shock are characterized chiefly by the profound mental stupor that follows the initial symptoms of physical shock, a stupor that is not always preceded by a loss of consciousness. The amyosthenia and anideation attain a marked degree of intensity. The patient is incapable of every movement and betrays complete mental prostration. This stupor may last for only a few minutes or for several days. The condition usually terminates in recovery, though complications may persist for some time.

From the neurological viewpoint the question of the diagnosis of traumatic shock is an important one. There may be some difficulty in differentiating this condition from simple amnesia or from ordinary posttraumatic mental confusion. In the former the anideation is different: the patient, although amnesic, has no difficulty in getting his thoughts together. In mental confusion the troubles in perception and cognition are quite distinct from the general mental asthenia of traumatic shock. Another condition that must be differentiated is traumatic aphasia in which there is neither muscular nor ideational weakness. There are certain medicolegal aspects of traumatic shock that should not be overlooked. Immediate or remote complications, mild or severe, may arise. The following sequelæ, though rare, acquire from this fact alone an added importance: prolonged and curable traumatic asthenia, chronic traumatic asthenia, traumatic asthenomania, and periodic asthenia.

THE MOTOR IN WAR.

MOTOR traction has to a large extent revolutionized the conduct of war. This statement refers not only to war regarded from the offensive and defensive standpoints, but with regard to the treatment and care of the wounded. Indeed the proper treatment of those wounded in the present war depends almost wholly upon the provision of an adequate supply of motor ambulances. In France, for instance, at the present time or at any rate in that part of France lying between the border of Belgium and Paris and over which armies have been advancing and retreating, bridges have been destroyed and railway facilities so disorganized that it is impossible to convey the wounded by rail to Paris. Furthermore, owing to the long range of modern artillery, field hospitals have to be placed at least twelve miles in the rear of armies. It is obvious that the more quickly wounds are treated the better will be the chances of good results or of ultimate recovery. This is especially the case with wounds infected by soil and which if not cleaned promptly and subjected to treatment by antitetanic serum will eventuate in lockjaw. As a matter of fact, tetanus has been most disastrously rife among the troops of both the allied armies and the Germans, because it has not been possible to treat soil-infected wounds at once and in the manner best calculated to prevent the germ of tetanus from gaining a foothold.

In a paper contributed to the *Military Surgeon* for November, 1914, Capt. F. W. Foxworthy, Medical Reserve Corps, U. S. A., emphasizes the need of motor ambulances for war purposes and says that acting on a suggestion from the British War Office the committee in charge of the American Women's War Relief Fund has dropped the idea for the time being of equipping and maintaining a hospital ship and has instead presented the medical corps with six

motor ambulances for use at the front. Captain Foxworthy draws attention to the fact that American surgeons in Paris start early in the morning with a large number of motor cars and go to the battle scene forty or fifty miles away, pick up the wounded, and carry them back to base hospitals near Paris. He also states that the German army has motor hospitals.

In the *Glasgow Medical Journal* for November, 1914, the need of ambulance wagons for the British mobile field hospital is referred to and Sir G. T. Beatson is quoted as saying that increase of impedimenta in modern warfare has made the transport question one of the chief problems of the present campaign. For the general supply of food, ammunition, medical stores, etc., to an army there are three zones of operation. The first starts from the reserve depot and base of supply and goes up to the railroad; from there another zone extends to what is called the "refilling zone," and then there is the zone of the fighting line. In each of these zones a different vehicle of transport has to be employed. With regard to medical assistance to the wounded, owing to the destruction of railways and bridges the only way to bring the wounded from the cleaning hospital to Paris as quickly as possible is by motor ambulances. Sir Alfred Keogh, head of the British Medical Service, has stated recently that what is wanted is money for the purchase of motor ambulances; and indeed opinion seems to be unanimous that motor transportation is essential to the success of an army in the field and that it is of no less value in the treatment of the wounded. This is one of the great lessons already learned from the present war.

"WAR MEDICINE EVENINGS" IN GERMANY.

THROUGHOUT the German medical centers the established local medical societies hold sessions known as War Medicine Evenings. Each of these memberships comes into first hand contact with the wounded and is well able to discuss the problems of first aid dressings, transportation, sanitary personnel, and the like. The frequency with which local meetings are held varies with the city.

In the *Deutsche medizinische Wochenschrift* for October 12 are reported the proceedings of two such meetings held at Heidelberg on September 15 and 30 by the Naturhistorisch-medizinischer Verein. A subject freely discussed was the room for improvement in transportation of the wounded. At its worst this consists in moving the troops in freight cars covered with straw sacks and mattresses. There are no arrangements for lighting and heating and no conveniences for the reception of excreta, although diarrhea is very common. There are no stopover arrangements such as would greatly facilitate renewal of dressings. The bedding becomes saturated with discharges. Trains proceed slowly, stops are frequent, there is no proper classification of wounded, and there is a marked shortage in the number of surgeons and attendants.

No single subject receives so much attention as tetanus. While figures are seldom given there is reason to believe that the disease is very frequent and very fatal. Völker stated that antitoxin gives the best results by the subdural method. He appears to favor especially the therapeutic method of Baccelli. Rost said that fragments of shell in dry weather are a frequent source of tetanus. All wounds made under these conditions should be opened broadly and treated with hydrogen peroxide or potassium permanganate to kill the tetanus spores. Heddaeus praised the intraarterial method of injecting antitoxin. The internal carotid is to be exposed for this purpose. It thereby becomes possible to reach quickly and surely the tetanus toxin in the brain.

BLOOD THREADLETS.

UPON the introduction of dark field illumination into medical microscopy peculiar threadlike bodies were described as visible in the blood, in which fluid they floated with a wave-like spontaneous movement between the blood corpuscles. They were variously regarded as artefacts and parasites. Apparently a constant blood find of man and warm-blooded animals their number was much increased in certain diseases, notably acute general infections. As the numerous data concerning the incidence of these bodies in the blood have never been collected and systematized and as the subject has fallen into more or less neglect, Knack attempted to revive interest therein, in a paper read before the Biological Section of the Aerztlicher Verein of Hamburg last summer (*Münchener medizinische Wochenschrift*, October 6). He described a simple method of rendering the bodies visible, but was unable to account for their presence. The only hypothesis held at present is that they are derived from the disintegration of red blood cells, and represent a myelin form set free from the cell lipoids. He pointed out that the threadlets could not be derived from the blood fibrin.

PARALYSIS AGITANS AND THE PARATHYROIDS.

IN innumerable instances in medical practice it has been promptly shown that various alleged specifics are worthless in routine treatment. The so-called Parkinson syndrome, which comprises tremor and muscular rigidity in association with a great number of symptoms which ordinarily suggest neurasthenia, agrees in many ways with the deficiency symptoms associated with non-functioning of the parathyroids. Nevertheless not many medical men would trouble themselves to make a crucial test of so simple a problem by the administration of parathyroid substance to subjects with paralysis agitans. This is what Professor Schottmüller reported at a meeting last summer of the Biological Section of the Aerztlicher Verein of Hamburg (*Muenchener medizinische Wochenschrift*, October 13). He obtained a preparation of parathyroids and administered it to a woman patient with paralysis agitans. She was not enlightened as to the nature of the medication, although it was vaguely intimated that she should improve under its use. As a matter of fact, she became worse under the treatment and better when it was interrupted. The author was forced to conclude that the disease was maintained by the presence of the parathyroids, which he promptly extirpated. The result of the operation was absolutely negative, and the author therefore eliminates the participation of the parathyroids in the causation of paralysis agitans.

News of the Week.

Crocker Cancer Research Fund.—The first annual report of the George Crocker Special Research Fund for the investigation of the nature and cure of cancer has just been published by Columbia University, and gives a résumé of the general lines along which research has been conducted under the director, Prof. Francis C. Wood, since the opening of the new laboratory building in December, 1913. All the research work on cancer is now carried on in the Crocker Laboratory, which is a three-story and basement, fireproof structure, recently erected on East Field, at the corner of Amsterdam Avenue and One Hundred and Sixteenth street. The necessary funds were supplied by the Trustees of the University, and the building is very completely equipped for the purpose for which it was designed. The working staff consists at present of the director and five assistants, all well known by their previous investigations in pathology. The extent of the work as now conducted is shown by the fact that at least three thousand mice and rats are required each month for inoculation with experimental tumors. The report goes into some detail as to the research being conducted. One line has been a study of the action of radium and *x*-rays on tumor and normal tissues growing in culture media, and the director reports that the results so far obtained are extremely discordant, showing that great caution is necessary in drawing any conclusions, and that hasty generalizations as to the sensitiveness or lack of sensitiveness of tumor or normal tissue to these rays are not warranted. Another large series of experiments has been carried on to test the action of radium on primary tumors of mice, and the results have not shown that this agent has any great therapeutic effect on such growths, although they correspond very closely with tumors in man. In addition to the work on animals, a considerable amount of radium treatment has been given to patients in hospitals, and data are thus being collected which will permit of a much more accurate judgment as to the therapeutic effect of radium than has been possible from previously published reports. Still another phase of the work has been a study into the conditions under which it is possible to obtain immunity to the chicken sarcoma discovered by Peyton Rous of the Rockefeller Institute. Investigations on the therapeutic effect of certain collodial silver preparations, so highly vaunted, not only in this country but also in Germany, as of great value in the treatment of malignant disease, have shown that, unfortunately, such substances have no effect on cancer in either man or animals. In addition to this research work some of the members of the staff have given courses on the nature and diagnosis of human and animal tumors. The Fund has already collected a valuable library of works on cancer, and a large number of slides and specimens of tumors are being gathered and filed for reference. The director hopes that the laboratory will ultimately be able to offer to those who are interested in the subject, including both physicians and the lay public, not only the results of scientific research, but also general information concerning the diagnosis and treatment of cancer.

Health of the Canal Zone.—The report of Dr. Charles F. Mason, chief health officer for the month of September states that the total number of deaths from all causes during the month was 22. Of these, 18 died from disease, or 5.31 per thousand, as compared with 3.26 for the preceding month and 7.30 for the corresponding month of last year. The diseases causing the largest number of deaths were as follows: Organic disease of the heart, 2; pneumonia, 4, and tetanus, 2. No other disease caused more than one death. The total annual admission rate for malaria was 77.39, compared with 89.73 for last month, and the total noneffective rate, 1.43, compared with 1.95 for last month. Each of these rates was lower than for the same month last year.

A Bequest to the Rockefeller Institute.—It is announced that, litigation on behalf of relatives to prevent the probating of the will of the late Henry Rutherford having been dropped, a bequest of $200,000 to the Rockefeller Institute for Medical Science will be paid. The income from this fund is to be used for the investigation into the causes and cure of cancer.

The Roentgen Ray Association, organized by a number of *x*-ray workers, "to improve the practice and study of roentgenology and to form a closer association among roentgenologists, or *x*-ray experts," was recently incorporated in this city. The incorporators are Drs. George S. Dixon, I. Seth Hirsch, Adoniram Judson Quimby, William A. La Field, and Archibald P. Evans.

Dr. T. A. Kenefick of this city writes to correct an error in an article on "The Relief of Gas Pains after Appendicectomy" by him in the *New York Medical Journal*, abstracted in our issue of November 21. In the original article the drug used by him was said to be acetyl-salicylic acid; it should have been acetol-salicylic acid.

High Honor for a German General.—The University of Königsberg has conferred the honorary degree of M.D. upon General von Hindenburg, commander of the Germany army operating against the Russians. He should now be able to make the Russians take their medicine.

New Counsel to the County Medical Society.—George W. Whiteside, Esq., has been appointed counsel to the Medical Society of the County of New York. He was on the staff of District Attorney Jerome six years and one year on the staff of District Attorney Whitman.

Herter Lectures.—Professor Lafayette B. Mendel of Yale University will deliver this year's course of lectures under the Herter Foundation of the University and Bellevue Hospital Medical College at the Carnegie Laboratory, 338 East Twenty-sixth Street, on December 10, 11, 14, and 15, at 4 o'clock. The lectures will be on "Aspects of the Physiology and Pathology of Growth."

Clinical Association of the Alumni of the Long Island College Hospital.—At a meeting of this society to be held Monday evening, December 7, there will be a general discussion on the "Cardiovascular System." The speakers will be Drs. J. A. McCorkle, John C. Cardwell, Joshua M. Van Cott, Luther F. Warren, and F. E. West.

Antivaccinationists Disappointed.—A boy of six years died a few days ago in Brooklyn shortly after having ben vaccinated, and his father and others claimed that death was due to tetanus caused by the vaccination. An autopsy revealed the fact that the child had died of meningitis.

Medical War News.—An American Red Cross Hospital has been established at Pau, and many wounded from Morocco are being cared for in the baccarat rooms in the casino. The Paris *Temps* says the organization of the hospital is perfect and the

surgical skill is of the best character. It gives praise to Drs. Kirby-Smith and Fayerweather, the American surgeons in charge of the hospital, and their assistants and the nurses.

A correspondent of the *New York Times* telegraphs from Northern France that one hundred Canadian doctors have come over to establish a hospital, which promises to be one of the most magnificently equipped of the many which have come from all parts of the world. The spot chosen by the Canadians is a favorite seaside resort. Their building is the clubhouse of the golf club. Many of the contingent are French Canadians from Quebec. The medical staff took possession of the building on November 26.

An American hospital, equipped with forty beds, for the treatment of wounded Russian soldiers, the gift of the American colony, was opened at Petrograd on November 28.

A staff correspondent of the *New York Times* sends from Berlin a description of a new hospital train de luxe equipped by the Red Cross Association of the Duchy of Brunswick. It is the forty-eighth train of the kind presented to the government by the Red Cross Association or individuals. It consists of thirty-eight cars. The last car is the laundry and a storeroom for linen, bedding and clothing. The next car is stocked with food supplies, and the one in front of that is the kitchen. The fourth car is the operating room and storeroom for drugs and surgical supplies. Then comes the lounge for the doctors and nurses, and in front of that two saloon cars for wounded officers, two sleeping cars for the medical and nursing staff, and twenty-nine hospital cars for wounded soldiers. In addition to these forty-eight privately equipped hospital trains there are a great many regular military hospital trains, besides trains of freight cars and ordinary passenger coaches for the slightly wounded.

The report of the American Ambulance Board in Paris shows the cost for each patient per day in the American Ambulance will be less than 10 francs ($2), as all the services of the staff of upward of 300 surgeons, nurses, orderlies, and managers are given free. There are now 350 patients in the hospital.

Mrs. Harry Payne Whitney's flying hospital of 200 beds is installed for the present in the college building at Juilly, France, not far from Compiègne. Dr. Walton Martin is chief of staff and has five assistant surgeons, Drs. Karl Connell, Donald Gordon, Henry James, and Karl M. Vogel of New York City, and W. G. Drennan of Birmingham, Ala.; there are also fifteen nurses.

It is stated in *Paper* that there is an urgent demand from the Russian Army Medical Service for bleached cellulose, which has proved an admirable substitute for surgical dressings of lint and cotton. For the manufacture of this cellulose wadding, or cellulose cotton, as it is called, special machinery is required. The material was formerly imported from Germany, but now the Russians are looking to Stockholm for a supply. Absorbent cotton is said to be not readily obtainable in Russia. Surgeons in the Swedish army prefer cellulose cotton to any other material for dressings.

Hospital News.—The corner stone of St. John's German Lutheran Hospital in St. Paul, Minn., was laid with appropriate ceremonies on Sunday, November 15.

The new Mt. Sinai Hospital, Milwaukee, was dedicated on Sunday, November 15. The hospital is a six-story building, fireproof and soundproof, erected at a cost of $160,000.

St. Francis Hospital at Cape Girardeau, Mo., under the charge of the Franciscan Sisters, was dedicated on Sunday, November 15, by Archbishop Glennon of St. Louis. The new hospital is a three-story and basement building, the erection and equipment of which cost about $200,000.

A new wing of Hamot Hospital, Erie, Penn., was dedicated by Bishop Israel on November 21. The new structure is six stories high, absolutely fireproof, and contains fifty-six rooms for private patients, besides wards and operating room.

A new hospital for contagious diseases at Haverhill, Mass., was opened for the reception of patients on November 30.

Medical Society Elections.—At the annual meeting of the Tri-State Medical Association of Tennessee, Arkansas and Mississippi, held November 18 and 19, at Memphis, the following officers were elected: *President*, Dr. W. P. Hicks of Earle, Ark.; *Vice-Presidents*, Drs. J. L. Hare of Wynne, Ark.; E. R. McLean of Cleveland, Miss., and Vernon Dickson of Covington, Tenn.; *Secretary*, Dr. J. L. Andrews of Memphis; *Treasurer*, Dr. J. A. Vaughan of Memphis.

The Eleventh District Medical Society of Georgia, at its meeting in Douglas, on November 19 and 20, elected the following officers: *President*, Dr. J. M. Smith of Valdosta; *Vice-President*, Dr. B. H. Minchew of Waycross; *Secretary-Treasurer*, Dr. J. W. Simmons of Brunswick; *Board of Counsellors*, Drs. J. T. Colvin of Jesup; E. P. Little of Manor, and A. Flemming of Waycross. The next meeting of the society will be held at St. Simons on the second Tuesday in June, 1915.

The Klamath County (Oregon) Medical Society was organized at Klamath Falls on November 14 The following officers were elected: *President*, Dr. L. L. Truax of Klamath Falls; *Vice-President*, Dr. J. L. Harris of Bonanza; *Secretary and Treasurer*, Dr. E. M. White of Klamath Falls.

At a meeting of the Northeast Texas Medical Society, held at Texarkana, November 17, the following officers were elected: *President*, Dr. C. A. Smith of Texarkana; *Vice-Presidents*, Drs. C. F. Mosely of Jefferson, and W. C. Crutcher of Mt. Vernon; *Secretary-Treasurer*, Dr. J. N. White of Texarkana.

Obituary Notes.—Dr. CHARLES WOOD MCMURTRY of New York, a graduate of the Harvard University Medical School, Boston, in 1897, instructor in dermatology in the College of Physicians and Surgeons, Columbia University, attending physician in dermatology in the Out-Patient Department, St. Luke's Hospital, and a member of the American Medical Association, the New York State and County Medical Societies, the American Association for the Advancement of Science, the New York Academy of Medicine, the Medical Society of Greater New York, and the German Dermatological Society, died at the Roosevelt Hospital on November 25, following an operation for appendicitis, aged 42 years.

Dr. WALTER C. STILLWELL died of apoplexy at Philadelphia on November 14 at the age of 63 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1873.

Dr. FRANK N. YEAGER of Hamilton, Pa., died on November 14 at Rochester, Minn., as a result of an operation. He was graduated from the medical department of the University of Pennsylvania in the class of 1888. He was a member of the Jeffer-

son County Medical Society and of the Medical Society of the State of Pennsylvania and a Fellow of the American Medical Association.

Dr. WILLIAM HENRY BAKER of Boston, Mass., a graduate of the Harvard University Medical School in 1872, a member of the Massachusetts and Suffolk District Medical Societies, and organizer of the department of gynecology in the Harvard Medical School, died at his home in Waltham, Mass., on November 26, aged 69 years.

Dr. ALBERT BARNES DORMAN of Winthrop, Mass., a graduate of the College of Physicians and Surgeons, Boston, in 1892, a member of the American Medical Association, and the Massachusetts and Suffolk District Medical Societies, and for fifteen years a member and for twelve years chairman of the Board of Health of Winthrop, died at his home on November 22, aged 59 years.

Dr. JAMES SULLIVAN HOWE of Boston, a graduate of the Harvard University Medical School in 1881, visiting physician to the Boston Dispensary, professor of dermatology at the Tufts College Medical School, and a member of the American Medical Association, the Massachusetts and Suffolk District Medical Societies, the American Dermatological Association, and the Boston Dermatological Club, died at his home in Brookline on November 22, aged 56 years.

Dr. WILLIAM H. SMITH of Rushville, Ind., a graduate of the Western Reserve University Medical Department, Cleveland, O., in 1876, a member of the Indiana State Medical Association and the Rush County Medical Society, and a veteran of the Civil War, died at his home after a short illness on November 12, aged 81 years.

Dr. THOMAS W. BOTKIN of Farmland, Ind., died at his home from paralysis on November 17, aged 70 years.

Dr. A. G. HUMPHREY of Galesburg, Ill., a graduate of the New York Hygeio-Therapeutic College in 1858, died in Kansas City on November 17, aged 82 years.

Dr. WILLIAM TERRENCE CAROLIN of Lowell, Mass., a graduate of the Harvard University Medical School, Boston, in 1877, a member of the American Medical Association and the Massachusetts and Middlesex North District Medical Societies, and a former member of the Massachusetts State Board of Health, died at his home after a lingering illness on November 21, aged 64 years.

Dr. HAROLD WILLIS HARTWELL of St. Louis, Mo., a graduate of the University of Michigan, Department of Medicine and Surgery, Ann Arbor, in 1883, and of the New York Homeopathic Medical College and Hospital in 1884, died at his home on November 17, aged 56 years.

Dr. GEORGE EDWARD GAVIN of Mobile, Ala., a graduate of the Louisville Medical College in 1896, and a member of the American Medical Association, the Medical Society of the State of Alabama, the Mobile County Medical Society, and the Southern Surgical and Gynecological Association, died at his home after a long illness, on November 14, aged 43 years.

Dr. ADELBERT ALLEN BRYSON of Boston, Mass., a graduate of the Bellevue Hospital Medical College, New York, in 1892, died at his home in Dorchester on November 15, aged 54 years.

Dr. JOSEPH MORRISON TYDINGS of Louisville, Ky., a graduate of the Kentucky School of Medicine, Louisville, in 1861, died at his home on November 12 after a long illness, aged 78 years.

Obituary.

CLINTON WAGNER, M.D.

THE death, at Geneva, Switzerland, on November 25, of Dr. Clinton Wagner, late of New York City, removes a man of no ordinary note. Born in Baltimore in 1837, his family were among the earliest settlers of Maryland. He was educated at St. James College, Hagerstown, Md., and was graduated in medicine at Baltimore in 1858. The same year he entered the medical corps of the U. S. Army, passing first of nearly thirty applicants. On the breaking out of the Civil War he remained loyal to the Union and having attracted the notice of Surgeon-General Hammond was given a position of responsibility. After several promotions he became Surgeon-in-Chief of the Second Division, Fifth Army Corps, Army of the Potomac, with the rank of Lieut. Colonel. His military career was distinguished for conspicuous bravery, rare surgical skill, and marked executive ability. He established numerous field hospitals and on the Mississippi River organized the first floating hospital in western waters.

At the close of the war Dr. Wagner retired from the army and went abroad, spending two years in London, Paris, and Vienna in the study of laryngology. Returning to New York he established himself as a specialist in that department, soon becoming recognized as a teacher, as well as practitioner, of distinguished ability. He established the Metropolitan Throat Hospital and Dispensary, a model institution, rivaling the best clinics of its kind abroad, and becoming famous among those desiring advanced instruction. He showed great inventive genius, devising many new instruments and surgical methods. His general surgical experience and extraordinary skill enabled him to undertake with success important major operations upon the throat and neck. He was the best master of thyrotomy of his time and his technique of this operation has not been surpassed. In a pioneer thesis in 1882 he called attention to "Mouth Breathing in Its Relation to Medicine." His other contributions were numerous and valuable.

In 1882 he was among the first to enter upon the organization of the New York Post-Graduate Medical School and Hospital and was its first professor of laryngology and rhinology. In 1873 Dr. Wagner suggested the formation of a Society of Laryngology and, inviting to his house Drs. Lefferts, Asch, Bosworth, Woolsey Johnson, Bridge, McBurney, Weir, Mann, and Kinnicutt, organized the first society of its kind in the world—The New York Laryngological Society. Five years later, mainly through the inspiration of Dr. Wagner, the American Laryngological Association was organized. The New York society antedated by fifteen years any similar society in Europe. In 1885 it became the Section in Laryngology of the New York Academy of Medicine.

Dr. Wagner retired from practice several years ago and has since lived in Colorado, California, and of late abroad.

One year ago the fortieth anniversary of the founding of the New York society was commemorated at the Academy of Medicine with appropriate exercises, Dr. Wagner, as guest of honor, coming from Europe for the purpose of attending. His health had begun to fail and after his return became steadily worse. He leaves a widow.

D. BRYSON DELAVAN, M.D.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

THE HUXLEY MEMORIAL LECTURE—TRANSMISSION OF MALARIA—MEDICAL SOCIETY—TUMORS OF CECUM AND COLON—CONVICT POSING AS DOCTOR—SURGEON SAVED FROM WRECK SPEAKS FOR RECRUITING MEETING—OBITUARY.

LONDON, November 14, 1914.

THE Huxley Lecture this year was delivered by Sir Ronald Ross, who devoted it to the discussion of the transmission of diseases in regard chiefly to malaria. He naturally began with a word about Huxley himself, who, he believed, would have been intensely delighted with the recent advances in the medicine of the tropics. Up to the middle of the last century Sir Ronald said we had only touched the "subscience" of the subject—we had distinguished, named and classified diseases and ascertained empirically the effects of many drugs; also Jenner had discovered a wonderful fact as to prevention. But the causes and the modes of transmission remained hidden. Then Pasteur, Koch, Lister, and others, created bacteriology—but the exact paths of transmission were in the dark, were thought to be scattered, leading us to a very vague prophylaxis.

The ancients thought parasites originated by spontaneous generation. In the seventeenth century Redi proved that this is not the case for certain insects and later Pallas argued that they originate *ab ovo*, that the eggs escape from one host and enter another. Then it was found they could find their way into a host of a different species associated with the one left—*e.g.* a parasite of dogs and cats develops also in the dog louse, so is not scattered broadcast over the earth to perish in multitudes but is kept alive near the cat or dog. The lecturer then traced the story of later discoveries up to that of malaria, perhaps the most important of all in relation to disease in the tropics. In India alone it is estimated that the annual mortality of malaria amounts to 1,300,000.

More than five hundred years before Christ malaria was held to be connected with stagnant water such as marshes. At the beginning of our era it was supposed the disease might be connected with insects which breed in marshes. Later it was ascribed to vapors given off by such water. The soil round these waters was next blamed—the telluric hypothesis. In 1880 Laveran found certain protozoal parasites in the blood. This view was recognized some ten years later and people rushed to the conclusion that they had an extra corporeal existence in marsh water, but they had no proofs. By 1894 careful study had been made of the parasites, some forms of which when freshly drawn from blood were found to emit flagella. Manson urged that these were flagellated spores, that when mosquitoes ingest blood containing them they get into the tissues of the insect and ripen.

Sir Ronald Ross then passed to his own researches, begun in Burma in 1889. He observed the poison was not uniformly distributed as it would be if given off in aerial form from water or land. He adopted the mosquito hypothesis as a working one and for two years fed the genera *Culex* and *Stegomyia* on patients having "crescents," thought by Murson to be the transmitting forms. Failure complete followed this plan and some others as well. He was working with the wrong species but he also noticed a dappled winged mosquito (Anopheline) in an intensely malarious quarter where he took the disease himself. He obtained eight of these insects and fed them on victims of malaria. Six of the eight insects died. On August 20, 1897, he was so fortunate as to find in the tissue of one the fourth day after it had fed on a patient, certain bodies he had not met with previously in mosquitoes. Next day the same bodies in his last insect of the eight, but larger and more definite. A little later he found them in two more mosquitoes and knew he was on the right track. The two unknown quantities of the complex equation were simultaneously found, viz., the species of mosquito which carries the malaria and the position taken by the parasite in its tissues—the wall of the intestine.

In July, 1898, he observed the spores entering into the insects' salivary glands and so the whole truth was seen. The parasites were carried from man and also to man. Like many larger ones they need two hosts for their life-cycle.

In America MacCullum and Opie had meantime shown that the bodies called spores were in reality germs. It has since been shown that the mosquitoes which carry malaria are about twenty-five in number and all belong to the anophelines. Thus only with them are we concerned as to malaria. But other species are responsible for other diseases, both in men and animals. A whole group of epidemiological diseases—the insect-borne—has thus been separated, perhaps the most important in the tropics, *e.g.* yellow fever, tick fever, plague, sleeping sickness, etc. Moreover these discoveries point to prevention, which Sir Ronald summed up in two words, "No vermin."

With him many of us fondly dreamed the fruit of these researches would be rapidly gathered, but fifteen years or more have gone by and mankind has not gained one-tenth of what it might have done had it put its heart into the business.

The Medical Society of London has held a full discussion on tumors of the cecum and colon in relation to operative treatment when Messrs. Waring, Sherren, Corner, and Carson related their extensive experience of the several operations they had been called upon to perform. Operators will find much to interest them in the reports. The several practitioners will be chiefly concerned with the insidious approach of such tumors, especially the carcinomatous and their very slow growth which was remarked upon by more than one speaker.

The president (Sir J. Bland-Sutton) testified to this slowness and said he had also seen secondary growth in bone operated on under the supposition that it was primary. Only after watching the patient for months did symptoms come on pointing to the original lesion. He had followed up cases five, seven, and nine years after operation when cancer at last showed itself. Sometimes at the operation it was not easy to distinguish cancer from actinomycosis and hyperplastic tuberculosis.

A man calling himself Harrison and said to be a convict liberated on license has been brought up again charged with posing as a doctor. On arrest he had two sets of visiting cards in his possession, one styling himself surgeon-major D.S.O., the other baronet Ch.B., M.B. He had engaged himself as an assistant to a registered practitioner who seems to have been satisfied with his statements when he found his alleged name in the register or directory. He saw patients for this practitioner, attended in-

quests and gave evidence and oath before the coroner. When a general of the name of Harrison died he told his employer he was the heir and "must look after his new estates." The secretary of the Medical Defence Union said he wrote to the prisoner's employer about him and in response the prisoner himself came to the union office personating his employer.

Fleet-Surgeon James Mowatt (retired) happened to be on the *Hermes* when she was torpedoed and was persuaded to relate the experience at a recruiting meeting. He said: "Twenty-four hours ago I was under fire; big and little guns were all firing. We were at breakfast when suddenly up went the table, the plates and crockery smashed and clattering round. We got on deck. I said to myself, 'You're a doctor; go to the sick bay.' I went and found a poor helpless fellow in bed. We got him out and he is saved. Going again on deck I saw a number of men with broken legs, etc.; attended to them and helped get them into a boat. I've been in it and can tell you what discipline does for you. Enlist now." It proved an effective appeal to join.

Mr. Charles Barrett Lockwood, F.R.C.S., consulting surgeon to St. Bartholomew's Hospital, died on the 8th inst., aged 58. He had contributed many papers to the journals and societies. Among them the development of the pericardium to the Royal, which appeared in the Philosophical Transactions for 1888. He was Hunterian Professor at the Royal College of Surgeons from 1889 to 1895, during which he lectured on "Hernia or Traumatic Infection," etc. He was Lettsomian lecturer in 1904, when he lectured on "Aseptic Surgery in Theory and Practice." His work on appendicitis reached a second edition in 1906.

Dr. H. Johnstone Levis, senior physician to the Victoria Hospital at Nice, has been killed in a motor accident near Bourges, France, at the age of 58.

Department Surgeon General Edward McKellar, M.I., died on the 27th inst. The most active part of his life was passed in India where he served through the mutiny. He was also in the two Burmese wars and received medals and clasps, serving through sixteen engagements. On retiring he went to Brighton to live. For several years he had been an invalid.

Captain R. G. Kinkhead, son of Professor Kinkhead of Belfast, was killed on the battlefield on the 31st ult.

Sir John C. Reade, who has just died at the age of 82, was the oldest honorary surgeon to the King and a surgeon-major-general, who entered the medical service of the army in 1854 and retired in 1893. He served through the campaigns of the Crimea and the Oude as well as the Indian Mutiny, being present in the chief battles and was wounded at Sebastopol. He was mentioned in a number of dispatches and held the Turkish medal with three clasps. For five years he was assistant to the Director-General of the Medical Department. In 1895 he was appointed surgeon to Queen Victoria. He was awarded the jubilee medal in 1897 and the coronation medals of 1892 and 1911. Received the distinguished service reward in 1892.

The Sugar Metabolism in Lymphatism.—H. Schirokauer found in cases of lymphatism in children a hypoglycemia and an increased tolerance to certain kinds of sugar, just as in Addison's disease and in experimental removal of the suprarenal glands. The author regards lymphatism as a type of hypofunction of the suprarenals.—*Jahrbuch für Kinderheilkunde.*

WITH THE GERMAN ARMY MEDICAL CORPS.

(From Our Regular Correspondent.)

WAR AND THE GERMAN PEOPLE—EAGERNESS OF MEDICAL MEN TO ENLIST—SAFEGUARDING THE INTERESTS OF THE DOCTORS AT THE FRONT—ORGANIZATION OF THE ARMY MEDICAL CORPS—ITS PERSONNEL AND EQUIPMENT—SCIENTIFIC OBSERVATIONS FROM THE SEAT OF WAR—GREAT CASUALTIES AMONG ARMY MEDICAL OFFICERS.

OBERSTDORF, BAVARIA, November 1, 1914.

WE in Germany have been such lovers of peace that when during the final days of July the diplomatic demands of Austria foreshadowed a rapidly approaching conflict, the feeling was generally one of disgust over any possible warlike developments. Then quite unexpectedly came the mobilization which aroused enthusiasm in the common people, but which among the more cultivated classes awakened rather a sense of dismay that such stupendous results should proceed from such insignificant causes. Hardly had it become unmistakably plain that the war was not a mere passing event but an unavoidable catastrophe incited by our enemies, when every man in Germany was aroused by an enthusiasm that not even the keenest imagination could have pictured. The members of the medical profession of course have been no exception in this manifestation of patriotism and devotion. In fact, so many physicians have volunteered for military service that a large proportion of them could not be accepted.

All medical students who were almost ready for their final examination were given a brief special examination and were at once ready to respond to the call of their fatherland. But the military authorities could not make use of them, for every need was otherwise satisfied. There has then arisen the necessity of conserving the economic interests of those physicians who have been drawn into the war. For this purpose the physicians who have remained behind have pledged themselves to look after the practice of their enlisted colleagues entirely without compensation. At the same time the latter have been able to draw their salaries from the insurance offices just as when they were active in the insurance service. At the physicians' guilds there have been established central offices that have looked after the interests not only of the physicians that have gone to the front, but also of their families.

A great deal of care has been devoted to the organization of the medical and nursing personnel of the army. Physicians have organized courses of study in which young women and girls have been prepared for the service of the Red Cross. Special courses have been established for the physicians who have volunteered for the war. Mention may be made of the lecture delivered by Halzhäuer upon the organization of the sanitary corps and the sanitary service in the army. As regards the personnel, the chief medical officer of the army is the chief of the general medical staff stationed at headquarters. The entire military force is subdivided into armies with an army surgeon at the head of each.

Each army is made up of a number of corps each with its own surgeon in charge, who is assisted by an advisory surgeon and an advisory sanitary expert, both of whom are generally drawn from the ranks of the university professors. Next in order come the division surgeons, the regimental

staff surgeons, the battalion surgeons, the senior surgeons, the assistant surgeons, and finally the subordinate field surgeons. In addition each army corps has three sanitary columns that march with the fighting ranks, and include two hundred bearers of wounded and an assistant surgeon, all under the command of a cavalry captain.

Every soldier is equipped with his first-aid packet, every sanitary officer with his instrument set. Every member of the sanitary corps has special packets, drinking flasks, and bandages. Each batalion has its sanitary supply wagon in which all conceivable first-aid appliances, including blankets, stretchers, etc., are available. The sanitary contingent are regularly drilled both at home and in camp. Every halting place marks a link between home and the army, both in personnel and material, new supplies and new recruits being received, and other supplies and disabled men being sent home. When the troops go into battle a place is set aside for the wounded. From this field hospital the wounded are sent to the more remotely placed ambulance stations, which are subdivided into the receiving station, the dressing station, the waiting place, kitchen, place for the dying, and the morgue.

There are differentiated three groups of wounded —those able to march, those transportable, and those not transportable. The last are distinguished by means of white pasteboard tags, each marked by two removable longitudinal red stripes. If one stripe is removed this signifies that the individual is transportable; if both stripes are removed the bearer of the tag is recognized as being fit to march. All those wounded not able to march are sent to the field hospitals, of which each army corps is provided with twelve. Each field hospital has a capacity for two hundred wounded. Lastly, there are provided places for the gathering and for the recuperation of the slightly wounded, both during and after the battle. All the base hospitals of an army corps are subjected to inspection by a directing surgeon who is assisted by a sanitary expert and by the director of a field hospital. The wounded are classified. There are accommodations for two hundred disabled soldiers, for those slightly wounded, for sick soldiers, and for convalescents. At home, in addition to the garrison hospitals, there are the reserve hospitals, the public institutions, and the private dwellings that have been fitted out for the reception of the wounded.

In the meantime observations made by surgeons at the seat of war have been published in the medical press. It was to be expected that new experiences would be recorded, inasmuch as weapons of unprecedented destructive power are now being employed. Some of these observations will be dealt with in the next letter.

It is very sad to have to report that there have fallen at the front a large number of doctors, a number whose proportionate size is greater than any recorded in previous wars. This is to be attributed partly to the greater area of destructiveness of the artillery and rifle fire, partly to the rage of soldiers of the enemy, and, above all, to the rage of civilians. For instance, a staff surgeon was shot while examining the water of a well; it was thought that he was trying to poison the well. Other surgeons have been killed by civilians while attending the wounded on the field of battle, and still others have been killed when a field hospital has been attacked.

Progress of Medical Science.

Boston Medical and Surgical Journal.

November 19, 1914.

1. The Chlorophyll Test of Gastric Motility. F. W. White.
2. A Note on the Increase of Total Nitrogen in the Cerebrospinal Fluid in Certain Cases of Insanity, with Remarks on the Uric Acid Content of the Blood. H. M. Adler and B. H. Ragle.
3. The Use of Radium in Cancer and Allied Conditions at the Huntington Hospital; Illustrative Cases. T. Ordway.
4. Intraabdominal Hemorrhage Complicating Normal Pregnancy. F. G. Balch and R. M. Green.

1. The Chlorophyll Test of Gastric Motility.—By F. W. White. (See MEDICAL RECORD, September 19, 1914, page 529.)

2. Nitrogen Content of Cerebrospinal Fluid.—H. M. Adler and B. H. Ragle report the results of their investigation of this subject in 110 cases. The striking feature of the findings was the high total nitrogen content of the cerebrospinal fluid in paresis. This increase coincides with the well-known increase in albumin and globulin. The unclassified dementias included several cases that showed a high total nitrogen content. Examination of the blood with reference to the content of uric acid showed that in insane patients this content varies within normal limits.

3. Radium in Cancer and Allied Conditions.—T. Ordway points out that the best, apparently curative, results from radium therapy are obtained in certain types of skin and other localized forms of cancer. In myelogenous and lymphatic leucemia the blood picture becomes almost normal, the spleen is reduced markedly in size, and certain symptoms may be relieved without toxemia resulting. In many cases of true cancer which have advanced beyond the operable stage, or those recurring after operation, improvement from radium therapy may follow not only subjectively, but in the local condition. This improvement may include the relief from discharge, hemorrhage, and pain; the cleansing or healing of ulceration; the diminution in size or disappearance of the growth. Such cases, however, are rarely cured. Even large growths sometimes disappear under the influence of radium, but metastasis or spreading of the growth to other parts is not prevented, or the patient may succumb to the rapid disintegration of the original growth. Newer methods may improve these results of radium therapy; at present its proved value is limited, but occasionally cases beyond these well recognized limits are distinctly benefited.

4. Intraabdominal Hemorrhage Complicating Normal Pregnancy.—F. G. Balch and R. M. Green conclude that intraabdominal hemorrhage complicating normal pregnancy is exceedingly rare, but apart from trauma may arise from various unusual causes. In the presence of classical signs of internal concealed bleeding during the later months of pregnancy, a diagnosis of such hemorrhage from unknown cause should unhesitatingly be made and appropriate treatment instituted. Among the possible rare causes of intraabdominal hemorrhage complicating normal hemorrhage pregnancy may be congenital angioma or varix of the uterus. The presence of such a varix may be a cause of habitual antecedent dysmenorrhea for which no other evident anatomical or physiological cause can be found and which is unaffected by treatment. In the grave exsanguination following intraabdominal hemorrhage associated with normal pregnancy, as in the commoner obstetrical complications of placenta previa, postpartum hemorrhage, and ruptured tubal pregnancy, transfusion is a life-saving procedure of proved value and should be promptly employed as soon as the source of bleeding has been checked.

New York Medical Journal.

November 21, 1914.

1. Insanity and Divorce. A. Gordon.
2. Teratoma Testis with Tubercle Bacilli in the Urine. V. C. Pedersen.
3. Implantation of Pituitary Gland. E. Waitzfelder.
4. The Solution of the Problem of Criminal Abortion. P. S. Madigan.
5. Intraspinous Medication. O. Berghausen.
6. Hyperchlohydria. A. L. Holland.
7. A New Method of Hastening Repair After Fracture. H. J. Kauffer.
8. Need of More State Hospitals for the Insane. J. A. Jackson.
9. Role of the Cecum in Chronic Disorders in the Right Lower Abdomen. J. M. Wainwright.
10. Tuberculosis of the Kidney. J. A. Gardner
11. Early Pulmonary Tuberculosis. C. H. Cooke
12. A New Poison Containing Bottle. R. J. Lackner

1. Insanity and Divorce.—A. Gordon discusses the inadequacy of the legal provisions of various States in this country with respect to divorce in its relation to insanity. In instances in which the law considers insanity as a cause for divorce, it is so formulated that it does not cover all forms and varieties of mental disorder, and leaves therefore possibilities for contest and litigation. If divorce is to be granted on this basis, the legal provision should be so formulated that it includes not only the absolutely incurable psychoses, but also all varieties of mental deficiencies and abnormalities which from a psychiatric standpoint render marital life an impossibility. The jurist and the psychiatrist are to be intrusted with the formulation of such a law. In preparing this important project for legislation they must bear in mind the findings of the science of psychiatry. The curability and incurability of various mental disorders are pretty well established. Assuming that the approximate duration of a given psychosis cannot be ascertained for the purpose of its being included in the list of affections permitting divorce, a divorce should nevertheless be granted, for experience teaches that serious forms of insanity usually develop in individuals of a degenerative makeup. If they are considered to have recovered, for practical purposes there is no guarantee that a recurrence in one or another form will not take place. Lucid intervals in the course of mental affections are misleading and should not be taken as recoveries.

5. Intraspinous Medication.—O. Berghausen follows Sophian's method in controlling all intraspinous injections at the Cincinnati General Hospital by taking the peripheral blood pressure. Particularly in epidemic meningitis sudden variations of the peripheral blood pressure are noticeable. In the author's experience sudden respiratory changes follow only when the blood pressure has suffered a marked change, usually a drop. It is a safe rule never to withdraw the needle until the blood pressure at the close of the injection has about reached that which was registered at the outset. The gravity method is of distinct value in attaining this end, affording a ready means of withdrawing the serum and fluid. Peculiarly when serum is used intraspinously in the management of nonpurulent infections of the central nervous system, as in tetanus and syphilis, these sudden and marked changes in the peripheral blood pressure are as a rule not noticeable. Late in the course of tetanus sudden respiratory changes are commonly seen, due possibly to the selective action of the toxin. In purulent conditions, however, the process is always acute, and the increased sensitiveness to spinal manipulations is always present. In a recent case of pneumococcic infection of the meninges, the intraspinous injection of pneumolytic serum was likewise only possible through the use of the blood pressure control method. These results at any rate tend to show that care should be exercised in all intraspinous medication.

9. The Cecum in Abdominal Disorders.—J. M. Wainwright believes that it is rarely if ever justifiable to limit any operative interference to simple removal of a supposed chronic appendix, unless the other organs in the right abdomen are carefully examined and found to be normal, or unless the appendix itself shows unmistakable gross signs of disease. Such incomplete intraabdominal operations lead to many failures to give relief. When feasible, the cecum should be examined during any operation for chronic abdominal disease, especially if constipation has been a marked feature. Attention to the cecum at the time of these operations is quite as important as attention to the appendix. It will avail little to remove a normal appendix on such occasions "on general principles" if a dilated and movable cecum is left behind.

10. Renal Tuberculosis.—J. A. Gardner concludes that early diagnosis is the chief essential in the treatment of renal tuberculosis. Ureteral catheterization and careful examination of the urine for tubercle bacilli is the only method of diagnosing a unilateral infection. Early operation offers the best chance of cure. The removal of a tuberculous kidney does not constitute a cure. Hygienic aftercare is an essential to that cure. The few cases that have been reported as cured by palliative methods cannot weigh against the preponderance of evidence that when possible the tuberculous focus should be removed.

Journal of the American Medical Association.

November 21, 1914.

1. The Wet Nurse in Hospital Practice. F. S. Churchill.
2. Urinary Analysis in the Diagnosis and Treatment of Diseases of Infancy and Childhood. R. G. Freeman.
3. Amebic Dysentery in Children. L. R. DeBuys.
4. A Year's Experience with Contagious Disease Nurses W. H. Price.
5. Cerebellar Symptoms and Cerebellar Localization, including Kinematographic Observations on Cerebellar Phenomena. C. K. Mills and T. H. Weisenburg.
6. Carcinoma, Syphilis, and Tuberculosis Coexistent in the Same Patient, with Report of a Case. E. Kellert.
7. The Reconstruction of the Nasal Septum After the Submucous Operation. J. A. Babbitt.
8. Value of Roentgenography in Diagnosis of Diseases of Larynx and Trachea. S. Iglauer.
9. The Feeding Value of Sanatogen Compared with Commercial Casein with Respect to Maintenance and Growth J. P. Street.
10. Bacteriology of Cholecystitis and Its Production by Injection of Streptococci. E. C. Rosenow.
11. End-Results in Cases of Gastric and Duodenal Ulcer. E. P. Jolsin.
12. Gastric Cancer in the Young. A Study of Sixteen Instances in Patients Under the Age of Thirty-one. F. Smithies.
13. Landry's Paralysis. Report of a Case with Necropsy. E. D. Fisher.
14. Morbidity Reports and Statistics. A Discussion of the Provisions of the Model State Law for the Report of Controllable Diseases. J. W. Trask.
15. Unfavorable Complications Following an Intradural Injection of Neosalvarsan. A. Gordon.
16. Application of Radium in the Bladder for Carcinoma, with Report of Two Cases. F. J. Schoenenberger and S. W. Schapira.
17. A Case of Bacillus Dysenteriæ Septicæmia. W. T. DeSautelle.
18. Hygroma of the Groin. P. W. Roberts.

1. The Wet Nurse in Hospital Practice.—By F. S. Churchill. (See MEDICAL RECORD, June 27, 1914, page 1194.)

2. Urinary Analysis in the Diagnosis and Treatment of Diseases of Infancy and Childhood.—By R. G. Freeman. (See MEDICAL RECORD, July 4, 1914, page 39.)

3. Amebic Dysentery in Children.—By L. R. DeBuys. (See MEDICAL RECORD, July 4, 1914, page 39.)

5. Cerebellar Symptoms and Cerebellar Localization.—C. K. Mills and T. H. Weisenburg state that the so-called cerebellar ataxia, now regarded as a symptom complex rather than as a pure symptom, has been clearly differentiated from the ataxia of tabetics. Luciani's astasia, asthenia, and atonia are acquiring a new interpretation. The authors' studies emphasize the fact that asynergy is the fundamental symptom of cerebellar disease. Cerebellar tremor and the new symptoms, hypermetry and adiadokokinesis, all now

recognized as important cerebellar disorders, when reduced to their symptomatic elements, are seen to be dependent in large part if not entirely on loss or disturbance in the power of performing more or less complex movements together for the accomplishment of a definite end. Luciani's asthenia, atonia, and astasia are to be regarded not so much as special manifestations of asynergy as derivatives or resultants of asynergic effort. Asthenia is due to the exhaustion which results from efforts to perform movements which cannot be properly grouped and directed. Cerebellar atonia, which is very irregular in its expression, is a relaxation dependent on the fact that tonectic stimuli from the cerebral cortex cannot rhythmically combine with unsynergized movements. Primarily, tone is a cerebral, not a cerebellar attribute. How shall one apply the known facts of cerebellar localization in neurologic diagnosis? Simply by bearing in mind that when the trunkal movements and those movements of the limbs which must act with them to preserve static and dynamic equilibrium are affected, the vermis must be involved in whole or in part. The associated involvement of one lateral lobe in the vermal lesion will be largely determined by unilateral dysmetric phenomena, the extent of the anteroposterior involvement of the inferior vermis by the preponderance of asynergy in either the lower or the upper limbs. In the authors' kinematographic studies the presence of abnormal pelvic girdle movements in one case and of abnormal shoulder girdle movements in another, these symptoms being sometimes more marked on one side than the other, seems to give the key to the localization of the lesions both as regards their anteroposterior and lateral positions.

8. Roentgenography of Larynx and Trachea.—S. Iglauer points out that satisfactory diagnoses of diseases of the larynx and trachea can usually be made by the ordinary method of examination, but observations for the most part are limited to a study of the changes in the lining mucous membrane and give no certain information concerning the changes in its underlying and adjacent structures. The *x*-ray examination gives additional information concerning the pathological changes in the underlying cartilages, which are more or less involved whenever the laryngeal mucous membrane is the seat of a chronic disease process, such as tuberculosis or syphilis. In stenosis or distortion of the lumen of the larynx or the trachea, *x*-ray examination usually reveals the seat, the nature, and the extent of the lesion. The knowledge thus gained before operative procedures are undertaken on the larynx is of great value. Roentgenography also enables one to study the effects of operation and the position of tubes, etc. Owing to the ease with which it is carried out, this method is of a special value in the examination of children or nervous patients.

10. Cholecystitis and Streptococci.—E. C. Rosenow notes that the common presence of streptococci in the wall of the infected gall-bladder and in the center of gallstones, often in pure culture, while absent from the bile, and their affinity for the gall-bladder in animals are strong evidence that streptococci are the cause of cholecystitis in man far more frequently than is believed and serves to explain the good results reported by some as following cholecystectomy in cases of myocarditis, arthritis, and other conditions.

The Lancet.

November 14, 1914

1. Some Clinical Contributions to the Study of Glycosuria. N. Tirard.
2. Some of the Problems of Gunshot Fractures. E. W. Hey Groves.
3. The Incidence of Plague in Europe, with Special Reference to the Rôle Played by the Rat. C. Strickland.
4. Oculomotor Paralysis of Otitic Origin. F. H. Westmacott.
5. The Occurrence of Acute Emphysematous Gangrene (Malignant Edema) in Wounds Received in the War. R. H. Jocelyn Swan, I. Jones, and J. W. McNee.

1. Glycosuria.—N. Tirard states that one has learned the value of early relief of pent-up pus, of early removal of gangrenous tissues, and of the adoption of measures to prevent septic absorption. Can one not go a step further and add yet another theory of glycosuria which may knit together in a new light the results of clinical observation, of physiological experiments, and of pathological investigations? While greater influence on glycosuria is exerted by diet rather than by drugs, the remedies which have proved most efficacious, the salicylates, are those which are ordinarily credited with the power of controlling toxic processes resulting from the growth of microorganisms. From the experimental side glycosuria has been induced in dogs by injecting into the pancreas irritants which have produced pancreatitis or extensive sloughs. By the removal of sloughing tissues, as in carbuncles, in perforating ulcers, and in gangrene, one finds clinically that glycosuria is quickly reduced. To the author these observations, collectively, warrant the suggestion that some cases of glycosuria depend upon a perversion of pancreatic secretion due to toxic absorption. If this view is correct, it may lead to the employment of a vaccine to counteract the toxic influence.

3. The Incidence of Plague in Europe.—C. Strickland concludes that the black rat was responsible for the great plagues of Europe in the past. The epidemics had a summer incidence due to the increased flea prevalence at that season. When good housing became the vogue the black rat disappeared. The brown rat did not vanquish him. At the same time the brown rat increased owing to the introduction of conditions which suited him. He has not proved a factor of any importance in the epidemiology of plague, because his shyness of man takes him as far as possible from man and decreases the chances of infecting him; his shyness takes him away from the greater centers of population, where it would be easier to start an epidemic—he is essentially a country-side rat; and in the summer the fact that he is dispersed over the country-side in search of food lessens the probability of an epizootic among his species by, it is calculated, 250 times. This fact also shows that whatever danger he creates is accentuated in the winter, which proves that he was not responsible for any of the epidemics of the past, occurring as they did in summer. It also shows that the best and most useful time of the year to attack him is in the winter. Measures directed against the black rat should be the replacement of wooden by stone structures; against the brown, no access to food supplies, street paving and concrete basements; ferreting, trapping, and viruses in the winter; good houses instead of rows of "jerry-built" structures. In general the author concludes that plague has no further potential epidemic incidence in Europe, wherever the brown rat has replaced the black.

British Medical Journal.

November 14, 1914

1. The Borderland of Disease. G. Rankin.
2. Our Present Knowledge of the Thyroid Gland. With a Preliminary Report on a Case of Thyroid Grafting. M. Mamourian.
3. Nicolle and Blaizot's Vaccine in the Treatment of Gonorrhea. R. Donaldson.
4. Blood Platelets in the Treament of Disease. L. Dimond.
5. Insects and War: Ticks. A. E. Shipley.
6. Epidemic Poliomyelitis. A. A. Pim.

1. The Borderland of Disease.—G. Rankin believes that many physicians as a rule do not appreciate the full significance of the small disabilities which seem to be mere ripples on the surface of the placid stream of unbroken and reliable health, but as the months and

years pass on evidence accumulates and compels these physicians to recognize that they have confused the "post" with the "propter" or alternatively the "propter" with the "post," and have failed to grasp the true inner significance of the early phenomena whose real meaning cannot be mistaken when illuminated by the fuller evidence of pathological tissue change. In the pulmonary system cases occur constantly in which misinterpretation of or neglect to search for the explanation of early and often unobtrusive signs allows the enemy to gain full possession, whereas he might have been kept at bay or defeated if he had been resolutely opposed while he was still merely a borderland foe.

4. Blood Platelets in the Treatment of Disease.—L. Dimond has employed blood platelets therapeutically in three definite ways. In the first the blood platelets are isolated from a person in perfect health, the absence of specific disease being determined by means of the Wassermann test, and of tuberculosis by means of the von Pirquet reaction; the platelets so obtained are used parenterally in varying amounts according to indication, in order to reinforce the powers of the body against the different local and general diseases due to bacteria. In addition to satisfactory clinical results following the administration of blood platelets, determinations of the opsonic and phagocytic index, quantitative agglutinin tests, as well as complement deviation reactions, indicate that after each of such injections there is a very marked rise of the antibody content of the blood. The different immunity reactions applied to the platelets and their containing plasma, more especially when applied thereto after recovery from microbic disease or after preliminary vaccine injection, indicate that they contain a very large part of the different antibodies produced in response to bacterial invasion of the organism. In addition to germ-caused diseases, the exhibition of blood platelets has been found satisfactory in cases of hemoptysis, hematemesis, and renal hemorrhage. A second way in which the author has employed blood platelets therapeutically in the treatment of bacterial disease has been as follows: The specific organism is isolated from a patient and with a vaccine made therefrom a healthy friend receives several injections until the various opsonic or agglutinin reactions indicate that this person's serum has a high antibacterial content to this particular organism. The blood platelets and their plasma are then obtained and used in the treatment of the original case. A third method, used in cases in which the toxemia is not extreme, such as chronic ulcers, furunculosis, acne, and tuberculosis, has been to sensitize vaccines obtained by isolating the organism from the patient's lesions by means of the platelets and their plasma.

Berliner klinische Wochenschrift.

October 12, 1914.

Treatment of Dysentery.—According to Göppert this affection is *par excellence* the disease of troops. In peaceful times dysentery becomes a pediatric subject: so that when war breaks out a problem in pediatrics has to be transferred to adult medicine. Of late years a new class of remedies has come into consideration here, to wit, adsorbents—by no means to be confounded with absorbents. Certain drugs by reason of their great extent of superficies can fix certain poisonous substances and render them harmless. Charcoal, especially animal charcoal and in the form obtained from blood, is a substance which can fix enzymes as well as toxins, so that when given *per os* it interferes greatly with the digestive processes. Given by the rectum it possesses no advantage over ordinary bolus alba. While the tanniniferous drugs have some power over dysentery, castor oil is the best simple remedy. Opium is also useful. In fact our treatment in routine should be comprised of all the aforementioned resources. Of newer remedies uzara preparations have been recommended. Dietetic measures are all important. Patients must always begin by fasting but when this is carried too far, especially on a one-sided carbohydrate diet, recovery is much delayed, and moreover the gastric functions become disequilibrated. Coarse foods and fat are contraindicated because they show intestinal digestion. The patient must get his mineral matter from milk, cereal decoctions, whey and buttermilk, beef juice, grape juice, etc., which classes of foods also furnish sufficient protein and carbohydrate. Sugars which ferment had best be left out of the diet. The author is silent as to ipecac as a remedy for dysentery.

Care of Wounded Prisoners in Berlin.—Brettner relates the manner in which an old barracks was quickly renovated and modernized for service as a hospital for wounded prisoners. Beds, orderlies, and a medical staff were promptly on hand, and all was soon ready for the reception of 500 wounded. With great trouble an aseptic operating room was improvised, also a wholesale bathing establishment and an autopsy room. In addition there were special rooms for wound dressing and an *x*-ray room. There were no bedsteads, patients lying on sacks of straw directly upon the floor. Seventy-two stoves were required to warm the hospital, and because of old fashioned arrangements for disposal of refuse, etc., sixty cleaning women were kept busy.

First Weeks of Activity in Military Surgery.—Levy, a surgeon in charge of the hospital referred to by Brettner, describes the Russian wounded who were sent in two large detachments directly from the battlefield in East Prussia. These were a motley lot—Armenians, Tartars, and individuals with exaggerated mongolian features alongside of large, blond, blue-eyed men. All these captives had to be bathed and given clean clothing in addition to medical treatment. It was impossible for the Germans to converse with them as no provision had been made for interpreters. The most striking lesson learned thus far is the good effects of the original simple first aid dressings, coupled with a minimum of handling and interference

Case of Healed Uterovesical Fistula with Abdominal Extirpation of the Uterus.—Nagel refers to the compilation by Neugebauer of 165 cases of uterovesical fistula. Since this period various authors have added cases, the number including the Americans, Knipe and Young. No attempt is made to bring Neugebauer's statistics up to date. The author's case had been one of pregnancy in a myomatous uterus with forceps extraction of a dead child. The pelvis was not contracted. On the sixth day postpartum the urine began to escape from the vagina. The author first saw the patient about four months later and found cicatricial narrowing of the vagina. The fistula could not be inspected through the latter, but the cystoscope readily showed an opening in the bladder. A catheter passed through the fistula failed to appear in the vagina, but could be felt in the cavum uteri by the aid of a uterine sound. The uterus was the seat of a fibroid and the vagina was almost obliterated by scar tissue. The author performed an abdominal hysterectomy, not in the interest of the tumor, but because in this way alone could the fistula be done away with. The bladder was detached from the cervix and the vaginal cicatrix excised from above and the opening in the bladder sutured. The latter step of the operation failed, as the patient could not wear a retention catheter and the fistula did not completely heal. A second intervention was successful.

Insurance Medicine.

SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

THE VALUE OF DEFINITE INFORMATION.

THE officers of a life insurance company must be assured whether a policy may be issued or not, and are seldom interested in the mental processes of the medical corps through which the conclusion is reached. Theories, uncertainties and possibilities become worse than useless by interfering with a final decision. The medical department is depended upon to give quick and unhesitating opinions, but in their efforts to meet this demand, medical directors find their work too often impeded by indefinite and incomplete reports, and, as a result of vague and ambiguous phrases, an enormous amount of extra work and correspondence becomes necessary, with the inevitable delay which is apt to exasperate both the applicant and agent. A great part of this delay and irritation may be easily avoided by care and forethought on the part of the medical examiners. If the following directions are observed, the chief obstacles to a prompt and satisfactory service will be removed.

The use of the terms "fair" and "average" is strongly condemned and should not be used in describing the general appearance or value of the risk, or, in fact in any part of the medical report except in certain places specified by some of the companies writing substandard insurance. Both terms are too elastic and ambiguous to convey much significance to those reviewing the report, as the exact meaning depends upon the personal interpretation by the individual employing them. In a general way, it is suspected, when an examiner uses either the word "fair" or "average," that in his opinion the risk is not quite up to the standard and this suspicion must be cleared by thorough correspondence. The examiner has the advantage of a personal inspection of the applicant, and he should make up his mind definitely whether, judging by the physical condition, the risk is insurable or not, and this opinion should be expressed in unmistakable terms. If the examiner cannot come to a definite conclusion, a medical director who must judge the case entirely by the statements on paper, is in a poor condition to act finally.

The terms "pale" and "pallor," when employed, should be accompanied by an explanation, and the cause should be made clear. In other words, it should be made plain whether the pallor is due to anemia or some form of disease, or whether it is the result of indoor occupation and confinement, or is an inherited complexion. The term "plethoric" should be explained in the same way. A flushed, full face may be due to actual plethora, or, on the other hand, merely to out-door life. Even the so-called "apoplectic tendency," indicated by dilated capillaries and heavy features, may be the result of exposure to the elements, or may arise from an indulgence in too much food or wine.

In giving an account of the personal history, the examiner should invariably include the dates, duration, and date of last manifestation of any illness or injury. When filling in the date, examiners are often satisfied in merely mentioning the year. While there are no objections to this if the period referred to is remote, it may become important when dealing with comparatively later events. For instance, in writing a history of inflammatory rheumatism, an examiner may say that the applicant had an attack in the year 1913. A medical director going over this report in 1914 immediately becomes interested in regard to the month in which the disease occurred, as his decision may depend to a large degree upon the fact as to whether the illness occurred a few months or a year previously. Furthermore, the action may be influenced by the duration of the attack. Syphilis affords another example, as final action will depend on the date of the last manifestation of symptoms or the administration of treatment. If a company requires four years to elapse, it will not cut this period down to three and one-half years, and must, therefore, have precise dates.

Race is frequently reported as to nationality. In other words, "American" is an answer commonly given to the question, the examiner forgetting the fact that this includes whites, blacks and Indians.

The family history, especially when questionable, should prompt a cross-questioning of the applicant with the view of ascertaining whether there was any suspicion of tuberculosis, apoplexy, or insanity in members of the family who are stated to have died of acute pulmonary diseases, childbirth, dropsy, old age, tumor, nervous prostration, general breakdown, or some unknown or ill-defined cause.

No question is more perplexing than that of habits, and the examiner should do his best to elicit a definite history, as many of those who are addicted to the use of alcohol are apt to be reticent in regard to the matter or to give misleading answers. The examiner should always ascertain the greatest approximate amount used in any one day, whether the applicant indulges to an excessive degree and, if so, the frequency and duration of the excesses, and the date of the last excess.

The report of the physical examination should be expressed by the incisive answers "yes" or "no" whenever possible. Nothing is gained and trouble is apt to ensue when an examiner theorizes upon or reports some condition which, though not exactly according to rule, is not pathological in the slightest degree. A pure cardiorespiratory sound is of no importance, but there must be no uncertainty in the report when an organic murmur is detected. Likewise, a report of the occasional difference found by percussion or auscultation between the sides of normal chests will result in complications. When the examiner thinks statements of this kind are important enough to appear in his report, they must receive attention at the home office and be cleared up before a policy may be written.

It would take too large a space to discuss in detail all of the shortcomings and delinquencies seen daily in medical reports at the home offices. It may be sufficiently significant to say that about 50 per cent. of all applications reviewed pass over the desks of the approving officers one or more times, being brought up again with information which it is necessary to obtain through further correspondence before final action is possible. Sometimes these requirements may seem trivial to the examiners, but they are not imposed for the sake of giving trouble to examiners, or annoying applicants and agents, being based upon the results of the large experience which well-established companies depend.

In concluding, the examiners are advised to state all the facts likely to affect the risk, even though they have to go outside the list of questions appearing on the blank, and to give such information as they themselves would like to have were they to occupy medical directors' chairs at the home office and review the applications.

Book Reviews.

THE MEDICAL RECORD VISITING LIST OR PHYSICIAN'S DIARY FOR 1915. Newly revised. For 30, 60, or 90 patients a week. Price, $1.25 to $4.00. New York: William Wood & Company.

THIS visiting list is too well known to need description. It contains the usual ruled pages for visiting list, consultation practice, obstetrical engagements and practice, record of vaccinations, register of deaths, addresses of nurses, patients, and others, and cash account. There is also much useful matter on surgical emergencies, dosage, etc. The paper, though thin, is good and has a suitable writing surface; the book is attractively bound: and the present writer, after using this visiting list for fifteen years, feels that he can confidently recommend it to his fellow practitioners as thoroughly satisfactory.

THE PHYSICIAN'S VISITING LIST (Lindsay & Blakiston's) for 1915. Sixty-fourth year of publication. Price, $1.25 to $2.50, for 25, 50, 75, or 100 patients per week. Philadelphia: P. Blakiston's Son & Co.

IT is difficult to say anything new of a publication that comes out for the sixty-fourth time. There has been little change in this visiting list for a number of years, and there is little need of change, for its arrangement is convenient and those who have become acquainted with it through long use will naturally prefer it in its familiar form. In addition to the blank pages for patients, obstetric engagements, records of births and deaths, and cash account, there are the usual dose tables, directions for first aid, list of incompatibilities, and table for calculating the period of uterogestation.

DER SALVARSANTOD, SEINE URSACHE UND SEINE VERHÜTUNG. Intravenöse oder Intramuskulär Salvarsaninjektion? Von Dr. CARL SCHINDLER. Spezialarzt für Hautkrankheiten in Berlin. Price, 4.80 Mks. Berlin: S. Karger, 1914.

DR. Schindler is a sturdy advocate of intramuscular injections of salvarsan and resumes in this pamphlet the reasons and experience which have caused him to form this opinion. He first prepared the 40 per cent. salvarsan oil emulsion "Joha" which he has used with success in his experiments.

DER GEGENWÄRTIGE STAND DER PATHOLOGIE UND PROPHYLAXE DES DIABETES MELLITUS, sowie die Therapie des Frühstadiums. Von Priv. Doz. De K. A. HEIBERG in Kopenhagen. Price, 1.40 Mks. Halle a. S.: Carl Marhold Verlagsbuchhandlung, 1914.

HEIBERG gives an interesting résumé of the importance of diabetes in eugenics. He emphasizes the necessity of rest in bed and the advisability of poorer patients being treated in the hospitals instead of in the outpatient department. Heiberg does not advocate oatmeal cures. He gives a series of receipts for dinner dishes, and bread and emphasizes the necessity of considering diabetic treatment of life-long duration.

DIE PERSÖNLICHE PROPHYLAXE DER VENERISCHEN KRANKHEITEN. Von Dr. med. MAX MÜLLER, dirigierenden Arzt der Abteilung f. Hautkrankheiten am städtischen Krankenhause zu Metz. Price, 1.80 mks. Halle a. S.: Carl Marhold Verlagsbuchhandlung, 1914.

DR. Müller believes that gonorrhea is best avoided by injections of 10 to 20 per cent. protargol or from 5 to 10 per cent. albargin, and that a non-fatty sublimate salve is the best preventive for syphilis in the male. He agrees with Metschnikoff that every physician should consider it immoral to refrain from advising personal prophylazis as a means of combating these scourges.

DISEASES OF THE STOMACH AND THEIR RELATION TO OTHER DISEASES. By CHARLES G. STOCKTON, M.D., Professor of Medicine, Medical Department, University of Buffalo; Attending Physician, Buffalo General Hospital, etc. With five plates, twenty-two radiograms, and sixty-five illustrations in the text. New York and London: D. Appleton & Company, 1914.

THE present book on diseases of the stomach emanating from the pen of one of the best clinicians of America and one of the foremost pioneers in gastric affections will be welcomed by the medical profession. Stockton has frequently called attention to the importance of reflex irritation as the source of various forms of dyspepsia. In this connection the author says: "I am satisfied that no unprejudiced clinician who has open-mindedly studied the question is able to deny that a large number of dyspeptics are relieved by the removal of irritation, acting reflexly through nerve paths. Nervous dysharmony is undoubtedly at times responsible for dyspeptic symptoms, yet all cases of dyspepsia are not cured by the amelioration of a focus of irritation. . . . Some are more important than others; for instance, the gall-bladder, the appendix, and the eyes, and each of these are worthy of special consideration."

Concerning the expressions "vagotonia" and "sympatheticotonia," Stockton justly says that these conditions are not new and correspond to what was formerly designated as "irritative" and "depressive" neuroses.

Stockton advocates early resort to surgery in gastric cancer, although for the present the results are far from being good. He says: "Experience has made me skeptical as to the ultimate cure of gastric cancer by surgery or other means except in a few most favorable cases. Great relief or respite of the disease may be procured, but rarely permanent cure. Ultimately, unless some intercurrent affection kills the patient, he returns to the physician for medical treatment; that is to say, for relief of his suffering."

Stockton deprecates the too frequent resort to exploratory laparotomies. He expresses himself as follows: "The statement is frequently heard that all patients complaining of the stomach, who are not relieved by medical treatment in a given time (variously estimated from one to six weeks) should undergo surgical operation. This arbitrary rule is unreasonable and highly improper until surgical expertness has rendered a celiotomy devoid of objection. To expect a physician to cure a serious disease within a definite time is to be oblivious to the natural history of pathological processes. No hard and fast rule applies. The exercise of sound judgment after all the evidence is obtained is the only conscientious guide. It is a mistake to assume that a surgical exploration necessarily lays bare the whole truth: in fact, it often fails to disclose a cancer which is actually present yet inaccessible."

Stockton's book is certainly a very valuable addition to medical literature and no practitioner should fail to have it in his library.

TASCHENBUCH FÜR KRIEGSCHIRURGEN, Ratschläge und Winke für die feldärztliche Tätigkeit auf dem Marsche, während und nach der Schlacht. Von General-Oberarzt a.D., Prof. Dr. A. KÖHLER. Price, 2.50 Marks. Berlin and Vienna: Urban und Schwarzenberg, 1914.

THIS little book is written for the guidance of the practising physician suddenly called from civil life to war, who finds himself confronted with many perplexing problems of military surgery and sanitation to which in his whole professional life he had never given a thought. The author speaks with authority, as well he may, and wastes no words in argument or weighing of theories; but states directly in a few positive words just what is to be done to meet the emergency of the moment. The work is capitally done, the instructions are clear and to the point and contained in some ninety pages of a book that could be carried in the coat pocket and could be read while in the train on the way to the front.

URSACHEN UND WESEN ANGEBORENER DIATHESEN. Eine experimentelle Studie. Von Stabsarzt Dr. HANS ECKERT, Assistant der Königl. Universitäts-Kinderklinik der Charité, Privatdozent an der Universität, Berlin. Price, 3.50 Marks. Berlin: Verlag von S. Karger, 1913.

THIS brochure details the results of an experimental study carried out on dogs in order to determine the actual nature and the causes of inherited diatheses. There are three chief hypotheses that have been advanced to explain the origin of these diatheses: Virchow's conception of an inherited vulnerability of the lymphatic apparatus; Rokitansky's doctrine of the dyscrasias or faulty constitution of the vital milieu, the blood; and Heubner's theory of a functional impairment of the capacity of individual organs. To the above there has more recently been added Czerny's hypothesis of a congenital defect in body chemistry. As the result of his metabolism experiments on dogs Eckert concludes that a defect in bodily chemism can not be regarded as congenital in the sense implied by Czerny, but is rather to be attributed to a functional disturbance of the delicate mechanism that regulates the bodily metabolism.

Society Reports.

THE PRACTITIONERS' SOCIETY OF NEW YORK.

Two Hundred and Sixty-fourth Regular Meeting, Held October 9, 1914.

DR. LEWIS A. CONNER IN THE CHAIR.

Precancerous Lesions.—Dr. JAMES EWING presented this paper. (See page 951.)

Dr. C. L. GIBSON said that he had always felt that a large proportion of these cases of simple inflammation developed subsequently into carcinoma, whether as a separate disease or not. In some cases of disturbance in the breast the lumps did not bother the patient in the slightest degree for five or ten years; then perhaps they began to hurt. Unfortunately, in these cases the pain came late and the condition was not noticed until pain occurred. He believed that there was a precancerous stage in these diseases. He had been operating for some years on these breasts and had done many operations and had come to the conclusion that a great many more radical operations should be done. Often one could persuade a woman to have something done if it could be promised that she would not be badly disfigured. In these cases the apparent lesion could be taken, but he would rather amputate the breast, especially in a woman approaching carcinoma age. In the cases he had operated on none of the women had developed carcinoma.

Dr. EWING asked if he meant after these partial plastic excisions.

Dr. GIBSON said yes: he said there was one part of the question that he did not understand; that was the question of trauma. Dr. Ewing had stated that in eczematous ulcers of the leg the majority became carcinomatous. The speaker had seen thousands of cases of ulcer of the leg and had seen only one case of epithelioma occur with ulcer of the leg. The relationship between irritation and trauma was interesting. Take, for instance, the organs which underwent changes—the breasts and the uterus; they were the favorite seat of trauma and they developed carcinoma very often. Yet the anus was the seat of frequent trauma, and you seldom saw carcinoma of the anus. The large intestine had many carcinomata, but it was not a glandular organ and did not undergo changes in rotation to function. The small intestine was glandular, but you did not get carcinomata of the small intestine; you might get an occasional sarcoma, yet in functional opportunity the small intestine had as great possibilities as any organ of the body. In regard to the prostate, Dr. Gibson doubted the relationship of hypertrophy to carcinoma. The favorite age of carcinoma of the prostate was between fifty and sixty years, and cases with hypertrophy were over sixty as a rule. In regard to the pylorus, he did not understand the transformation from ulcer to carcinoma. At one side of the pylorus it was frequently seen, but not at the other side. Ulcers of the duodenum were frequent, but a change of a duodenal ulcer to carcinoma was almost unknown. He confessed the whole question seemed a very difficult one to him.

Dr. WM. H. PARK said that though this might have no bearing on the present discussion, he should judge that the trend of the argument was away from the necessity of microorganisms being a factor in the production of cancer.

Dr. J. C. ROPER asked if Dr. Ewing considered that intracanalicular adenofibromata underwent malignant changes.

Dr. EWING in answer to Dr. Roper, said they did not often do so. He thought they arose from another portion of the breast, but a very small proportion of them might become malignant. He had never seen any lesions in intracanalicular fibromata suggesting a precancerous state.

Dr. ROBINSON asked Dr. Gibson how much of the breast he took out when he operated on the case of a hard nodule in the breast of a woman, and how radical should the removal be. He said, in his experience a non-malignant lump of the breast might sometimes turn out to be malignant later on.

Dr. GIBSON, in reply to Dr. Robinson, said that that was a pretty hard question and one could not make a hard and fast statement. In the case of a young woman going to be married and caring particularly for her personal appearance he did not amputate. If the patient was very intelligent he explained to her that she would probably not be troubled for many years, but that these things never went away and that it was better to have the lesion removed at once. When she got older she ran the risk of a malignant growth. If you told the average hospital patient that a lump in the breast was nothing she would never again seek proper advice, and when she did develop carcinoma she would say that a doctor ten years ago told her it was not malignant. The American Surgical Association adopted a resolution recommending that every woman be told to seek the advice of a competent surgeon for a lump in the breast. His attitude was the greatest good of the greatest number. He did not believe that all lumps were malignant, but if we assumed that they were there would be fewer women die of cancer of the breast. He had done many partial excisions, but if he could get a woman to have the operation done he preferred a radical operation.

Dr. DANA said that Dr. Ewing had not made any mention of precancerous lesions in the central nervous system. Of course, extremely few primary cancers occurred there. Perhaps it was because these tissues were so well protected. But, so far as the matter of irritation was concerned, there were very many chronic diseases of the central nervous system, such as old hemiplegic foci and those of multiple sclerosis, but no malignant lesions ever developed on the basis of these. On the other hand, sarcomata were frequently observed as the result of irritative lesions due to trauma.

Dr. EWING said he had another chapter on pre-sarcomatous lesions.

Dr. CONNER said that the question of dealing with a single circumscribed lump in the breast was simpler than that of the slight, diffuse changes that were sometimes seen in both breasts as a result of chronic mastitis. An unmarried woman, aged forty years, came to him for advice three years ago. In a number of scattered areas throughout both breasts the breast tissue was slightly firmer and more distinct to the feel than elsewhere. There were no symptoms. In this case there was obviously nothing in the nature of a neoplasm and the patient was reassured upon this point, but was cautioned to return at once in case any change was noticed in either breast. A few weeks ago she appeared with a distinct lump in her right breast, which she admitted she had noticed for a month or two, but which had only then begun to be painful. In this case nothing short of an amputation of both breasts could have removed all possibility of future trouble, and he would like to ask Dr. Gibson if he thought so radical an operation as this should have been advised when the patient was first seen.

Dr. GIBSON said that if the woman was forty years of age a double amputation would have been the only thing to do.

Dr. EWING said his object in gathering these data together, most of which were well known, was to assist in the effort now being made to reduce the mortality from cancer. While one might indulge the hope that advanced cancer might some time be controllable, there was no certainty that we should ever see it. Although it was often extremely difficult to advise the patient properly in the presence of precancerous conditions, he had been astonished to see so many unfortunate results from failure to deal promptly with early stages of carcinoma. At the Memorial Hospital one frequently heard the story that patients received reassuring statements from physicians, but when they next came for consultation it was too late. There was no doubt that practitioners in general did not realize the importance of precancerous conditions. He also found a reluctance on the part of some pathologists to admit the significance of precancerous pictures and an inclination to make light of the confidence with which he, and many others, accepted these lesions as preliminary to the clinical appearance of cancer. He did not think that he had ever differed from Dr. Gibson in any of his views concerning the breast. Several of the cases he had studied had come from Dr. Gibson's operating table, and he thought he had taken a correct and progressive position. In the case of the prostate he believed that histories and histological studies were seldom made with sufficient care to determine the existence of chronic inflammatory changes preceding carcinoma.

Artificial Stenosis of Pylorus with Gastroenterostomy.

Dr. GIBSON said he had brought two *x*-ray plates, illustrating the question of gastric surgery. We did not always cure ulcer of the stomach by doing gastroenterostomy. It had been rightly thought that the best results were in cases accompanied by stenosis of the

pylorus. This was a fair statement, but not absolute. The case presented was a man twenty years old, who was admitted to the New York Hospital in the Spring of 1914. His early history was unimportant. For the past year the patient had suffered frequently from attacks of pain in the abdomen, made worse by taking food. The stomach contents showed blood and hyperacidity. The string tests were sometimes positive, sometimes negative. The *x*-ray picture was negative. The patient's distress disappeared under soft, solid diet and rest in bed. He came under observation again in June, with a recurrence of all his troubles. He was operated on June 13. An irregular, hard, callous ulcer was found on the posterior superior wall of the stomach, juxtapyloric. A posterior, no loop gastroenterostomy with five rows of sutures was performed with Carwardin clamps. A strip of fascia 4½ inches long was removed from the fascia lata and fastened snugly around the prepyloric portion of the stomach, proximal to the ulcer. Shortly after the pylorus was ligated the patient developed a severe hiccough, although fully anesthetized. His convalescence was smooth. He was discharged sixteen days after operation, when it was noted that the patient was taking soft, solid diet with no pain, no gastric distress. He was re-examined on October 5, 1914. He presented at that time every appearance of good health and well being. He complained occasionally of a feeling of fullness in the left side of the epigastrum. Digestion was good and he was able to eat everything. Weight, 140 pounds, a gain of fourteen pounds in three months. The analysis of gastric contents showed: Total quantity, 20 c.c.; free HCl, 50; total acidity, 90; faint bile stain (guaiac) negative. The interesting feature of this case was first the complete relief of symptoms, increase of nutrition following operation, and the demonstration (1) that a strip of fascia sewed around the prepyloric portion of the stomach is capable of healing well; (2) that it accomplished its purpose—exclusion of the pylorus; that is, preventing the stomach contents from coming in contact with the pyloric ulcer and securing the maximum benefit of rest. The *x*-ray picture showed conclusively that the exclusion was absolute, as bismuth was seen distinctly coming out of the gastroenterostomy opening, while not a vestige of it appeared from the pylorus. The operation of exclusion of the pylorus had only lately been systematically considered. It had not received so much attention in America as abroad. It was probable that the operation was not required as a routine measure, and it might be that the troubles observed in certain cases were due, not to omitting this step, but a faulty technic of gastroenterostomy, a condition which was probably commoner than generally admitted. Many methods of the exclusion of the pylorus had been proposed, the most radical being that of Eiselberg, who actually divided the prepyloric portion of the stomach, sewing up the cut ends and performing gastroenterostomy. This was too severe an operation to be generally recommended. The extreme of simplicity had been practised by Lambotte, who passed a silk purse string suture around the pylorus, tying it tightly enough to produce obstruction without necrosis. Metallic bands had been devised and used by Brewer also for this purpose. His own preference for the present would be the operation just described.

Dr. THACHER asked where Dr. Gibson got the fascia.

Dr. GIBSON said he got it from the abdominal wall. It could he obtained from the thigh, but that involved making another wound.

Arseno-Ferratose: Its Efficacy in Diseases of the Thyroid Gland.—Dr. BEVERLEY ROBINSON of New York read this paper, in which he reported good results from the use of this preparation in myxedema and cretinism.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held October 27, 1914.

DR. GEORGE W. KOSMAK IN THE CHAIR.

Two Cases of Broad Ligament Varicocele.—Dr. HENRY DAWSON FURNISS presented these patients. He stated that the first patient was 25 years of age and had had two children. Since the birth of her first child, in 1910, she had complained of dull, aching pain in the lower abdomen and a bearing down sensation. In addition she had pain over the left iliac crest and in the left lumbar region. These pains were made worse by walking or exertion and were relieved by rest in the recumbent position. This patient also complained of indigestion and had lost twenty-five pounds during the past four years. The woman had a poor abdominal and general musculature. The only abnormality revealed by examination was a suggestion of elastic resistance on either side that disappeared on pressure. A diagnosis of broad ligament varicocele was made. At operation the ovarian veins on both sides were found to be enlarged to the size of an adult fourth finger and stood out very prominently. Both broad ligaments were a large mass of veins. The ovarian veins on either side were doubly ligated at the pelvic brim and two ligatures were placed around the veins in the base of the broad ligament. A Gilliam operation was done to give the uterus an extra support and add another help in the prevention of passive congestion. The patient had been greatly improved since the operation, though at times she still had slight pelvic pain. The causative factor in the production of the varicocele had not been removed, namely, lack of fat and muscular development.

The second patient was 23 years of age and had been married three years. In March, 1912, she had a difficult but not an instrumental labor. She received a laceration of the perineum at this time. For the past six months she had complained of constant, dull, aching pain in the lower abdomen, which at times became sharp and cutting. All the symptoms were worse when she was working and were relieved by rest. The physical examination revealed nothing abnormal except a slight perineal relaxation and an indefinite elastic resistance in the adnexal region. Because of the history of constant pelvic discomfort, made worse by work and relieved by rest, together with the negative pelvic findings, a diagnosis of pelvic varicocele was made. At operation, with the patient in a moderate Trendelenburg position, the ovarian veins at the pelvic brim were the size of an adult forefinger; they were also much enlarged in either broad ligament. The ovarian veins on either side were doubly ligated and a Gilliam suspension operation done with the idea of lessening passive congestion in the pelvis. In addition a perineorrhaphy was done. The patient made a good recovery. The day after her operation the patient volunteered the information that for the first time in three months she was free from headache. She had been free from pelvic pain since the operation. In both of these cases the diagnosis was made before the operation, and in one it was the only reason for the operation. It was the speaker's belief that many of the patients that they saw complaining of great pelvic discomfort, made worse by exertion and relieved by rest, had pelvic varicocele, and that if this was borne in mind they would be able to diagnose most of them before operation.

Complete Removal of Adenocarcinoma of the Uterus by Exploratory Curettage. Report of Three Cases and Demonstration of Extirpated Uteri and Microphotographs of Sections from the Same.—Dr. L. J. LADINSKI presented this communication, which he prefaced by the statement that the fact that an early adenocarcinoma of the uterus could be removed completely by curettage had been established as an undoubted scientific fact in 1896 when Gessner read a paper on "The Value and Technique of Exploratory Curettage," and incidentally reported two cases. Up to the present time nineteen cases had been reported, all of which Dr. Ladinski reviewed and to which he added three of his own.

CASE I.—The first case had been cited by Dr. I. C. Rubin as an example of incipient carcinoma. Dr. Ladinski had seen this patient in consultation because of profuse uterine hemorrhage. She was 51 years of age, had had four children, and had been bleeding for a number of months. She had been curetted several times, but the hemorrhage still persisted. The uterus was large and soft and a nodule could be felt near the fundus. A preliminary curettage was done for diagnostic purposes. On examination a typical adenomalignum with early adenocarcinoma was found. The glands were enormously enlarged and increased in number and the hyperplasia was so marked that the glands lay *dos-a-dos*, very little stroma intervening. There was papillary proliferation of the epithelium within the lumena and also an actual increase in the layers of cells, which were atypical in appearance and showed mitosis. A pan-hysterectomy modified after Wertheim was done. The uterus on section showed an elongated polyp. Microscopical examination of this

polyp and of the uterine mucosa showed, however, no area of carcinoma. It was evident that all the lesion had been removed by the curette. The bleeding in this case was probably due to the submucous polyp, the incipient cancer having been grafted on the polyp.

Case II.—This patient was 47 years of age, married, but had never conceived. Two years ago the menses had ceased for a whole year. For the past year she had bled irregularly. Examination showed a uterus somewhat larger than would be expected in a woman who had never conceived and had begun the menopause. A small bleeding mucous polyp protruded from the os which on microscopical examination proved to be benign. As the bleeding continued after the removal of the polyp, curettage was advised and performed. The pathological report of the scrapings was "adenocarcinoma." The patient declined a pan-hysterectomy. She then consulted Dr. Coe who also advised a hysterectomy. A little later she consulted a third surgeon who told her that she was not suffering from cancer, and never did have cancer. Two subsequent curettages done by this surgeon showed no signs of cancer on examination by competent pathologists.

Case III.—This patient, 63 years of age, had had twelve children, and had passed the menopause ten years ago. She consulted the writer because of hemorrhages that had lasted for the past ten weeks. Vaginal examination showed the uterus large and the os patulous. There was a uterine polyp with the pedicle apparently attached close to the fundus. The polyp could not be excised because of its excessive friability, and its removal was effected piecemeal with the curette. about sixty or seventy irregular masses about the size of a hickory nut being removed. Microscopical examination of sections of various masses showed necrotic adenocarcinoma. A pan-hysterectomy was done. The extirpated uterus showed macroscopically apparently healthy endometerium. A small pedicle still attached to the posterior wall near the fundus showed on microscopical examination no traces of adenocarcinoma nor did the sections of the uterus show any traces of malignancy. In these twenty-two cases, all of which were carcinoma of the body of the uterus, the disease was removed *in toto* by the curette. Of these, nine, and possibly ten, were instances of carcinomatous degeneration of uterine polypi, and in the remainder the growth was localized in the mucosa. In four of the cases no radical operation was done and the patients remained well for from one to four years. The method of handling the slides at the Beth Israel Hospital precluded the possibility of a mistake in the slides. It was proven beyond a doubt that a carcinomatous growth could be totally removed by the curette when it was limited to a uterine polyp, or when it was confined to the mucosa. There were few such cases reported in the literature because, when a subsequent curettage did not confirm the finding of carcinoma in the first curettage, the circumstance was attributed to mistaken diagnosis. Another reason for the apparent scarcity of such cases was that exploratory curettage was not resorted to as often as it was indicated and routine microscopical examination of the curettings was not practised to the extent that it should be. This was especially true in America for it was not conceivable that of the tremendous number of patients suffering from adenocarcinoma there was not a single record of this nature in this country. When clinical symptoms pointed to cancer of the uterus and exploratory curettage confirmed the dagnosis no one would question the indication for extirpation of the uterus, and there could be no question that to extirpate the uterus, even if a subsequent curettage did not reveal carcinoma, would serve the best interests of the patient. Dr. Ladinski laid great emphasis on the fact that complete removal of an adenocarcinoma by the curette could not be regarded as an adequately radical operative measure. The mere removal of the diseased area did not effect a permanent cure. Ordinary surgical rules demanded that a carcimona be removed with as wide a field as possible from the disease, and it would be contrary to all surgical rules to leave in a uterus, the seat of carcimona, even if the curette had entirely removed the diseased portion. Dr. Ladinski considered the possibility of spontaneous cure of cancer and the question of the latent state of malignancy in these cases and presented the reports of the pathologists on the cases and the uteri removed.

Dr. Eli Moschcowitz exhibited lantern slides from the three cases which Dr. Ladinski reported. The curettings from the first case showed typical adenocarcinoma, while sections from the uterine polyp showed simple adenomyoma. The curettings from the second case showed a combination of adeno and solid carcinoma. In the third the predominate lesion was an adenocarcinoma with small alveoli mixed with areas of solid carcinoma. The sections taken from the small pedicle left within the uterus after morcellement of the polyp showed hemorrhagic infiltration of a typical non-malignant adenomyoma. In the second and third cases, smooth muscle tissue was easily demonstrable within the stroma. All three specimens revealed undoubted evidences of malignancy. That a malignant tumor of the uterus could be so completely removable by the curette that no evidence of the disease remained seemed a rather strange phenomenon at first glance, but it must be remembered that many factors came into play that rendered such a contingency possible. In the first place adenocarcinoma of the uterus was a growth of relatively slow malignancy, and again, it could probably be sooner recognized clinically than a malignant tumor in the more enclosed portions of the body. There were numerous paralellisms in clinical records between the phenomenon described by Dr. Ladinski and those occurring in other parts of the body, as for instance the cure of early cancer of the rectum and larynx by simple removal of a cancerous polyp. These specimens proved the fallacy of attempting to prognosticate the clinical malignancy of a new growth by morphological characteristics alone. Mistologically these curettings showed all the criteria of a profoundly malignant growth, yet the clinical outcome showed that the condition was eminently curable.

Dr. James Ewing said that Dr. Moschcowitz had covered the ground so well that very little remained to be said from the pathological standpoint. When such a number of cases had been reported as had been reviewed by Dr. Ladinski one could not doubt the existence of such a type of uterine carcinoma, and they were not all polypoid. One might not, perhaps, be certain of the first case, but the second and third cases furnished positive evidence that this strange phenomenon could occur. The third case was unique in his experience because of the peculiar embryonal origin of the carcinoma. Dr. Ewing emphasized that cancer could not be considered as one disease but as a group of diseases and therefore no blanket rules for treatment could be laid down. The disease was different in different organs, and, moreover, it was different in the same organs and hence blanket rules could not be employed in its treatment. There should be a thorough pathological examination in every case in order to assist in determining what method of treatment was applicable in that individual case. There were various degrees of malignancy that must be dealt with in detail and he therefore emphasized the principle that one should find out with what degree of malignancy he was dealing and apply treatment accordingly.

Dr. F. M. Jeffries said that it had been his privilege to look over this series of sections and that he agreed with the findings as Dr. Ladinski had presented them. All pathologists who had had any experience had examined specimens and pronounced them carcinoma and then failed to find any carcinoma in the removed uterus, but such instances did not usually reach publication, the quarrel being limited to the pathologist and the surgeon. Although Dr. Ladinski had shown that a cure might take place after curettage there were very few cases that should go without hysterectomy.

Dr. Howard C. Taylor said that in regard to a curettage preliminary to a hysterectomy for fibroid tumor he did not believe that this was the best course. If a supravaginal hysterectomy was done after the removal of the uterus it could be opened, and if malignancy was found the cervix could then be removed. If nothing of a malignant nature was found the cervical canal could be excised with a knife and these two procedures would exclude the possibility of a malignant condition better than a preliminary curettage. The point might be raised that if a malignant condition in the fundus of the uterus was discovered by a preliminary curettage a more radical abdominal operation for the removal of the uterus would be done than for a fibroma uteri. He preferred a simple hysterectomy without previous curettage to a more extensive one after the interior of the uterus had been curetted because of the danger of scattering cancer cells into the surrounding tissues by the curette. The report of Dr. Ladinski and the cases which he reviewed furnished ample evidence that there were some cases of carcinoma of the fundus which were cured by pre-

liminary curettage. There were, however, some sources of error which it would be well to bear in mind. Pathologists did not always agree in their diagnoses of malignancy, as was shown by a case which Dr. Taylor cited. Dr. Taylor also cited a second case in which a curettage was done and the curettings pronounced to be malignant. At a subsequent operation the uterus was removed, but no evidence of malignancy was found. This seemed to be a case in which the malignant condition was entirely removed by the preliminary curettage.

Dr. I. C. Rubin said that Dr. Taylor had touched on a feature in regard to the difficulty of diagnosis which it might be of advantage to dwell upon, namely, what constituted a malignant epithelium. In certain conditions, as in healing erosions of the cervix, an alteration of the morphological character of the epithelium had been observed. The normal layer of single, slender, cylindrical cells of the cervix glands was often replaced by two or more rows of low cylindrical and sometimes cuboidal cells. Such glands, when cut obliquely, might give a rather confusing picture, the cells appearing much more irregular. There was, however, no tendency to the formation of giant nuclei, nor of deep chromatin staining, nor of atypical mitosis. He had seen similar metaplasic epithelium invading cervical and corporal polyps, and also in the chronic inflammation associated with tuberculosis and gonorrhea. From the morphologieal viewpoint such epithelium had no significance of malignaney. It was a reparative process. Occasionally they encountered an altered epithelium in the curetted material, the aberration from the normal being more in evidence, and there might be doubt as to whether the changes in the epithelium were those of a malignant growth. The best procedure in these doubtful eases was to keep the patient under careful control and observation, and if necessary a second curettage should be done. There was a third group of cases in which it was possible to recognize small cancer foci as such because of the well-marked morphological cell aberration. There was in such epithelium a conspicuous difference in the size of the individual cells, in their shape, arrangement, and chromatin content. There was no evidence of eell borders: there was clumping of the nuclei-atypical mitosis—giant nuclei, and giant cells. When these evidences were present, whether or not there was isolation of alveoli or penetration into the depth, they were sufficient in themselevs to denote cancerous epithelium. Epithelial penetrating sprouts were not absolutely essential evidence of cancer. They did occur in the majority of advanced cancers when ulceration and hemorrhage were also present. Schottlaender had shown that in 5 per cent. of cancers the growth exhibited the exophytic tendency of propagation, that was, it grew toward the uterine cavity rather than toward the parenchyma. Such growths were more amenable to radical curettage than the type that penetrated the parenchyma early and hence caused early metastases. As a rule the growth was both exophytic and endophytic, being prominently more the one than the other. There was another type of growth, and that was the so-called "sugar-coated" variety of cancer described by Schauenstein and others. This type might involve the entire mucosa of the uterus. There was slight, if any, penetration of epithelial processes. There was superficial metastasis along the subepithelial lymphatics more or less parallel to the surface epithelium. Such growths were rather uncommon, but it was conceivable that that would yield to curettage. As to whether a rdical operation should be done in the early stages of cancer of the uterus they had Schottlaender's report of eight very early cases of cancer of the uterus in one of which there was metastasis in the regional lymph nodes. The mortality from operation in these eight cases was *nil*. The ultimate prognosis as a result of hysterectomy was certainly improved, and at the present time no one would be satisfied with curettage alone as a cure even of the earliest cases of cancer of the uterus.

Dr. Herman J. Boldt stated that while the cases reported by Dr. Ladinski were interesting there was but one, and that was the second, that offered anything not heretofore known. All the other cases bore no analogy to his case number two. That case had been reported by him at the January meeting, and was the only instance that was unusual and not intelligible to him. All the cases reported by Dr. Ladinski were early cancers, cancers in the earliest stage, that had not passed the boundaries of the mucosa, or they were polypi. Such instances they all regarded as possible of cure by curettage. The case reported by Dr. Boldt was not an early cancer nor a polypus, and to show that this case was unique Dr. Boldt read the reports of the pathologist of Beth Israel Hospital and a part of a letter from Dr. Thomas S. Cullen confirming the diagnosis of adenocarcinoma. The specimens were examined by a number of well-known pathologists in this country and in Europe, and all considered it likely that there was a "mix-up" in specimens which sometimes happened even with the utmost care. Dr. Boldt said he wished to protest against the statement that he had said that this patient never had cancer and that not even a curetting had been indicated. A curetting for diagnosis was positively indicated. He had said that there was no evidence of cancer and certainly not an indication for hysterectomy.

Dr. Ladinski said that in regard to Dr. Taylor's statement, he had also been of the same opinion that it was inadvisable to do a preliminary curettage for a fibroid, but since his study of these cases and his experience in one case, he had changed his opinion and was in favor of preliminary curettage. He cited the case of one patient who had had a supravaginal hysterectomy done by another surgeon, four years ago, for fibroid which later turned out to be adenocarcinoma. A preliminary curettage would have discovered the presence of cancer. Her suffering had been intense ever since; she was operated on one year ago for intestinal obstruction. The suffering of this patient had convinced him that a preliminary curettage was very valuable and added no risk or special danger in such cases. As to the differences in the findings of the pathologists, he was not discussing these differences any more than he was discussing the differences of opinions of different diagnosticians; he was presenting scientific facts as reported by men preeminent in gynecology and pathology. He had not reported any case when there was a question as to the difference of opinion of pathologists, but reported only what was accepted without question by all pathologists. The question for discussion was in regard to the removal of the uterus after carcinoma had been totally removed by the exploratory curettage. It would be false doctrine, especially when we were trying to instruct physicians and the public in regard to the necessity for early diagnosis and treatment in cancer, to teach that in cases of this kind there should be procrastination.

The Freiburg Method of Producing "Twilight Sleep."—Dr. W. H. W. Knipe read this paper. (See page 967.)

Report of a Series of Cases in Which the "Twilight Sleep" Was Used.—Dr. Ross McPherson and Dr. James A. Harrar presented this report, which gave the results of their experience with this form of amnesia. What they had endeavored to show, if possible, was whether this method provided a safe form of amnesia for both mother and child in a sufficiently large number of cases to make the study of the technique of its use worth while, and whether or not by or after effects were developed which would contraindicate its use. The technique which they had used was that of Gauss and Kronig down to the finest possible points, and this was the technique which Dr. Knipe had just described. The cases were in most instances from the wards of the New York Lying-In Hospital, although there were included several private patients. There were in all 115 cases, all primiparæ. Complete amnesia was secured in 75 of these patients; partial amnesia in 11, and in 25 there were no results. The four remaining were too far advanced in labor to derive any benefit from the drug. In nearly all of the cases in which amnesia was secured the treatment was started three to seven hours before the termination of labor. There were no bad results that could be attributed to the use of the drugs so far as mortality was concerned. One mother developed a rapid weak pulse (140-160) for two hours after delivery, with slight delirium, but soon became normal and showed no ill effects the day following. The case was perfectly successful so far as effacement of the memory was concerned. There was no asphyxia attributable to the treatment and no hemorrhage post-partum of any moment. The average duration of labor was somewhat shorter than in cases not receiving the treatment. They had noted in general a more rapid dilatation of the cervix than usual, with a somewhat slower second stage than was normally expected. This, however, had given rise to fewer lacerations of the perineum, and when the delay seemed too long it might be shortened by the use of pituitrin. In the first one hundred

cases there were seventeen forceps extractions in the scopolamine cases compared with eleven in the untreated cases. Eight of these seventeen operations were for the arrest of the head at the outlet and strong pains would have been required in any case. Six of the remainder were due to inertia at the outlet, and could now be avoided by the use of pituitrin. The involution of the uterus and the puerperium were in all cases uneventful. In conclusion Dr. McPherson said that it seemed that in 60 or 70 per cent. of cases they had a very valuable method of abolishing a woman's recollection of pain during labor provided the described technique was carefully carried out, the cases carefully chosen, and the drugs reliable and stable, the last being of great importance. It was not a method which could be employed without considerable study of the technique and patient attention to detail, and was better carried out in a hospital than in a private house, unless the circumstances of the patient warranted the transference of a complete working force to the house. The employment of these drugs in no way lessened the necessity for obstetrical skill, but rather increased it. In short, they had here another valuable therapeutic aid for their armamentarium which in indicated cases was of much value, but which was not a panacea for the pains of labor, and had not yet reached the stage of perfection which made childbearing an entirely enjoyable process.

Dr. Abraham Rongy said that one should not take an obstetrical case and tell the patient that she would go through a painless labor, for it was not a painless labor, but an attempt to get the patient into a state of amnesia; this was the guiding point of the Gauss method. The patient did not remember the pain, and hence was as well satisfied as though she had never gone through it. In their series of 230 cases 80 per cent. of the children suffered from slight oligopnea. The first stage of labor was shortened, the second prolonged. The degree of hemorrhage was unaffected. The method was more applicable to primiparæ as in multiparæ the time was too short. In the event of the head being delayed at the brim of the pelvis they used pituitrin guardedly.

Dr. Samuel W. Bandler said that before going so far afield in the discussion of this method it would be well to ask themselves the simple question, "What do we gain?" It seemed that the labor lasted longer with this method than under normal conditions, and even though the patient forgot that she had had pain, "What have we gained?" In his experience he had not found women unwilling to undergo a second childbirth because of the pain experienced in the first. He had had a large experience with a pituitary preparation, and used it with few exceptions in the second stage of labor, as it lessened the duration of the second stage by about one-half, and he had never seen a case of asphyxiation from its use. He had used morphine, scopolamine, and hyoscine as long ago as eight years. During eight years he had tried morphine and hyoscine in atony before a forceps operation, but only in a few cases had he used these drugs according to the recent methods, but he believed that morphine, hyoscine, and scopolamine inhibited the action of the pituitary product, and if one used these drugs the addition of the pituitary did not shorten the second stage of labor. With the use of pituitrin he now had one forceps case where formerly he had four or five; not only was the duration of the second stage shortened but asphyxiation did not exist. Dr. Bandler felt assured that the oligopnea reported was due to morphine and hyoscine.

Dr. James A. Harrar said that the speakers seemed to be pretty well in accord as to the efficacy of the "twilight sleep" when the technique of Gauss and Kronig was carried out. In his experience the general effect on the labor had been a rather more rapid dilatation of the cervix than usual with a delay on the perineum. This delay, if the fetal heart was carefully watched, was in the main beneficial for the mother, resulting in a marked diminution in the number of perineal lacerations. There were thirty-seven in the first one hundred primiparæ delivered under the scopolamine seminarcosis, as against forty-five per hundred as the average in the Lying-In Hospital records in ordinary primiparous labors. Getting the patient under the influence of the drug must be gradual with the minimal dose in each case that would produce the desired effect. Examination of the mother's urine before and after labor had not shown any bad effect on the kidneys. The involution was not hastened in any way and no reason was seen for getting the patients up any earlier than was customary. From his experience he was impressed that any harm that came to the child under this treatment conducted strictly according to the technique outlined was the result not of scopolamine, but of bad obstetrics. Even better obstetrical knowledge and judgment than usual was necessary, and abdominal and vaginal examinations must be carried out as in any labor. There were two important and not uncommon difficulties that demanded attention. The first, delay on the perineum, which must be corrected with forceps, if necessary, as indicated by the condition of the fetal heart. The indiscriminate use of pituitrin for this purpose was to be condemned. Undoubtedly it was responsible for some still births where scopolamine had not been used, and there was no reason to believe it would have any better effect in these scopolamine patients. The babies that were born with more or less asphyxia were chiefly those in which there had been a delay on the perineum. This percentage was not above the average observed in primiparous labors, and these babies all promptly revived. The percentage of still births was the same, two to one hundred. The second disadvantage was the frequent development of delirium as the head distended the vulva. This was partly due to the commotion of moving the patient to the delivery table and partly to the increased pain. It was this restlessness that made him hesitate to undertake this method in a private house unless there was an abundance of trained assistance. There were certain limitations to the extensive use of this method in hospitals; it was a suitable treatment in less than 10 per cent. of the admissions. The time and attention required might be said to have been the chief obstacle to a wider use of the method. Many women came in too far advanced in the second stage to begin the scopolamine. Primary inertia he considered an absolute contraindication to this treatment. Its use was also to be avoided in cases in which operative interference was anticipated, in ante-partum bleeding, and in bad lung and kidney cases.

Dr. Robert L. Dickinson of Brooklyn said that it seemed to him that with the "twilight sleep" the patient was under the influence of belladonna poisoning; she was excessively thirsty and apt to be restless or delirious just when it was necessary to have her quiet, for how could one sew up a perineum with the patient in such a restless condition? It was evident that the method had a place and the time was coming when it would be used in every primipara. At present it was difficult to conduct the treatment properly, and it belonged entirely to the skilled obstetrician and not to the public.

Dr. George P. Shears said that the paper was so clear, so logical, and so moderate that he felt that he had learned something, but he wondered whether, after all, "The game was worth the candle," as there was no suffering that faded from the mind so quickly as the pangs of childbirth. In the twelve or fifteen cases that had come under his observation the effect on the mother was wonderful, there being no subsequent hemorrhage, no relaxation, and a rapid recovery. The danger was to the baby, and when one considered the effect of the morphine, the hyoscine, the chloroform, and possibly ether, it was putting too much strain on the imagination to expect one to believe the baby was better under such conditions.

Dr. Samuel J. Druskin stated that Dr. Crile had well demonstrated the effects of insomnia, anxiety, and violence; this method eliminated the anxiety and one should not underrate the importance of effacing from the mother's mind a disagreeable experience. Dr. Druskin said he preferred to use pituitrin. While it was somewhat weakened in its effect by the morphine and narophine, it nevertheless gave sufficient contraction to cause the expulsion of the child and the mother might be able to give some assistance if the drugs had been properly given. He had used the method with safety in cardiac and kidney cases.

Dr. Ross McPherson, in closing the discussion, said that in regard to what Dr. Bandler had said as to the time of labor, in their series of cases the total duration of labor was two hours shorter on an average when the scopolamine was used than it was in a like number of cases in which no such drug was used. So it seemed that instead of a prolongation of labor the use of scopolamine actually shortened the total duration of labor. As to the statement that he did not hear of patients not wishing to have a second child because of the pain endured during childbirth, every one who had an experience of any extent learned that quite the

contrary was the fact, that many women came asking for abortions because they could not again endure the awful suffering that they had experienced in the first labor. One had but to see these patients who had experienced the "twilight sleep," to hear them and their husbands express their gratification, to realize what this meant to all concerned. As to the comparative value of narcophine and morphine, he thought that the latter possessed rather the advantage and it was easier to obtain. There was one point mentioned about which he disagreed, and that was early rising after childbirth. He felt convinced that early rising tended to subinvolution, and these were the patients who came back later with gynecological troubles. The patient should remain in bed until subinvolution was complete. As to the effect of the "twilight sleep" on involution, he could not say that it shortened the period of involution, but it certainly did not lengthen it. He did not use exercises during the puerperium to the extent that Dr. Knipe had indicated.

Dr. Samuel J. Scadron said that he had had under observation about 250 cases in which the "twilight sleep" had been used and had seen no untoward effects on the mother or child from the use of scopolamine. He believed that scopolamine had no cumulative action. It appeared in the urine from fifteen to twenty minutes after the first hypodermic injection. By the time the third dose had been administered the first had lost its effect and was out of the system. He had had one case twenty-eight hours in twilight, the patient receiving nineteen injections of scopolamine and one dose of narcophine; this was a very successful case, as the mother had complete amnesia and the child cried immediately after delivery. The speaker emphasized the dangers of the pituitary preparation, especially when used in combination with scopolamine and morphine. If the pituitary extract was given simultaneously with the scopolamine it had an effect on the infant, but if it was administered one-half hour after the scopolamine no bad effect was observed. Some of the patients receiving this treatment were allowed out of bed forty-eight hours after delivery, and were discharged from the hospital on the fifth day. Subsequent examinations showed the uterus well involuted, in normal position, and the general condition of the patients very good. This rapid recovery he attributed to the fact that the "twilight" patients showed no signs of exhaustion after labor and received daily exercises as described by the reader of the paper.

Dr. Ephraim K. Browd said that he had had a large experience with the pituitary preparation in dystocia, and was of the opinion that if the cervix was imperfectly dilated its use was contraindicated and its effect upon the child was dangerous. The employment of pituitrin was limited to the second stage of labor and dystocia; its effect was that of an oxytoxic, while the action of scopolamine was that of a hypnotic, and might be used from the beginning of labor; the action and employment of both drugs were distinctly different. Scopolamine would prove useful in cases of cardiac, pulmonary, or renal disease, or in cases of extreme anemia or neurasthenia, or in cases in which anesthetics could not be used. We had not been told how far this method was applicable in cases of malpresentations or malpositions. The asphyxiation of the child, he believed, was due more to the child's head resting on the perineum than to the effect of the scopolamine. All these questions would have to be worked out and the "twilight sleep" should be given a fair trial.

Dr. Alfred Hellman said he had gone to Freiburg rather prejudiced against the "twilight sleep," but he was rapidly converted and had become very enthusiastic. The enthusiasm of the women who had received this treatment would soon lead one to champion its use. Many of the women asserted that their labor had been painless or at least they had no memory of the pain; in some instances those present thought the woman had suffered pain, but she would have no recollection of it. Dr. Hellman had been impressed with the rapid recuperation that took place in the women receiving this treatment. They did not suffer from the great exhaustion as did those who had been through a long labor, and the uterus returned to normal much earlier. The danger to the child had been dwelt upon, but the babies could all be revived and Kronig believed that the delayed breathing was often valuable because it prevented breathing before the birth of the head.

Dr. W. H. W. Knipe, in closing the discussion, said that if the method was properly applied there was no asphyxia. At first about 25 per cent. of the babies had oligopnea, but now they were practically unaffected. He could not understand the statement that the second stage of labor had been prolonged by one-half; in their series of cases the total duration of labor had been reduced. The delirium had been very little, and might be due to moving the patient to the delivery table; it was better to leave the patient in bed. With proper dosage the thirst and restlessness were reduced to a minimum. The after care of these patients was not different from the after care of other obstetrical cases. They had used the "twilight sleep" on patients having cardiac lesions, but not where there was a lack of compensation.

SECTION ON PEDIATRICS.

Stated Meeting, Held October 8, 1914.

Dr. William P. Northrup in the Chair.

Infantile Scurvy: The Blood, the Blood Vessels, and the Diet.—Dr. Alfred F. Hess presented this paper, in which he related the results of a study in scurvy, the observations having been made at the Hebrew Orphan Asylum and the research work carried out in the Research Laboratory of the Department of Health. Attention was especially directed to the study of the coagulability of the blood with the object of ascertaining whether there was any marked change in this particular and whether a disturbance of this function could account for the various hemorrhagic symptoms of scurvy. In this series of cases they had the clinical data covering a long period before the development of the disease and they had been able to follow the infants for many months following their recovery. A number of these cases developed in the course of an attempt to do away with the giving of orange juice. In no case was the blood test made from blood obtained from the prick of a finger or the lobe of an ear, since these methods mighht introduce the disturbing factor of the thromboplastic substance of the tissue juices and this did not yield an accurate estimate of the coagulability of the blood itself. The coagulation tests were carried out after the method of Howell, which was by the addition of five drops of plasma to each of five small test tubes. To these tubes increasing amounts of one-half per cent. calcium chloride made up in normal salt solution were added. The time was then noted when the plasma in the various tubes were clotted. After describing his method for testing the resistance of the capillaries and affirming his belief that it was to this lack of resistance that the petechiæ so characteristic of scurvy were due, he noted that these petechiæ were found in the mucous membrane of the hard and soft palate and in several instances in the palpebral conjunctiva. The blood in the urine might probably be considered as evidence of petechiæ into the internal organs. In post-mortem examinations small hemorrhages had been found in the pleura, peritoneum, and pericardium. Edema was also typical of an increased permeability of the vessels. A comparison of scurvy and hemophilia brought out a striking contrast. In hemophilia petechial spots were not found scattered over the surface of the body, nor was edema a symptom of the disease. On applying the capillary resistance that it was found that petechiæ were not induced by this increased vascular pressure. In other words, in hemophilia the vessels seemed to be normal. In scurvy the hemorrhages were usually minute and numerous, in hemophilia they were few and extensive. A point at times of value in the matter of diagnosis was that in scurvy a little sharp rubbing of the gums frequently produced slight hemorrhages. According to their experience the infectious diseases did not play an essential rôle in the production of scurvy. Dr. Hess summarized his study as follows: Infantile scurvy was a disorder characterized clinically by hemorrhage; for example, the classical bleeding into the gums and the subperiosteal hemorrhages of the long bones. A study of the cause of this bleeding, which must include a consideration of the clotting power of the blood formed the nucleus of this investigation. For the coagulation tests blood was aspirated directly from the blood vessels and ozylated. This plasma showed a slight diminution in clotting power. The nature of this defect was not ascertained; however, it did not seem to be the result of an insufficiency of calcium, nor was the antithrombin increased. Small amounts of blood were also obtained by puncture of the finger. Examinations of this blood revealed a normal number of blood platelets.

In other respects the picture was that of a simple secondary anemia, excepting that the hemoglobin was diminished out of proportion to the red blood cells. A marked regeneration of these cells during convalescence, leading to a polycythemia, was also noticed. These various departures from the normal were insufficient to account for the hemorrhages associated with the disease. The integrity of the blood vessels was therefore investigated by means of a device which might be termed the "capillary resistance test." This test consisted in subjecting blood vessels and capillaries of the arm to increased intravascular pressure by means of an ordinary blood pressure band and of observing whether this strain resulted in minute leakage of blood through the vessels—the appearance of petechial hemorrhages into the skin. The vessels of normal infants were found to withstand, without apparent disturbance, ninety degrees of pressure for three minutes, whereas the vessels of infants suffering from scurvy gave away under this pressure. This test was not specific for scurvy, but was a method of demonstrating a weakness of the vessel walls, whatever might be its cause. In the course of an exceptional opportunity to observe scurvy in its incipiency, numerous petechial hemorrhages of the skin or mucous membrane were frequently noted as one of the earliest signs of the disease; no sign, however, should be regarded as preeminently the primary symptom of scurvy. It was generally recognized that scurvy had not only an exciting cause but a predisposing one. The well known "exudative diathesis" of Czerny was found definitely to predispose to the development of scurvy. Whether there were other predisposing factors remained to be determined. Several cases of scurvy developed in infants who were being fed on milk which was pasteurized to 145° F. for thirty minutes. They were cured by receiving fruit juices or raw milk. Orange juice was found not to lose its efficacy as the result of being boiled for ten minutes. The juice of the peel was successfully substituted as an antiscorbutic for the juice of the orange. Potato proved to be an excellent antiscorbutic. It was suggested that it be added to pasteurized milk as potato water instead of the barley water which was now commonly used as a diluent. In this way the necessity of giving orange juice would be obviated. Cod-liver oil or olive oil, although given for weeks, did not prevent the development of scurvy.

Dr. SIDNEY V. MASS expressed his pleasure in hearing so interesting a paper, but said there were a few points on which he disagreed with Dr. Hess. One of these was that the "exudative diathesis" was an important etiological factor in scurvy. In hospital and dispensary practice from fifteen to twenty per cent. of all cases had the "exudative diathesis," although there was no disease rarer among this class of patients than scorbutus. The observations on which the paper was based were made in an infant asylum and it was well known that where either infants or adults were collected in large numbers this disease was apt to be more prevalent. It was interesting to know that the disease had been observed so early in life. At the infant asylum they had had the experience that after cutting out orange juice with 200 children, 65 of the number suffered from gingivitis or stomatitis; with the return to orange juice the cases all cleared up within two weeks.

Dr. WILLIAM P. NORTHRUP said that in his experience it seemed that subjecting milk to hard boiling was a factor in the production of scurvy. There was no scurvy if the child had the witching drop of orange juice. There were three conditions in which the pediatrician could do miracles; one was with orange juice in scurvy; another was thymus for cretinism, and the third was intubation for diphtheria of the larynx. Dr. Northrup asked if there was a possibility that infection might play a part in the production of scurvy.

Dr. J. FINLEY BELL of Englewood, N. J., said that he had had a case of scurvy about three months ago which had been fed on nine cent milk. It was claimed that this milk was not twice heated. The child recovered after about three weeks' treatment with orange juice.

Dr. WILLIAM P. NORTHRUP related an instance of two infants nursed at the same breast, one a nursling and the other the mother's own child. The mother's child was fat and healthy, while the nursling developed scurvy. The phenomenon of scurvy was so distinct, yet so difficult to explain, so easily cured and yet the most extraordinary which the pediatrist saw. Dr. Northrup recalled that he had reported the first eleven cases occurring in American practice to the American Pediatric Society. He had seen the first case at the Foundling Hospital, and a pathologist had diagnosed it syphilitic hemorrhagic periostitis. Dr. Van Sandvoort said it reminded him of a case in which the child had eaten chalk, sand, and other articles of an inedible nature, and at autopsy they concluded that the child had had scurvy; he did the same. One found cases of scurvy in well-groomed families where the greatest care was taken of the child's diet. These children, too, recovered on orange juice.

Dr. ALFRED COLE WALLIN made reference to an article which he had written on the subject of scurvy which appeared in *Pediatrics*, August, 1914, in which he gave confirmatory evidence of the theory that scurvy was an acquired disease, with a hemorrhagic diathesis, from improper feeding causing alkalinity, and that most cases had symptoms of indigestion of an alkaline nature. He stated that he had seen four cases of scurvy in breast-fed infants within the past nine months and that he attributed them to the alkalinity of the mother's milk. The children were entirely breast fed with the exception of one, which was partly breast fed and partly bottle fed. They ranged in age from four to eight months.

Dr. NORTHRUP said that after a full discussion of scurvy he had once asked Dr. Ripley whether he had not in his vast experience run across similar cases (Dr. Ripley, by the way, was an old friend of Dr. James O'Dwyer and was sometimes called a specialist in all lines, so well informed was he). Dr. Ripley said he had seen such cases, had called them sometimes acute rickets, sometimes syphilitic osteitis, treated them wth citrate of potash and mercury, and after a time cured them.

Dr. ALFRED COLE WALLIN stated that he had seen several cases of scurvy which were fed on pear juice and they seemed to get worse. He thought this was possibly due to the alkalinity of the pear juice, and asked Dr. Hess what his opinion was as to the reason.

Dr. NORTHRUP referred to the last case of scurvy which he had seen and stated that the child developed the disease on a malt soup diet. He concluded that there were many different foods that might cause this condition, and that it was the unvaried monotony of various foods that might produce it.

Dr. ALFRED F. HESS said that he had read what Dr. Caillé had written in the report of the American Pediatric Society. He had observed the condition characterized by some leucocytosis, and slight fever, what the Germans called Barlow fever. The fever was slight and there was no epidemic; it was difficult to picture an infectious disease being controlled at will by means of orange juice. They had considered making tests of the alkalinity of the blood, but such tests seemed so uncertain that they had not been done; they did not seem to promise enough. He felt sure that with the pear juice it was not the alkalinity that caused the trouble; but why use pear juice when orange juice was so satisfactory? As to the question whether he had undertaken any animal experiments—he had not done so as such experiments could not show more than that orange juice was a curative agent, and that had been demonstrated on human beings. He had observed that scurvy occurred more frequently in private practice where infants were well cared for. The institution in which he had made his observations was an excellent one, and this must be taken into consideration in connection with the facts presented. They had used one tablespoonful of mashed potato to one pint of water and this prevented the onset of scurvy.

Dr. ROYAL STORRS HAYNES asked Dr. Hess whether he had observed purple gums before the eruption of the teeth, and also whether after the teeth had come this phenomenon appeared first before or behind the teeth, the occurrence of the hemorrhage into the gums behind the teeth being characteristic in Dr. Haynes' experience, and perhaps being due to the pressure of the tongue against the gum in that situation.

Dr. ALFRED F. HESS replied that he had never seen the purple gums unless the teeth were erupted or about to erupt. He had never seen them where there were no teeth coming through.

Dr. J. FINLEY BELL of Englewood, N. J., observed that there might be danger from the potato water as there might be solanum in the water in which the potato was boiled.

Dr. HESS replied that if that were demonstrated the

water in which the potato was boiled should not be used, but that they had never had any unpleasant results from its use.

Dr. NORTHRUP reiterated the belief that it was the deadly monotony of an insufficient diet that was responsible for this condition and that any fruit juice or other change that broke up the monotony might be curative. He asked Dr. Hess whether in their study of the coagulability of the blood they had used any other drug beside calcium.

Dr. HESS replied that the only drug used was calcium and they had found that there was already enough of that in the blood.

Dr. NORTHRUP said that the most puzzling thing was that infants nursed at the mothers' breast could have scurvy and cited an additional instance of an infant in a well-to-do family that developed scurvy under the most assiduous attentions of a nurse.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

REPORT OF BIRTHS, MARRIAGES AND DEATHS, in the Province of Ontario, Can. Paper; 275 pages. Published by L. K. Cameron.

WORRY AND NERVOUSNESS. By W. S. SADLER. Cloth; illustrated; 535 pages; price $1.50 net. Published by A. C. McClug & Co.

LIFE AND LAW. By MAUDE GLASGOW, M.D. Cloth; 194 pages; price $1.25 net. Published by G. P. Putnam's Sons.

QUAIN'S ANATOMY. By J. SYMINGTON. Cloth; illustrated; Vol. II; Part 2; 392 pages; price $3.25 net. Published by Longmans, Green & Co.

MANUAL OF PRACTICAL ANATOMY, Vols. I and II. By ARTHUR ROBINSON, M.D. Cloth; illustrated; Vol. I, 673 pages; Vol. II, 636 pages; price $5.50 net per set. Published by William Wood & Company.

DISEASES OF THE RECTUM. By P. L. MUMMERY. Cloth; illustrated; 348 pages; price $3.00 net. Published by William Wood & Company.

FECES OF CHILDREN AND ADULTS. By P. J. CAMMIDGE. Cloth; illustrated; 516 pages; price $5.00 net. Published by William Wood & Company.

KIRKES' HANDBOOK OF PHYSIOLOGY. By C. WILSON GREEN. Eighth American Revision. Cloth; illustrated; 780 pages; price $3.00 net. Published by William Wood & Company.

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CONTRIBUTIONS FROM THE NEUROLOGICAL INSTITUTE. Paper; illustrated.

ABDOMINAL OPERATIONS. By Sir BERKELEY MOYNIHAN. Vol. I and II, Third Edition. Cloth; illustrated; 488 pages; price $10.00 net. Published by W. B. Saunders Co.

LOCAL ANESTHESIA. By CARROLL W. ALLEN, M.D. Cloth; illustrated; 625 pages; price $7.50 net. Published by W. B. Saunders Co.

PATHOGENIC MICROORGANISMS. By W. S. PARK and ANNA W. WILLIAMS, M.D. Fifth Edition. Cloth; illustrated; 684 pages. Published by Lea & Febiger.

FOOD PRODUCTS. By HENRY C. SHERMAN. Cloth; illustrated; 594 pages; price $2.25 net. Published by The Macmillan Company.

THE GERM-CELL CYCLE IN ANIMALS. By ROBERT W. HEGNER, Ph.D. Cloth; illustrated; 346 pages; price $1.75 net. Published by The Macmillan Company.

MOTHERHOOD. By Dr. E. S. HARRIS. Paper; 30 pages; price $.10.

A SHORT HANDBOOK OF COSMETICS. By Dr. MAX JOSEPH. Cloth; 2nd edition; 93 pages; price $1.00. Published by E. B. Treat & Co.

NUTRITION. By CHAS. E. SOHN. Cloth; 256 pages; price $1.75. Published by E. B. Treat & Co.

Therapeutic Hints.

Atropine Methyl Bromide in Pediatrics.—Breitman discusses the advantages over atropine sulphate of the above compound, a crystalline substance soluble in water or dilated alcohol, and having a bromine content of 20.8 per cent. The chief advantage is the slighter toxicity, which permits of the administration of larger doses. The chief indications for the use of this compound are the exudative diathesis and the moist eczema of infants. In the latter condition the daily dose is 0.001 gram. This dose may be increased, some German pediatricians giving as much as 0.005 gram per day. Among the complications of the exudative diathesis atropine methyl bromide is particularly serviceable in chronic bronchitis, in bronchopneumonia, and in the digestive disturbances. It is also useful in the treatment of convulsions and of the nervous manifestations of rachitic origin, particularly laryngospasm. The antispasmodic property of atropine methyl bromide is more pronounced than that of atropine sulphate in the treatment of ileus, mucomembranous enteritis, and sigmoiditis resulting from coprostasis. In enuresis nocturna the author administers a mixture such as the following:

℞ Atropine methyl bromide, 0.003 gram,
Aromatic tincture of rhubarb, 10 grams.
M.S.—10 drops three times a day.

In the last-mentioned condition the action of atropine methyl bromide is more effective than that of atropine sulphate. Similarly good results are obtained in angioneurotic edema.—*Pediatrija.*

Treatment of Tuberculosis of the Bladder.—Carmelo Bruni notes that Casper regards instillations of corrosive sublimate in a strength of 1 to 10,000 gradually increased to 1 to 2,000 as the best local remedy in this condition. The painful reaction following these instillations frequently demands the use of opiates. The author has had little success with the above method of treatment and prefers the use of gomenol, which is particularly advantageous because of its analgesic power. It is used in a 10 per cent. strength mixed with a bland oil and may be instilled daily. Another good remedy is guaiacol, which is a powerful analgesic and is instilled, as in the following formula:

℞ Iodoform, 1 gram,
Guaiacol, 5 grams,
Sterile olive oil, 100 grams.

It should be borne in mind that nitrate of silver, which is the best topical application in other forms of cystitis, is injurious in the tuberculous variety.—*Riforma Medica.*

The Medical Treatment of Hypertrophic Pyloric Stenosis of Infants.—L. Exchaquet outlines the following measures recommended by Ibrahim, as follows: Administer a food both easily digested and nourishing: milk modified with cream or a malted cereal, buttermilk, or sweetened skimmed milk. Use a small quantity of food at a time. Lavage rids the stomach of residues that favor vomiting and other dyspeptic disturbances. The spasmodic element may be combatted by the application of hot compresses and by the administration of valerian, opium, and atropine. The general strength may be sustained by the use of saline and nutrient enemata or by hypodermoclysis. Whenever possible the pylorus should be stretched by means of the method of pyloric intubation devised by Hess.—*Revue Médicale de la Suisse Romande.*

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Original Articles.

MANAGEMENT OF THE PNEUMONIA PATIENT.*

BY SIMON BARUCH, M.D.,

NEW YORK.

FOR several years I have entertained the idea of investigating the reasons for the fatality of pneumonia and more especially for the dictum expressed by some conservative writers and speakers that the prognosis of pneumonia remains unaffected by any method of treatment. That this pessimistic view is incorrect has been demonstrated to my satisfaction by personal experience which extends over a period of half a century, during which my methods have passed from the antiphlogistic attack on the disease through all modern "improvements," until I have reached the present policy of managing the patient by sustaining his resisting capacity rather than battling with the disease.

The study of several articels, mostly by teachers of medicine, which have appeared during the past year, has furnished a clue to the solution of this question that may serve to point a valuable lesson for us. These articles really present the views of the average textbook on practice. I shall designate them by numbers.

While they claim progressive ideas, most of the authors lack positiveness and display contradictions that serve to confuse rather than help us to reach rock bottom in this serious problem.

No. 1, in treating of bronchopneumonia, insists upon heat and ventilation, regards hot flaxseed poultices of great service, does not use ice bags, sponges the body twice a day with tepid water, never uses antipyretics, and feeds the patient every second or third hour. He opens with calomel or castor oil, and mentions as more or less useful the following drugs: Large dose of quinine hydrochloride intramuscularly, opium, camphor, digalen, musk, cocaine, epinephrin, atropine, pituitrin, caffeine, strophanthin, apomophine, ipecac, ammonium, iodide in a pepsin vehicle, injections of iodide in vasogen, iothion in olive oil, Besredka's pulmonary autogenous vaccine, and mercurial inunction in extreme cases. In convalescense he advises "food, fresh air, and water, with perhaps tonics."

No. 2 advises in bronchial and lobar pneumonia rest, *water in abundance*, and a gradually increasing feeding. He is a thorough believer in exposing the patient, while the body is kept scrupulously warm, to outdoor, live, moving air, which he very properly regards as a stimulant to the vasomotor centers, keep the bowels open, regards fever as not to be treated, except when imperilling the vital centers. Hyperpyrexia is to be combated *"not by drugs, but by cold water."* How applied, he fails to state. He gives caffeine, camphor or digitalis early in 20 to 30 mgm. doses.

No. 3 insists upon good nursing and hygienic conditions and replaces the windows by cheesecloth or rugs. He uses, as occasion demands, guaiacol, quinine, spartein, hexamethylenamine, aspirin, digitalis, strychnine, camphor, oxygen, also vaccines, icecaps for delirium, whiskey, occasionally sponging for high temperature, with water at 98°, gradually reduced to 65°, allowing it to evaporate.

No. 4 treats croupous pneumonia of children with warm tub baths for high temperature with nervous symptoms; does not urge food; regards alcohol as best cardiac stimulant, in addition to digitalis and caffeine. No local applications.

No. 5, in bronchopneumonia of children, depends upon apomorphine, combined with strychnine to keep the bronchial tubes clear, brandy and sometimes the iodides and digalen hypodermatically; has no faith in local remedies; sometimes uses cotton jacket.

No. 6. In the most elaborate article that has appeared in recent years, the author bases his conclusions on the records of one of the largest hospitals in the country in which medical students are taught. In lobar fibrinous pneumonia he claims recovery is approximately 75 per cent. He exposes the patient outdoors, protected thoroughly in a woollen sleeping bag, except the nose and mouth. He warns against cold air as fatal in bronchopneumonia, with low temperatures, and gives as little food as possible. He regards drinking water as an essential, "not less than three pints in twenty-four hours and as important as fresh air." Sweeping the intestine every second day with castor oil is valued. *Recommends sponging with hot water morning and evening and at regular intervals, at as high temperature as the patient prefers. Regards the hot sponge bath* as a cardiac tonic. Recommends hot turpentine stupes of 15 minutes' duration; dry cupping once a day; hot foot baths are of advantage. Hypodermoclysis is condemned because "we should spare the cardiac muscle the additional burden of an overquantity of fluid in the circulation." Occasionally he applies an icebag to the precordium, sometimes over a blister, to quiet the heart. Although he claims that many patients would be better without than with extensive drug treatment he mentions as more or less applicable hypodermics of atropine as a cardiac tonic, maltine and morphine for the cough and restlessness and to quiet the heart; pilocarpine for skin elimination; strychnine, digitalis, spartein, camphor, ammonia, and a calcium salt may be employed without expecting too much of them. Alcohol he regards as a vasomotor paralysant. He concludes that "if treatment is conducted along these lines recoveries should occur in vast numbers in healthy persons.

*Read at a meeting of the Section on Medicine of the New York Academy of Medicine, October 20, 1914.

The author concludes as follows: "There is no question that many pneumonia patients are hurried if not helped, into the grave by overtreatment. 'Purging, diet, and bathing' were the watchwords of Asclepiades. Add both warm and cold air to this triad and we shall have the outline of the most successful modern treatment of one of the most treacherous and dreaded forms of systematic and pulmonary disease." Let us see how the detailed methods and the statistics bear out these optimistic propositions: "Total number of cases from 1911 to 1913, 596; deaths, 364; mortality, 61.3 per cent.; number of cases with temperature not over 100°, 393; number of cases typically fabrile, frankly croupous, 203. The majority perhaps occurred in alcoholic subjects. Practically every case was treated in cold fresh air; very many on bridges constructed for the purpose."

These statistics certainly do not justify the author's optimistic attitude, for they present the second highest mortality I have encountered in the literature of the subject. While the principles enunciated are correct academically, the practice is at fault in their incorrect application as I shall show presently.

It would appear from this symposium of teachers that all the conventional modes of therapy have been applied according to the text-books, just as is claimed in another article by a general practitioner in a small city, who without stating the number of cases treated, claims to have had a mortality of only seven in twenty-four years. His treatment is "fresh-air, outdoors if possible; patients lying on a single bed; diet of milk, ice-cream, fruit juices, custards, beed-juice in small amounts; water every two or three hours; bowels cleared with a dose of calomel at the beginning; skin to be kept active by a quick cold sponge, followed by a rub." He is the most active hydrotherapist I have ever encountered; recommends "cold and hot packs or ice around the chest every fifteen or twenty minutes until the pulse, temperature, and respiration are decidedly impressed; then at longer intervals when the temperature goes below 102°F.," etc. The details of this singular hydrotherapy will be discussed presently. He does not use alcohol.

The Lesson.

What lesson may we derive from a brief review of the methods advocated in these articles, most of which differ in no wise from those recommended in the average text-book or society discussion?

1. All claim to treat the patient instead of the disease. This is a great advance over the spoliative methods which in the antiphlogistic period of medicine killed the patient or brought him out of bed in a damaged condition from which he recovered slowly, sometimes not at all. And this is a great advance also over the happily brief antipyretic period from which we are barely emerging now, in which the chief difference was that the patient died with a lower temperature than formerly.

2. *Food.*—Upon this subject most authors agree also. I would protest against overfeeding, especially in croupous pneumonia. The recent trend to overfeed or at least abandon former caution in typhoid fever may lead to similar change in the feeding of the pneumonia patient. Let me warn against this idea. We must guard against the not infrequent distention of a paretic intestine. When there is a tendency to gaseous distention, food must either be given in moderate quantities or withheld altogether. Since the attack is usually ushered in suddenly in a healthy individual and its duration is limited, this precaution against a too little heeded handicap to respiration is without danger. Each case presents its own problem in this as in other features. I refer only to general principles.

3. *Drink.*—Water in abundance is advised by those who mention it at all. One author advises "at least three pints daily but in another part he properly warns against hypodermoclysis," because "we should spare the heart muscle the additional burden." I am convinced that not the *quantity* but the *temperature* of water stimulates the emunctories and does it through vasomotor enhancement. Guided by ample bedside experiment I prescribe two to four ounces of ice water—not above 40° F. every two hours. I order a few drops of diluted hydrochloric acid or other placebo to be added to impress its importance and a record to be made of the quantity taken and retained. The result is enormous diuresis as will be dwelt upon later.

4. *Fresh Air.*—That pure air is vital to the pneumonia patient is indisputable, but that pure air may be procured only out in the open is fallacious. While it is true that in a crowded school, for instance, as has been shown by Dr. J. F. Rodgers (MEDICAL RECORD, 1914), ordinary window ventilation does not prevent serious contamination of the air, this fact does not apply to a sickroom containing one patient and attendants. It does apply however to hospital wards. Pneumonia like most infectious diseases demands not only fresh air but, as one of these writers has well expressed it, *cold moving air,* if it can be obtained. The reason is doubtless to be found in stimulation by the cold air current of the skin of the face and the mucous membrane of the nasorespiratory surfaces. That this stimulation may be procured indoors also has been proved by the interesting experiments of Fluegge, Leonard Hill, and Henderson of Yale, who, confining a number of persons in an air tight compartment furnished with thermometers and an electric fan, found that when the rebreathed air reached 80° F. and became humid, all the occupants suffered depression but that they were revived immediately upon stirring the air with a fan.

In hospital wards or houses in which a sleeping porch is unattainable, one or more fans and strict attention to having the air below 70° F. and fairly dry, may secure the advantages of open air. In the better class of city dwellings, apartments and in hotels also this arrangement may be substituted for the open porch. I would specially favor it because it would not exclude the application of another and better vasomotor stimulant to be presently referred to. That precision in the technique is as important in this fresh air treatment as I have but too sadly learned it is in the water treatment, is illustrated by one of the articles quoted. The author states that of the 593 cases treated about one-half were of the frank croupous type, with temperature above 100°F., and the other half of lower type—mostly bronchopneumonia with temperatures below 100°F., and that "practically every case in the series was treated in cold fresh air." And yet in another part of the article he writes "it will be safe in fibrinous pneumonia with temperature above 100° F. to give free rein to the fresh air treatment, but that in possibly the majority of instances (bronchopneumonias) the application of cold air will probably do

harm." This author misses the advantage of the open air treatment anyway by "covering the whole body except the mouth and nose" during the exposure. The fresh air advocate may well cry "Save me from my friends," just as I shall have occasion to say of another of these authors who professes to be an ardent hydrotherapist.

My own method is a compromise. The sashes of one or more windows are removed and the latter closed by blinds, which may be kept more or less open according to the individual requirements. The temperature of the room should not be above 60° F. except when the patient has to be exposed for any purpose. Nurses may protect themselves with extra clothing.

5. *Medication.*—Purgatives are recommended by many. My own preference is for calomel in 6 to 10 grain doses dry in the mouth and washed down after rinsing. It destroys the pneumococci in the mouth and removes all fermenting or toxic material from the gastrointestinal tract. This is my only drug and it is not repeated. The mouth is rinsed with a saturated solution of potassium chlorate every hour. The polypharmacy of some of these writers will, I trust, not find imitators. Heart stimualnts were rarely required in my cases treated early. In consultation cases they have sometimes served a good purpose. Alcohol is needed by alcoholic habitués whose nervous system requires a filip. Strychnine has been shown by Cabot to be absolutely inert in heart failure. I do not advise against it in moderate doses. In consultation a sinking patient who was surrounded by weeping relatives expecting his demise, was saved by withdrawing the glonoin his attendant was plying him with as a stimulant.

6. *Antipyretics.*—Happily the coal tar preparations are no longer dominant in pneumonia. I should not hesitate however to order one dose, six or eight grains of antipyrine in a case of insomnia with unyielding high temperature, to tide over the danger.

"Hot water sponging as a heart stimulant and sponging with water at 98° F. reduced to 65° F. and allowed to evaporate for reducing temperature" do not appeal to my hydrotherapeutic sense.

The warm bath for hyperpyrexia with nervous symptoms would be commendable if the author had stated the temperature and duration and frequency of repetition. There is no procedure for this purpose equal to a tub bath of 90° F., of half an hour's duration for this purpose, the patient being afterward wrapped in a linen sheet and allowed to dry in bed. In most cases of pneumonia of children a ten minute friction bath at 95° rapidly reduced to 80° F. answers all purposes.

The best article of this series states "hyperpyrexia is to be combated not by drugs but by cold water." I wish this author had been as explicit as he was in his contribution to the "American System of Therapeutics," which is a model of clinical instruction. But here he fails to furnish temperature, duration, or method in which cold water is to be administered for the purpose indicated, and herein he is not singular.

One serious obstacle to the popularization of hydrotherapy has been the indefinite counsel on the subject by our best authorities on practice. On this very floor I heard a justly eminent pediatrist say, after entering into the most minute details about the drugs he prescribes in pneumonia, "Whenever the temperature reaches 103°, 104°, 105°, or 106° F. I give cold baths and packs. He said not a word about the temperature, duration, and frequency of repetition of the baths; when the fact is that in New York City the water supplied by the cold faucet is 45° F. in midwinter and 75° in midsummer. I have never dared to give a child a bath even of 75° F. in pneumonia. Most authors and speakers mention cold water only when treating of pyrexia and they seem to regard the coldest bath as the most antithermic. This is physiologically irrational. The best antithermic bath is one at 90° F., of an hour's duration.

The profession is happily beginning to accept my contention of the past twenty-five years that water of low temperature is more useful in typhoid fever for its vasomotor stimulating action than for temperature reductions. I plead for the same idea in other acute and chronic diseases. Its recognition would insure more recoveries from pneumonia, sunstroke, and tuberculosis, and more rapid improvement in neurasthenia and other neuroses.

Another author writes: "We do not as a rule fight temperature with antipyretic drugs. In hydrotherapy we have an agent that should be used as carefully as any of our active drugs. Then he goes on to tell us that "early in the case a cold pack, or ice bag should be applied anteriorly and posteriorly to the thorax every fifteen to twenty minutes until a decided impression is made, which means a continuous renewal from three to six hours or longer, then an hour or more may intervene before another compress is applied. Also cold and hot packs alternately to promote reaction." He writes: "Cold applications if too prolonged or too intense may defeat their own purpose." It is to be regretted that the writer does not practice what he preaches, for this is pernicious activity. How is a pneumonia sufferer to bear these frequent changes of packs and ice and heat without distress and danger? Every principle of hydrotherapy is violated by these irrational procedures.

7. *Local Applications.*—It is interesting to find hot flaxseed poultices, dry cups, and blisters mentioned in modern treatment. While I do not deny their efficacy in the hands of my colleagues I wish that they had given indications for them more definitely.

The only local application that I constantly use is the wet compress at 60° F. applied around the chest every hour, after it has become warm. This is made of three thicknesses of thin or two thicknesses of heavy old linen cut to fit the thorax snugly and to cover the entire chest from the nucha and clavicle to the last rib. It is wrung out of water of 60° F., spread upon a piece of flannel, cut in the same shape, but one inch larger, one-half of the flannel and damp linen is gathered into a fold, the other spread on the bed; the patient turns on one side, the folded part is placed next to his side, so as to reach the nucha at the top; the patient is asked to turn on his back. As he turns upon the outstretched portion of the compress his arms are raised, the folded part of the compress is drawn from under him and is quickly thrown over the chest on both sides; the upper flaps are brought over the clavicle, the flannel is wrapped over the compress and secured by safety pins in front. The patient now lies in a snug cold vest, as it were. The rationale rests upon thermic excitation of the cutaneous terminals, which is conveyed to the central nervous system and reflected upon the heart and lungs, improving the pulse and deepening respiration. In five or more

minutes the temperature of the compress is equalized with that of the skin, gradually the linen warms up and very soon the patient lies in a moderately warm poultice. If oiled silk were used as a covering of this compress it would become a hot poultice. To avoid the relaxing effect of the latter a flannel covering is used, which permits escape of heat and moisture, by capillary attraction, which favors the cooling process. When the compress is found warm on examination with the fingers, after the lapse of an hour, another is prepared before the first is removed. This hourly envelopment of half the trunk in water 40° below that of the skin, produces the following striking therapeutic effects:

Fig. 1.—Application of the chest compress.

1. *Circulation.*—Romberg and Paessler have shown that rabbits suffering from artificial pneumonia die from paralysis of the peripheral arterioles rather than from degeneration of the cardiac fibers. As the four-hourly cold friction baths prevent heart failure in the toxemia of typhoid fever, so does the hourly colder but more evanescent wet application act in the milder and less enduring toxemia of pneumonia. This is proved by the improvement in the tension and rate of the pulse. The pulmonary circulation is probably affected directly, in view of the fact that its vasomotor supply is derived from the second to the seventl dorsal ganglia, which are connected with the epigastric and scapular reflex area in the skin. These are covered by the chest compress when properly made, not otherwise.

2. *Nervous System.*—In the toxic forms of pneumonia the hourly stimulation of the central nervous system is evidenced by a brightening of the countenance and disappearance of dullness of intellect. Intelligent patients have referred to a longing for the time of removal of the compress. Alcoholic or other stimulants have become unnecessary in cases seen early. In consultation cases I have been guided by the temperature, toxemia, and pulse, in lowering or raising the temperature and duration of the compress, being guided by the hydrotherapeutic law that "intensity of action is in proportion to the difference of temperature between the skin and water." For instance, in the desperate case of Dr. J. H. D., whom I had the privilege of seeing with Drs. W. A. Ewing and A. A. Smith, the dulled intellect and depreciated vitality demanded a colder compress and more brief application. Dr. D. told me after his recovery that the compress had aroused him from stupor and that he did not remember my having been summoned to him.

3. *Excretions.*—Roque and Weil have shown that in infectious fevers the urotoxic coefficient is increased fivefold by cold baths and this was confirmed by Hewetson of Johns Hopkins Hospital. That there is an enormous increase in the quantity of urine (from 100 to 150 per cent., ranging from 70 to 110 ounces) when small quantities of ice water are used in connection with the regular cold chest compresses is easily demonstrated. If the measurements had not been made by trained nurses they would be incredible. It will be readily seen that the rationale, which explains the action of cold moving air in pneumonia cases is the same as that of the cold wet compress. It may be noted, however, that peripheral excitation from the cold compress acts upon a vastly larger surface and is enhanced by its intermittence.

4. *Elevated Temperature.*—It was well said by one of the authors quoted that an ordinary rise of temperature does not require treatment. The chest compress at 60° F. has served me well in maintaining a safe temperature. Its antithermic effect may be considerably enhanced by permitting as large a quantity of water to remain in the linen as would not interfere with the patient's comfort by dripping and chilling. In this manner more heat is abstracted and more water is evaporated by capillary attraction through the meshes of the flannel cover.

Fig. 2.—The chest compress complete.

5. *Phagocytosis.*—Experiments made by myself in the Hydriatic Institute and by the house staff

of the Montefiore Hospital have demonstrated that cold applications to the large skin surfaces increases the number of white cells in blood drawn from the lobe of the ear, showing that they have been driven from stagnant points into the circulatory current where their phagocytic action may become more effective.

Hektoen concludes a recent able article, "That the leucocytes constitute an integral factor in the defensive mechanism of the body against the pneumococcus must be accepted as settled. Their behavior with regard to crisis is significant. The acme as well as the number of leucocytes in pneumonia appears to bear such relation to the crisis that it is logical to assume that they are directly concerned in its production." Long ago Winternitz claimed, on clinical grounds, that the value of cold procedures in all infectious fevers was enhanced by their effect upon increase of leucocytes.

Reduction of Mortality.

This outline of management of pneumonia patients represents a practice of thirty years. When I compare its clinical result in saving life, enhancing comfort to the patients, nurses, and myself, I am impelled to urge upon you its adoption. True, one must adopt his own ideas and not follow blindly the dictum of any one in medicine, but when remedial agents are explained upon a scientific rationale and the results are far more favorable than they are under apparently similar but not systematic execution of the method, it would not be unreasonable to expect similar favorable results from judicious application of the same method.

What is the clinical proof? After all this is the crucial test. The results in private practice are usually not recorded except in the mortuary statistics of the registrar. I may say, however, that the latter will show but two death certificates from pneumonia written by myself in the twenty years before I relinquished general practice, one being an elderly alcoholic and the other a woman seen on the third day of her illness with a temperature of 105° F. and almost collapsed from the effect of enormous self-prescribed doses of Epsom salts.

Of the number of cases I have treated while in general practice there is no record, but I may safely claim an average of five per annum.

Hospital statistics, on the other hand, are not a fair test of therapeutic value, because most cases enter several days after beginning of attack and have received medication usually; others are almost in articulo mortis. Nevertheless, a comparative test may be made between the statistics of hospitals. While visiting physician to the Manhattan General, now Knickerbocker Hospital, a search of the records revealed the fact that before the general adoption of the wet compress the mortality from pneumonia was 66 per cent.; after its adoption 156 cases showed a mortality of 33 per cent., while in the cases living till the fifth day the mortality was 12 per cent. When the fact is considered that these patients come from the lower types of tenements, Italian, Irish, and American, most of them habitual consumers of alcohol or actual drunkards, the result may be regarded as favorable. Compared with the 61 per cent. mortality reported in one of the articles quoted, this record is encouraging and points to far better achievement in private practice. Confirmation of my claim is found in reports by two military surgeons who used practically the same method. Staff Surgeon Schichhold of Dresden records in the *Medizinische Klinik* for 1906 a series of 200 cases of pneumonia among young soldiers with a mortality of three. Dr. Nepor, an Austrian army surgeon, reports 90 cases with a mortality of one.

That the management here outlined is also valuable in desperate cases is evidenced by four cases I happen to remember. One, Mrs. Du B., seen in consultation with Dr. E. H. Rodgers, a diabetic woman of 65, with grip pneumonia, and acetonuria; the others were colleagues who had been under skillful and sympathetic care of friends. Dr. J. H. D. seen with Dr. W. A. Ewing, Dr. X. with the late Dr. Palmer Cole, who published the case in the *Medical News*, the third Dr. B. seen with Dr. A. Herff of San Antonio, Texas, where I happened to be sojourning on my way to California. All had received the conventional treatment without result until the wet compress was applied in accordance with the indications presented by each case.

That judicious systematic management of the pneumonia patient will change the prognosis of pneumonia as surely as it has changed the prognosis of typhoid fever I doubt not in the least. To hasten this consummation I have presented to you such a method, the result of observation of half a century. Do not adopt it if it does not appeal to your judgment as rational and safe. But if the method *does* satisfy your judgment, after approaching it without bias do not attempt to modify it, for you will surely fail as have those whom I have quoted in the effort to improve upon the fresh air and water treatments that have been worked out with infinite care by their propagandists. One of these innovators has furnished statistics showing a mortality of 61 per cent. What the other innovators may have shown may be judged by the irrational methods they advise.

The principal lesson presented by these articles is that pernicious activity in giving food, air, water, drugs, and hydrotherapy has resulted in almost as large mortality in this "enlightened" age as was common in the past centuries of antiphlogistic battling against pneumonia.

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PROGRESSIVE LENTICULAR DEGENERATION.*

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Since the comprehensive article by S. A. Kinnier Wilson (*Brain*, Vol. 34, Part 4, March, 1912) the attention of neurologists has been directed to this somewhat rare clinical condition. Wilson's monograph to which was awarded a gold medal by the University of Edinburgh, July, 1911, leaves little to be said, but it seems desirable to present and put on record the cases observed since then. James E. H. Sawyer (*Brain*, Vol. 35, Part 3, February, 1913) recorded a case which differed from Wilson's type in the absence of cirrhosis of the liver, which Wilson is inclined to insist upon as a necessary accompaniment of the condition, and also in having a longer duration than any of Wilson's twelve published cases. Since Sawyer's case, others have presented cases before neurological societies in this

*Patient presented before the Society of Bellevue Hospital Alumni, November 4, 1914, and before the joint meeting of the New York Neurological Society and the Section on Neurology and Psychiatry of the New York Academy of Medicine, November 10, 1914.

country which cases have been briefly mentioned in the published transactions of such bodies. E. Murray Auer (*Journal of Nervous and Mental Diseases*, Vol. 41, No. 6, June, 1914) has recorded a case occurring in the Kalamazoo State Hospital.

Fig. 1.—Patient braced at rest.

Williams B. Cadwalader (*Journal of the American Medical Association*, Vol. 63, No. 16, October 17, 1914) describes two cases from the Orthopedic Hospital and Infirmary of Nervous Diseases in the services of Drs. S. Weir Mitchell and John K. Mitchell, in neither of which cases was there any clinical evidence of the presence of hepatic disease. With this exception, all of the cases reported, including the one whose history follows herewith, and who was admitted to the Fourth Medical Division of Bellevue Hospital on June 20, 1914, correspond very closely to the condition first described by Wilson in his brilliant paper. Wilson's definition of the disease describes the characteristic features. It is "based upon pathological data, but at the same time is non-committal, as it entails no acceptance of a particular hypothesis as to the actual nature of the disease." He says: "Progressive lenticular degeneration may be defined as a disease which occurs in young people, which is often familial but not congenital or hereditary; it is essentially and chiefly a disease of the extrapyramidal motor system and is characterized by involuntary movements, usually of the nature of tremor, dysarthria, dysphagia, muscular weakness, spasticity, and contractures with progressive emaciation; with these may be associated emotionalism and certain symptoms of a mental nature. It is progressive, and after a longer or shorter period, fatal. Pathologically it is characterized predominantly by bilateral degeneration of the lenticular nucleus, and in addition cirrhosis of the liver is constantly found, the latter morbid condition rarely, if ever, giving rise to symptoms during the life of the patient." Wilson thinks the disease is important not only because of its rarity but because of the light it sheds on such diseases as paralysis agitans.

The symptomatology of the disease is well illustrated by the history of our Bellevue case, comprising as it does nearly all of the features embraced by Wilson's definition. The spasticity in our patient has not yet reached the extreme degree noted in Wilson's cases or in Sawyer's case. The dysarthria partakes more of a slurring element than of the staccato speech of disseminated sclerosis. There are other points of resemblance between progressive lenticular degeneration and dissemination sclerosis, but the preserved abdominal reflexes with absence of Babinski reflex and of ankle clonus will usually decide. In addition the rigidity of disseminated sclerosis is rarely so universal and contractures are not so essential a feature of its symptomatology. Pseudobulbar paralysis may present dysarthria, dysphagia, inability to protrude the tongue, paralysis of the palate, paralysis of the lower part of the face, sialorrhea, and often involuntary laughter, because the fibers of the pyramidal tract affected in pseudobulbar paralysis skirt the lenticular nucleus. But in progressive lenticular degeneration the palate and tongue are only apparently paralyzed. The palate moves on phonation. The tongue can be protruded. The dysarthria and dysphagia are the result of the rigidity of the motor mechanisms concerned. Paralysis agitans in several ways closely resembles progressive lenticular degeneration, but is easily differentiated clinically, although it may be analogous pathologically.

The prognosis of progressive lenticular degeneration is invariably fatal. The course of three acute cases averaged eight months and of eight chronic cases averaged four years in Wilson's reports. Sawyer's case had existed seventeen years when reported and "may live many years longer." Auer's case gives a history going back to 1898. One of

Fig. 2.—Patient about to walk.

Cadwalader's cases began at 14, and patient was eighteen when recorded; the other began in 1892 when patient was sixteen years old, was progressive at first, but became stationary after five or six years. Our Bellevue case began at the patient's

fifth year, fifteen years ago, and is non-progressive, except for his talipes equinovarus, which is rendering him steadily more helpless.

In the absence of a knowledge of the nature of the disease, the treatment is empirically symptomatic and palliative. The older writers, in the pre-Wassermann days, suspected hereditary syphilis, but in all the recent cases, including our own, the Wassermann reaction has been negative. Although more than one case has occurred in the same family in two instances, it seems certain that the disease is not due to a congenital or abiotrophic defect, as there is nothing *essentially* familial about the disease. Certain facts suggest some toxi-infective condition which has a predilection for youth, but there are no facts to suggest that this toxin is syphilitic. Wilson thinks that this toxin may be elaborated in the liver and may have a specific action on the lenticular nucleus, similar to the action of the poison in icterus gravis neonatorum.

Case.—R. S., age, 20 years, was admitted June 20, 1914 to the Fourth Medical Division. Occupation none.

Family History: Father died at age of 42 of glandular tuberculosis. Mother died at about same age of pulmonary tuberculosis. Father and mother were not consanguineously related. Mother had 7 children; patient is the last child. Four living and three dead. Those that are living now are in good health. Sister who is married is 21 years of age. Sister who is single is 24 years of age. Brother who is single is 26 years of age. One brother died of pulmonary tuberculosis. Cause of others' deaths: (1) malignant diphtheria; (2) 13 months old, cause unknown. Patient states that as far as he knows no one in his father's or mother's family had a condition similar to his. Negative family history of gout, rheumatism, syphilis, alcoholism, nervous affections. The married brother has one child who is at present in best of health. The married sister has two children who are fairly well.

Previous history: Occupation—Patient went to school, until he was unable to stay in class. Habits: Smoked cigarettes, and drank a glass of beer at times. Drinks tea and coffee. Ate meals irregularly. Would eat double meals. Bowels always regular. Likes sweets, as candy and sweet fruits. Had the usual diseases of childhood; at 5 years of age lost speech and power of walking, being obliged to creep around, but was able to start to school at age of 10, and finished at age of 16, in 4-a grade. Had scarlet fever at age of 6. Patient states that he was very good in school; was always near the head of his class, and liked to study very much. He could learn his lessons very well but was lazy and tired during the morning hours. Had a bad temper and would get into quarrels and scraps with the other boys. Left school at age of 16 because the left arm began to shake. The hand shook so badly that patient could not hold whatever he had in his left hand. The tremor was first noticed while patient was writing. Had to hold his hand against his body to prevent the tremors. Treated at dispensary about his 10th year without diagnosis; treated at a college clinic between 12th and 13th year; diagnosis withheld. After patient left school he stayed home; would go out with dray men, etc., for pleasure. Has never worked any or made any money. Has no trade.

Present history: The first symptoms of the disease occurred at age of 5, before patient was in school. Noticed that his left hand trembled considerably and right leg slowly turned in, as patient expresses it. The foot finally got in such a condition that he was walking on the side of the foot and so he had to catch hold of bed-posts, etc., to support himself. None of the doctors knew what this condition was. His family physician said that he had St. Vitus' dance. Patient can write if he keeps the left arm away from the paper. Patient states that he has never fallen to sleep in the bathroom, etc. States that he used to get dizzy but would not faint. Says that his speech was worse than now while he was going to school. There is no history of patient having a fit or becoming unconscious previously or at present. The hand began to shake more and the foot condition became worse, speech becoming more nasal. When he starts to do anything he has to wait a few seconds and then gets up quickly and off his chair. Then it would take him a few seconds to move. As soon as he got up he would start swaying around and would have to hold on to the banisters, etc., and pull himself along. If he was in the open and nothing to pull with, then he would throw himself forward and drag or slide his feet. After he got started walking he could walk a good deal, unless he stopped. Says that he could walk across Brooklyn Bridge providing he did not stop, but kept right on. Patient has remarkably developed muscles of trunk and arm. Three years ago patient would walk backwards for a few blocks; was afraid to walk frontways as balance was better in retropulsion. Says that his temper became worse and that he would quarrel with his sisters, etc. Would strike them, that is, he would grab and hold them until he was able to strike them. The movements of hand took so long that sometimes he would be unable to strike them. Patient's facial expression is fixed; mouth large and drawn, and when walking or doing any form of exercise he protrudes tongue and draws mouth. Patient understands everything that is said to him and is in a jolly mood. He enjoys laughter and funny books. Seems to have the intelligence of a boy 12-13 years old. When the patient smiles it comes slowly and remains longer than average in the normal person. Patient's condition has not changed, he says, only that he is losing control of right leg. His condition never was so bad that he had to be undressed and put to bed; could feed himself and dress himself, only it would take him longer. Says that he must eat slowly.

Patient has been in hospital since June 20; does not seem to differ physically or intellectually since the date of admission. His movements were jerky; that is, his head and arms would jerk while his spine becomes rigid. Talipes equina varus of left foot. He bends forward, the right foot is thrown out into an inverted position and left leg is drawn by sliding; in the mean time the head, arms and pelvis go through jerky motions. The speech long and drawn out; few words understood; swallowing normal. Appetite good. The tremor of the hand coarse. The grip in the hands is very good. Knee jerk and ankle jerk exaggerated when patient entered hospital, also the same as the present time. Sensations appear to be normal.

General appearance: Patient is a well developed and nourished male about 5 feet 5 inches in height; weighs 132 pounds. The difference between the flat facial expression with his quick and shrewd eye is very noticeable. Has continuous jerks of head and left arm. Mouth large and elongated. Head: Considerable amount of red hair on head; circumference 56 cm. The face is very wanting in expression; flat, vacant and serious, rather than silly. When patient smiles the smile broadens out and gradually fades away. Continues to have the good tempered look; no depression. Takes great interest in passing events, especially the war. Reads the papers fairly well. Eyes: Pupils dilated; react to light and accommodation. Has a small jerky nystagmus laterally. Other extrinsic ocular movements negative. No ptosis, strabismus, diplopia, hemiopia, etc. The sclera are clear. Conjunctiva not congested; no exopthalmus or Von Gräfe's sign. Corneal reflexes abolished. Discs are normal. Face: The mouth is opened slowly. When patient is walking or doing any form of exercise the mouth is drawn to the right side of face and tongue protrudes. Mouth is continuously kept open; no dribbling of saliva. The face is flat, mandible protrudes farther outward than the rest of the face. Has a pretty good growth of hair on face. Speech: Is dysarthric. It is impossible to understand some of the words spoken. They are drawn out in slow syllables. Patient continuously grunts. Teeth: In poor condition with very marked pyorrhea. No cavities. Tongue: Red and fine tremors on edge; coarse elsewhere. Throat: Negative; reflex abolished. Nose: Negative. Sinuses: No tenderness. Ears: No discharge: hearing is normal. Taste: Patient can tell sweet from sour, and call the constituents of ingesta.

Chest: Expansion of lungs good; anterior curvature of the spine. Heart: Apex is in 5th inner space, 12 cm. from M. S. L. Left border is 13 cm. from M. S. L. in 3rd space. In 5th space it is 12 cm., M. S L. Right border of heart, 4 cm. to the right of M. S. L. in 3rd space. Sounds at apex; presystolic murmur ending in a sharp crescendo of first sound and systolic murmur which is transmitted to axilla. The systolic murmur at apex is transmitted to pulmonic area also. A purring thrill is felt at anex. Apex bounds against the chest wall, a heaving like character. Lungs: Palpation, percussion, auscultation negative. Abdomen: No

tenderness, rigidity, palpable tumor, or visible peristalsis. No scars; no distention. Liver: Not palpable. No evidence of cirrhosis. Spleen: Not palpable. Kidneys: Not palpable. Skin: The skin is dry and well colored. No edema or eruptions. Muscles: The muscles of right leg are not very well developed. The muscles of left leg compensate by remarkable development. Muscles of chest and arm are developed, especially biceps. Bones and joints: Talipes equina varus with inversion and rotation of right ankle. Atrophy of muscles around right hip. Left arm spastic. Lymphnodes: Postcervical and epitrochoel glands enlarged. Reflexes: Knee jerks, right and left, exaggerated. Ankle jerks exaggerated. Wrist jerks present; elbow jerks present. Abdominal reflex exaggerated, right and left; both cremasteric reflexes exaggerated. Negative Babinski on right. Babinski on left is doubtful. Negative Oppenheim on both sides. Negative ankle clonus on both sides. Speech: Dysarthria. Hearing: Good. No tinnitus or discharge. Sensations: Pain negative. Pain sense normal, no retardation. Temperature: Heat and cold normal. Taste: Good for sweets and bitters. Smell: Good. Position: Good. Orientation: Place, person, time, events, present and past conditions, good. Stereognosis and diadokokinesis good. Atrophy: There is atrophy of muscles of right leg, hip, and calf. Compensatory hypertrophy of the other muscles of the body. Wassermann test: Negative on repeated examinations.

42 East Twenty-ninth Street.

DYSTONIA MUSCULORUM DEFORMANS;*

WITH REPORT OF A CASE.

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In 1911 Oppenheim reported a group of cases in which he described a peculiar syndrome and named it "dystonia musculorum deformans." Somewhat earlier than Oppenheim, Ziehen and also Schwalbe described similar cases, but the former named the syndrome "tonic torsion neurosis," while the latter called it "general tic with tonic changes." A survey of the cases shows that they all come under the same category, and after a careful analysis we must admit that the name adopted by Oppenheim is the most suitable. Joseph Fraenkel, however, who in 1912 also reported a group of cases, termed this disease "tortipelvis" and placed it in the class of spasmophilia. The name is correct if Fraenkel's view on the etiology is accepted. He considers it the result of a defect in calcium metabolism and holds the parathyroids responsible for the disease. Flatau and Sterling furnished a further contribution to the etiology of this disease. They have described two cases under the heading of "progressive torsion spasm in childhood." Cases of dystonia were also reported by Abrahamson, Spiller and Belling. Almost every writer attaches a different name to the disease, influenced probably by his etiological interpretation. With a few modifications, however, they all agree on the presentation of the clinical manifestations of the disease.

Dystonia musculorum deformans is a chronic, progressive disease occurring mainly in later childhood. The chief characteristic is a partial or total loss of functon in one or more extremities, preeminently the lower. The loss of function is due to an improper tonus innervation. In consequence of this, we have forced, involutary, bizarret, and riotous movement. These various forms of movement give a characteristic feature to the disease. The cases so far reported were only among Russian or Galician Jews. Both sexes are about equally represented. So far as our present observation goes,

Fig. 1

heredity seems not to be a factor. The onset is gradual and the affection is steadily progressive.

Fig. 2

As a rule the initial symptom is a subjective weakness in one extremity, usually a lower. A few months later the other lower becomes involved and the patient is unable to stand or walk. A peculiar form of astasia abasia develops; indeed, due to this

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peculiarity, the disease was mistaken for hysteria. The gait is quite characteristic and one that cannot be found in other forms of disordered locomotion resulting from a diseased nervous system. The patient bends his body forward, the trunk is twisted

Fig. 3

on the pelvis; thus the buttocks are distorted with torsion-like movements. With one hand he grasps the corresponding, or opposite, extremity and in this position makes a few irregular and improperly controlled steps. He soon tires and falls. Each step is accompanied by a number of dyskinetic and unskilled movements of the extremities involved. The movements are spasmodic and jerky; they resemble athetoid movements, but lack the characteristic marks of athetosis. The movements are not under the control of the will; the more the patient endeavors to overcome them the more pronounced they appear. They diminish when the patient is in repose but disappear only in sleep. This gait, when seen once, cannot be mistaken.

Further observation reveals a peculiar tonus in the muscles which is pathognomonic of the dis-

Fig. 4

ease. In the same extremities and at the same time there are commonly found one or more muscles in a state of tonic contraction while another muscle or group of muscles are entirely relaxed or hypotonic. Indeed, there is a peculiar play of hypo- and hypertonicity to be recognized by the sight and touch of the observer. So far, no other affection of the nervous system shows these peculiar conditions. The tendon reflexes are exaggerated or diminished or even absent according to the tonic state of the muscles concerned in the reflex in question. The Babinski sign is absent, nor is there present any symptom except the disturbed tonus that would point to an organic involvement. While almost the entire musculature of all the extremities and trunk may become involved, the face usually escapes. The resulting deformities, such as the twisting of the pelvis, scoliosis, and lordosis, disappear in the recumbent posture. The talipes valgus and varus are somewhat permanent. The psyche is clear. Spiller's case forms an exception.

After observing a case and after studying the literature with care, one cannot help feel that we are dealing here not with a functional but with an organic disease. It is true that the pathogenesis is only a matter of conjecture. Of all the various theories advanced, only two are worthy of consideration. One, advanced by Joseph Fraenkel, considers the disease to be a sequel to a selective poison resulting from faulty metabolism, *i. e.* a calcium deficiency. *X*-ray pictures taken of our case show some abnormalities in bone formation. This, apparently, might tend to substantiate Fraenkel's view. We, however, undertook to make a study of the calcium metabolism in this case and not until it is completed can we offer any interpretation of these abnormalities, nor have we enough facts to speak pro or contra Fraenkel's view.

The other theory is that of Oppenheim, who

Fig. 5

thinks we are dealing with a degeneration of special systems that govern the tonicity of the musculature. The theory advanced by Flatau and Sterling that we are dealing with a special type of athetosis, I believe can be completely dismissed.

I therefore believe that Oppenheim's terminology can temporarily be accepted and the disease named dystonia musculorum deformans. There is another important feature that I would emphasize: the disease, although recently described, is doubtless not new. It was probably diagnosed as hysteria and considered as such. It would therefore be interesting to study the autopsy findings in cases of so called hysteria in which allied clinical manifestations were observed with a view of associating these cases with a possible pathology of dystonia musculorum deformans.

CASE.—S. P., a girl 11 years old, of Jewish parentage, born in Russia, was admitted to the Montefiore Home on September 27, 1914, with the following history: Father is 43 years old; does not use alcohol; smokes moderately. At 28 he had an attack of acute articular rheumatism. Denies any venereal infection. Mother is healthy; had one miscarriage and four children at full term, three of whom are in good health. S. P. is the third child; was born at full term; perfectly normal labor; was breast fed. Began to walk and talk at about 1½ years; first tooth at 5 months; had German measles at 2 years; at 3 years had two attacks of tonsilitis; at 9½ years had an attack of whooping cough. Bowels always irregular; appetite poor; sleep frequently restless. Played a good deal outdoors. Was bright at school. About a week or two after the attack of whooping cough, *i.e.* about 18 months previous to her entrance to the Montefiore Home, she began to complain of weakness in her left lower leg. A little later she noticed that the foot turned outward while running or in quick walking. The weakness traveled upward and her left knee gave way. Plaster of Paris was applied to the knee joint which seemed to relieve her a great deal. A few weeks after the onset she began to complain of weakness in the other leg and soon the left hand became involved; with each attempt to use the hand it began to tremble. Similar tremors were observed in the lower extremities. She complained of no pain nor parasthesias of any kind. The condition progressed steadily.

About a year after onset the patient was no longer able to walk. Her chief complaints at present are (1) inability to walk, (2) weakness of right upper extremity, (3) trembling of all extremities. In the recumbent posture patient shows a slight wormlike tremor of all extremities, more pronounced on the right side. In a position of rest with extremities as nearly in repose as possible, a movement, better appreciated by touch than by sight, is constantly present. It somewhat resembles athetosis but lacks all the characteristics of that movement; it seems to possess a characteristic of its own being somewhat irregular, wormlike, and entirely lacking in rhythm. It partakes really of the wormlike movements characteristic of the muscular movements in this patient; perhaps the word dyskinesia might be most appropriately given. In the prone position there seems to be a characteristic pose consisting of flexion of the right knee with extension and external rotation of right hip and outer rotation of left foot. There is a slight kyphosis in the lumbar region of the spinal column; this becomes more pronounced in the sitting posture.

On standing (see Figs. 1 and 5) a kyphoscoliosis is equally pronounced. The trunk assumes an acute angle with the pelvis, the latter varying in its position with movement. The patient can stand only with support. On standing, the right foot is at an unusual angle with th loewer leg; the inner sole is raised. Due to extreme hypotonia the right knee assumes almost the shane of a genu recurvatum. The patient is unable to walk unsupported, a marked feature being a peculiar torsion of the trunk on the pelvis, the latter being thrown out of a normal angle relation with the trunk. In trying to walk, there are numerous riotous, unskillful and disharmonious movements through the extremities and trunk; to correct these, the patient seizes her left lower extremity (see Fig. 2) at the joint, forcing it into proper position; she thus expends an inordinate amount of energy in attempting with her hands to facilitate locomotion, alternately pressing back one knee, then the other, as the obstreperous joint gives way under the body weight. The right hamstring muscles are in a state of hypertonicity, almost rigidity; the muscles of both legs are also in a state of hypertonicity. Both quadriceps groups and the left peroneal group are on the contrary almost in a state of complete atonia. The hips are hyperflexed (see Fig. 3) on the abdomen. Due to the atony of the flexors digitorum of the right hand, the fingers can be hyperextended to such a degree that on dorsal flexion (really extension) of the fingers, they can be brought to an acute angle with the dorsum of the hand. (See Fig. 4.) Both knee jerks are diminished; ankle jerks are obtained with difficulty. Babinski and Oppenheim signs are absent. Abdominal reflexes are present. All the various sensibilities are intact. Cranial nerves are normal. She shows adenoid facies. Heart, lungs, and abdominal viscera reveal no abnormalities. Patient is able to write with difficulty. Electrical reactions show no qualitative changes. A hyperexcitability, however, is obtained in the hypertonic muscles. Urine shows a slight excess of indican; otherwise negative. The psyche is perfect. *X*-ray report shows: neck of left femur abnormally short and thickened. The trochanter major on the same side also presents an abnormal configuration. The bone structure, however, appears normal. Dorsal and lumbar spine shows no abnormality. The sacrum, however, appears twisted, giving the entire pelvis a tilted position.

252 EAST BROADWAY.

EXTRAPYRAMIDAL HEMIPLEGIA.*

BY ALFRED GORDON, M.D.,

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THE new clinical type presented in the following case is of interest from a physiological standpoint as well as from the standpoint of localization. It differs from the commonly known form of cerebral hemiplegia in many essentials and yet it may be taken for the latter if care is not exercised in the discrimination and interpretation of each individual manifestation. A very attentive investigation of all hemiplegic cases will perhaps reveal a greater frequency of this type of cases. In the literature at my disposal I have failed to discover identical records.

Patient, male, twenty-five years of age, Austrian by birth, had typhoid fever at the age of eight. Before the temperature began to fall he had an apoplectic seizure with loss of consciousness. He became hemiplegic on the left side and aphasic. The aphasia lasted several months. The hemiplegia remained. A year later he developed ataxic movements of the left arm and contracture of the fingers of the same hand. When he came under my observation last May he presented the following condition, which has remained unaltered up to the present time.

There is apparently a left hemiplegia with the face drawn somewhat to the left. His gait, however, is similar to that of hemiplegics: the patient drags his left leg and scrapes the floor with the left foot which is kept in a state of marked contracture. The only difference is found in the bending of the body while walking toward the affected side instead of toward the normal side, which is the case in the classical hemiplegia.

There is no distinct rigidity of various segments of the left arm and leg, as on passive movements resistance is easily and promptly overcome. Indeed at times hypotonia is observed. In fact there is not much paralysis, as voluntarily he can move every joint except the wrist and ankle. The hand is always in a state of extreme contracture. The fingers are tightly closed on the palm. The least attempt to unfold them increases the contracture. The shoulder and left arm present involuntary movements. The arm always moves away from the trunk. When the patient abducts the arm voluntarily the latter becomes everted and the contracture of the fingers is then extreme. When at rest involuntary contractions are also observed in the left side of the face, especially in its upper half. The contractions are more marked on passive or voluntary movements. Then not only the muscles of the left side but also the muscles of the neck and the lobe of the left ear are animated with movements. The latter is particularly noticeable on voluntary movements. The muscular contractions are rhythmical in character. The same phenomenon is observed in the left foot when the patient is undressed. The toes and the muscles of the entire foot

*Patient exhibited before the Phila. Neurological Society, October 23, 1914.

become contracted the moment one attempts to move them. This is noticeable when the patient lies on his back or sits with his foot on a chair. The movements are slow and regular. It is also interesting to note that associated movements are observed on the entire left side, including neck and face, whenever a passive movement is brought on in any portion of the left side. The face presents this peculiarity that the muscles on the left seem to be somewhat thin, perhaps atrophied, although no reactions of degeneration are observed. The left musculus frontalis does not contract when the patient is told to raise his brows or wrinkle the forehead. There was evidently a palsy at the time of the hemiplegia. When the patient talks or smiles the mouth is drawn toward the left and the facial folds are deeper on the left than on the right. However, when he is told to move his lips to either side he does it about equally well on both sides. The tongue protrudes in the median line and no involvement of it is noticed. The pupils are somewhat large but equal and react promptly to light

Extrapyramidal Hemiplegia. Wrist, fingers, and ankle are seen in extreme contracture when patient attempted to move his arm. Atrophy of left side of face.

and accommodation. The eyegrounds are normal. The speech is normal.

The patellar tendon reflexes are markedly increased, more on the left than on the right side. There is no ankle clonus, no Babinski, no Oppenheim, and no paradoxical reflex on either side. The abdominal and cremasteric reflexes are preserved on both sides. The epigastric reflex is diminished on the left.

Sensations to touch, pain, and temperature are all normal and equal on both sides of the body, including the neck and face.

When undressed the patient presents a distinct curvature of the trunk with the convexity of the spine toward the right side. The body is inclined to the left side when he is standing or walking. The muscles of the left side of the trunk, including the buttock, appear flattened and somewhat atrophied. The muscles over the scapula, thorax (anterior and posterior views), the clavicular region, the neck, face, and forehead appear thin and undeveloped. The same condition, although not so marked, is observed in the left lower limb.

The man complains of no pain nor of any other physical disturbance except of frequent attacks of exhaustion, which last from a few days to two weeks. All vegetative functions are normal, the sphincters are not disturbed. The mentality is normal.

Uranalysis, blood examination, and Wassermann test of serum are all negative. Thoracic and abdominal viscera are intact.

Comment.—In discussing the diagnosis of the case several possibilities are to be considered.

First of all organic hemiplegia. The onset of the condition, viz., in the course of an infectious disease, suddenness of the attack with total loss of consciousness and subsequently paralysis on one side with aphasia, are all in favor of an organic lesion in the opposite hemisphere. On the other hand, the absence of the marked contractures in the joints of the arm and leg in spite of the long standing of the condition, the absence of the characteristic resistance on passive motions, the presence of hypotonia which is sometimes observed, the absence of actual paralysis, the absence of ankle clonus and especially the absence of the toe phenomenon, the preservation of the abdominal reflex, the inclination of the trunk toward the affected side in walking instead of toward the unaffected side, all these features speak against the classical localization of the lesion in cases of organic hemiplegia, viz., in the internal capsule. Besides, the atrophic condition of the musculature of the left side of the face, the involvement of the left frontal muscle, the associated muscular contractions of the left face and of the left ear upon the least passive movement of the arm or leg, the peculiar eversion of the left arm on movements, the extreme contracture of the fingers of the left hand especially on motion (passive or voluntary), similar rhythmical movements of the left foot, distinct curvature of the trunk toward the affected side, all these peculiarities are not met with in the classical type of organic hemiplegia.

Another possibility to be thought of is hysteria. First of all, the onset of the hemiplegia without a preceding emotional element, the profound loss of consciousness which accompanied the apoplectic insult, the aphasia (not mutism) lasting several months, the total loss of power in the left side during a period of several weeks, all these symptoms speak against hysterical paralysis. In the next place the present condition of the hemiplegia, viz., total freedom from sensory disturbances on the paralyzed side, absence of any of the well-known hysterical stigmata in the sensorimotor sphere, also in the domain of special sensations, the deviation of the face and the involvement of the frontal muscle on one side, the atrophic condition of the musculature on the face, the extreme state of contracture of the left fingers, all these features are not found in hysterical paralysis. Moreover, the characteristic feeling of increasing voluntary resistance experienced by the hand of the observer in attempting to flex or extend a limb affected by a palsy of a functional nature is not present in this case. Finally, the existence of paralysis of this nature for seventeen years is quite unusual in hysteria.

When standing the patient resembles somewhat Oppenheim's cases affected with *Dystonia musculorum deformans*. In both cases we find a deformity consisting of a marked lordosis of the dorsolumbar region with a lateral inclination of the pelvis. But here ends the resemblance. In my case we do not find the twitchings in the muscle of the pelvic girdle and quadruped-like gait with

the clownish movements; the knee-jerks, on the contrary, are here increased and a paralytic condition on one side is present.

Finally, my case has some points in common with S. A. K. Wilson's "Lenticular Degeneration" syndrome with this difference that the symptoms are confined to one side. We find here very little paralysis on the affected side; spasticity of the hand, which is very pronounced; muscular contractions which increase with movements; preservation of abdominal reflexes; finally, and very emphatically, absence of toe phenomenon in spite of the spasticity of long standing. The latter circumstance especially speaks in favor of integrity of the pyramidal tract. As a hemiplegia actually occurred and it was of apoplectic nature, also as it developed in the course of an infectious disease, there can be no doubt of its organic nature. But in view of the clinical features uncommon to classical hemiplegias because of absence of true paralysis and particularly because of absence of the toe phenomenon, I am of the opinion that the lesion must have been in all probability not in the internal capsule, but "extrapyramidal." In view of a certain resemblance to Wilson's disease it is presumable that the lesion in my case is also in the corpus striatum, but only on one side. By analogy we may perhaps classify my case as an example of "Unilateral Extrapyramidal Degeneration." In view of the suddenness of onset with loss of consciousness the initial lesion was probably a hemorrhage. The following picture may, therefore, constitute a "unilateral extrapyramidal symptom-group."

A certain degree of loss of power on one side but not amounting to an actual hemiplegia; spasmodic contractions on the affected side brought on especially on movements (passive or active); absence of abnormal reflexes common to classical hemiplegias; preservation of the abdominal reflex; increased patellar tendon reflex; absence of sensory disturbances on the affected side; wasting of muscles on the same side. If the face is affected there are also associated spasmodic contractions of its muscles when movements are produced in the arm and leg. The mentality is intact and there are no disturbances referable to the eyes.

1812 Spruce Street.

COMPRESSION FRACTURE OF THE UPPER EXTREMITY OF THE TIBIA.

By A. C. BURNHAM, M.D.,

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In 1886 Wagner[1] called attention to an unusual fracture of one or both tuberosities of the tibia which was caused by indirect violence. To this injury he gave the name of compression fracture, because it was apparently due to the pressure of the lower end of the femur upon the head of the tibia.

Eleven years earlier, Heydenreich[2] had collected from his personal experiences and the literature four cases of fracture of one tuberosity of the tibia but he believed that most of these cases were due to direct violence. More recently, Sonntag,[3] Erfurth,[4] Albers,[5] Wharton,[6] and others[7] have added additional cases.

The mechanism of compression fracture as given by Wagner is essentially as follows: The patient falls striking on the feet with the knees in extention and the force of gravity, acting through the femur on the tibia, drives the inferior surface of the internal condyle of the femur against the superior surface of the inner tuberosity of the tibia, the force of the impact breaking the tuberosity from the tibia. In the same manner, in patients having a moderate amount of genu valgum, or where the force of the impact acts obliquely tending to abduct the leg at the knee joint, the force acts through the external condyle of the femur and a fracture of the outer tuberosity of the tibia is the result.

Several of the reported cases have occurred in patients giving a history of a fall from a moving vehicle in which there was an element of rotary force caused by the body turning after the foot has struck the ground. In fractures of the outer condyle, the muscular force of the biceps acting upon the fibula and through it upon the tuberosity of the tibia, may exert enough traction to be an added element in the causation of the fracture.

X-ray photograph of right knee of patient, Mrs. M———, showing compression fracture of the external tuberosity with displacement outward.

Sonntag,[3] in 1906, collected 34 cases of compression fracture. In 24 of these a fall upon the feet was given as the cause. In one case a heavy weight falling upon the shoulders was the causative agent.

Albers,[5] in an interesting article published in 1894, reports four cases of compression fracture which were due to the accidental fall of an elevator. The fracture occurred in the leg supporting the larger part of the weight of the patient at the time of the accident.

There are a few cases in which the injury may be caused by forced adduction or abduction at the knee without an associated fall upon the feet. In these cases it is possible that the condyle of the femur is driven into the head of the tibia, which may be fractured before the powerful crucial ligaments of the knee are ruptured.

The bone usually is fractured anteroposteriorly through the articular surface, the line of fracture

usually occurring about midway between the attachment of the crucial ligaments and the lateral margin of the bone. The line of fracture then passes downward and to the side of the bone, emerging on the side of the tuberosity about two inches from the articular surface.

The lateral fragment in some cases may be in close approximation to the fractured surface, but it is usually displaced downward and laterally away from the fractured surface. When the external tuberosity is fractured the fibula usually is intact. However, a fracture of the fibula at a point an inch or more below the head may occur as an associated lesion. The joint, as is the case in most intra-articular fractures, becomes filled with blood and a condition of hemarthrosis results. Ordinarily, the lateral ligaments upon the opposite side are uninjured.

The symptoms of this injury are those of a severe trauma to the knee joint. The fracture itself may be overlooked, being most commonly mistaken for a rupture of the ligaments.

Meerwein[5] reports four cases in which the external tuberosity was fractured without marked displacement of the fragment. These patients were able to walk and the pain and disability were not such as to suggest fracture.

Solomon believes that in some cases a secondary fracture of the fibula occurs when the patient tries to walk on the injured leg. Ecchymosis is usually early and extensive. Crepitus and false point of motion are easily obtained if the type of fracture is borne in mind and the loose fragment grasped between the thumb and finger and moved upon the tibia. The joint is greatly swollen and there is increased lateral mobility of the knee in a direction away from the injured side, but, because of the preservation of the lateral ligament, the joint is firm when motion is attempted toward the fractured side. This is an important point in the differential diagnosis between compression fracture and the transverse fracture of the upper third of the tibia. In the absence of crepitus the injury may be diagnosed from rupture of the lateral ligaments by the point of local tenderness from $1\frac{1}{2}$ to $2\frac{1}{2}$ inches below the upper margin of the tuberosity.

Sonntag found that most cases occurred in adult males and that the internal tuberosity is most often affected. However, in a large proportion of the cases, the external tuberosity was fractured and Meerwein has shown that in three of his cases, in which the external tuberosity was fractured, there was a preexisting double genu valgum.

The prognosis for a complete return of function is poor. Partial loss of function is the rule, but a useful limb is usually obtained. There is usually a long period of complete disability followed by partial disability for months with permanent weakness and diminished function of the knee joint. A condition similar to chronic rheumatoid arthritis may occur months or years after the injury.

The treatment consists in the application of lateral splint or plaster cast to prevent the lateral mobility of the knee with passive motion and massage after an interval of from three to four weeks. The patients may be safely allowed up on crutches after four to six weeks in bed and they may attempt to walk by the end of the eighth week. It is usually several months later before they walk freely and the reported cases as a rule showed considerable disability on examination from one to two years after the accident.

Operation with the reduction of the fractured tuberosity and its fixation by nails or plates is theoretically dangerous because of the involvement of the knee joint and, while the results in the cases published have been unsatisfactory, with the modern technique the radical reduction of the fractures is the indicated method of treatment.

Involvement of the peroneal nerve in the callus may require operative interference (Wharton).

The following case was admitted to the hospital in November, 1913, and is presented as a representative case of this type of fracture:

Mrs. M.——, age 25 years. To escape from a fire, she jumped from the first story (about 12 feet) the night before admission. She was holding a two-year old child in her arms and struck on her feet on the stone pavement. Does not remember that she fell on one leg with any more force than the other. Was unable to walk because of severe pain referred to right knee.

Examination: Patient in marked shock with severe superficial burns and bruises about body. The right knee is markedly swollen and the patella floating high above its articular surface. There is considerable ecchymosis below and behind the external aspect of the joint and the leg appears to be slightly adducted at the knee. There is acute tenderness over the external tuberosity which can be freely moved on the tibia, motion being accompanied by distinct bony crepitus. Flexion and extension at the knee are painful but fairly free, evidently limited by the effusion in the joint. When abduction at the knee is attempted, the joint is firm but adduction may be accomplished to about 15 degrees. Examination of the fibula fails to demonstrate any injury.

Diagnosis: Compression fracture of the external tuberosity of the tibia associated with hemarthrosis.

An external lateral splint was applied and the patient sent to the *x*-ray room for examination. The plate showed an oblique fracture of the external tuberosity with displacement of the fracture backward and outward. (See accompanying illustration.) Three days later the fragment was manipulated in the attempt to reduce it and a circular plaster bandage applied from the ankle to the groin, the leg being held in forced adduction, thus making the internal lateral ligament tense. Cast remained on for three weeks after which it was removed at intervals for passive motion and massage.

Convalescence was slow and it was over twelve weeks before the patient was able to walk with crutches. Six months after the accident she was able to walk with a cane but still had some lateral mobility at the knee joint and flexion at the knee was possible through an angle of only about 45 degrees. There was still some swelling of the knee.

In this case the following points were demonstrated:

1. The possibility of diagnosing this type of fracture from the history and the examination even in the absence of the *x*-ray.
2. The long duration of the swelling about the knee.
3. The prolonged convalescence and probable permanent disability of the knee joint.

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140 West Seventy-ninth Street.

THE DIATHERMIC TREATMENT.

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In the Medical Record of May 30, 1914, there is an article of mine, entitled "Observations, Based on Forty-five Years of Electrotherapeutic Work." Its chief object was to call renewed attention to the latest and most remarkable manifestation of electric force in its relation to medicine.

I allude to the high frequency current and more especially to its use by the diathermic method, and my desire in supplementing that article by this is not alone to emphasize its great and unique value in pathological conditions, but to show what a simple thing is its utilization. There is no reason why every general practitioner, as well as specialist, should not have it as an ever ready and practical aid in his office work. When we had at our command only the faradic and galvanic modalities, the busy practitioner found that he could not well utilize them to advantage. To say nothing of the time and active attention necessary, special skill was required to differentiate and get the best results, and altogether, the attempts were discouraging. Static apparatus, serviceable as it may be, takes up more room than many have to spare or care to give; and, to do justice to its varied and more or less complicated methods of administration, demands not a little study and active personal attention.

And so in this paper I desire to impress the fact of the greater simplicity of the diathermic applications of the high frequency current and to assert, at least, if I cannot demonstrate, how superior in general effect it is to every other manifestation of electricity.

Some time ago a well known foreign authority along this line got the ear and favor of the censor of cablegrams to our daily press; and in leaded lines appeared the announcement of something quite new as well as remarkable in the field of electrotherapeutics. Among other things, he could add a definite amount of calories of heat to the body, thus even lessening the amount of food necessary to sustain life, which, if true, would be a valuable economic resource.

His enthusiasm led him to claim various other astonishing results. It seems, however, that there was nothing at all new about the method of treatment itself. We in America had been using the same sort of thing for some time, and although we had not then and have not yet ventured to claim such extraordinary results, yet all there was to it was known here. And it is a wonderful thing to be able to add in this simple and delightful way to the heat of the body, and so to influence circulatory changes.

As the simplest illustration of its action watch its effects upon a person chilled by exposure to cold, or because of age, or some toxic effect. Absolutely without other sensation, a glow begins to pervade the entire system. Hands and feet become warm, the body perhaps uncomfortably so if the treatment is prolonged, and under the broad, flexible electrodes there is profuse perspiration.

Surely such prompt and profound constitutional effects must hold important relations to many constitutional conditions.

These results are familiar enough, of course, to those who are daily using this form of electricity, but to the great body of the profession they are not known, nor, I regret to say, do the members of the profession seem to care very much about knowing them. Its effects are not at all like the effects of radiated heat, or the heat imparted by the galvanic current.

Radiant heat reddens the surface and causes profound superficial congestion, and the galvanic current confines its effects mostly to the skin and the immediate underlying tissue; but the effects of these high frequency currents are diathermic, *through and through*, and the most positive influence is over the circulatory activities in the deep organs and tissues.

In the article alluded to I remarked that so much could be said therapeutically about the high frequency current that I should content myself with saying very little. What I said was solely along the broad general principles of its action.

Now, however, I am tempted to refer very briefly to just a few cases, to show what an aid it sometimes is in giving relief in conditions of rather uncertain or indefinite pathology, where ordinary methods have failed.

Case I.—The first case that I select is that of a man aged thirty-eight, who came to see me at the suggestion of Dr. David Webster. He was of rather stout build, very athletic, and in excellent general health, but for several years had suffered from frequent periodical attacks of severe pains through the eyes and frontal regions so that he was not infrequently compelled to neglect his work. Glasses and other methods failing to influence the symptoms, he experienced almost immediate relief from these diathermic applications. They were repeated two or three times a week through a period of two months, after which, for nearly a year, he was without a recurrence. Since then there have been two slight relapses, always followed, however, by quick relief through treatment.

Case II.—The second case is that of a lady aged fifty, who came to me with the concurrence of her physician, Dr. William M. Stone of Flushing. Twelve years before occurred a slight attack of left hemiplegia, from which she gradually recovered, although even yet there is a slight weakness in the left leg. For several years, she had suffered much of the time from quite distressing pains in the arms, legs, and neck. The legs especially troubled her, as she found it impossible to keep them long in one position; and as this symptom was accentuated at night, it greatly interfered with her normal rest. She flushed easily, and her pulse was somewhat rapid. Careful interrogation failed to find any adequate cause for these symptoms. This case responded immediately to treatment as did the other, and in three months she was quite free from every trace of her difficulty. Nearly a year has now passed and she has had no relapse.

Still another case where the causative factor was almost, although not quite, as obscure as these two, is the following:

Case III.—An old lady aged seventy had suffered for more than a year from severe and quite constant pain in the head. Nothing had been found to give her more than temporary relief. Her general health was fair, with no apparent kidney complication, but with a blood pressure of one hundred seventy-five. The treatment resulted in immediate improvement and ultimate recovery. The blood pressure fell to one hundred fifty-five.

Whatever the primary cause all these cases were undoubtedly associated with, or caused by, abnormal

circulatory conditions or blood stasis possibly, for the correction of which no remedy seems quite so prompt and efficient as this. I would not be understood as implying that this treatment demands no care or judgment in its application. When dealing with the combined high pressure and great quantity necessary for these diathermic effects, one cannot assume a too respectful and cautious attitude toward them. The operator must understand what he is doing and never for one moment forget what he is dealing with.

It is far from my wish to magnify unduly this or any other method of physical treatment, but the value of the diathermic method ought to be better understood, and more universally taken for what it is worth.

In emphasizing the exceeding simplicity and value of this treatment, I must point out the fact that not a few physicians are under the impression that they are using an efficient high-frequency current, when all the time they are getting it from a cheap arrangement entirely deficient in amperage or quantity effect. The first cost of an efficient high-frequency outfit is considerable, but after its installation it requires but little care or expense.

370 Sanford Avenue.

HERPES BUCCALIS RECIDIVUS OF THE FOURNIER-EMERY TYPE.

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Herpes is a vesicular disease of the skin and of the mucous membranes, and the vesicles may occur either singly or in groups. When the vesicles first appear they have clear sterile contents that afterward become turbid through staphylococcic infection. Subsequently they dry down into scabs that in the course of time are thrown off, leaving a slightly reddened spot that finally disappears without a trace. It is very rare indeed for ulceration with subsequent scarring to occur. On the skin it is the rule for well-formed vesicles to appear, but on the mucous membranes, where the horny layer is very delicate, vesicles as such are rarely seen. The herpes manifests itself either as a single little cup-shaped cavity with a yellow floor, such as is often noticed in "cold sores," or as a little patch with festooned borders and a yellow or grayish surface. This last represents a group where the individual lesions have become confluent. Each curve of the festooned border is a segment of the edge of one of the outer vesicles of the group. As Fournier long ago pointed out, the border of such a patch is microcyclic and polycyclic, and when such a border can be made out the patch is undoubtedly herpes. This arrangement it seems to me is more often seen on the glans and prepuce than in the mouth or on the lips. A short time ago, however, I saw a microcyclic polycyclic patch on the vermilion border of the upper lip that caused the patient a great deal of uneasiness, as she thought it might be a manifestation of syphilis. From these characteristics alone positive assurance was given that it was not luetic. These characteristics, however, of micro- and polycyclicism are infrequently present in any event.

Herpes is usually an insignificant trouble, the lesions being scarcely regarded by the patient excepting as inconvenient, as in "cold sores" for instance. It may, however, be most pertinaceous and exasperating, even leading to suicide, and the main cause for writing the present paper was the occurrence in my practice of three of these distressful cases of herpes of the mouth, that have been designated the Fournier-Emery type.

The immediate causes for an outbreak of herpes are multitudinous, varying in the individual and with the location of the patch. This has forced clinicians into the acceptance of a constitutional disposition, and a sensitiveness of the tissues either to traumatism or infection resulting in herpes. One of the most common causes of herpes is a "cold," and there are people who with every "cold" have a fine blooming out of "cold sores" either in the mouth or on the lips. Herpes in or about the mouth is also a frequent accompaniment of pneumonia. While writing this, Dr. J. Wilson Shiels reminded me that the older British physicians used to consider an abundant herpetic eruption as portending a favorable resolution of the pneumonia. Nowadays we would regard such an outbreak as indicating either a strong resistance to bacterial attack, or a particularly strong infection, or a marked disposition to the formation of herpes. Other disturbances may cause herpes, as some women have an outbreak either on the vulva, vagina, or neck of the uterus, or on some situation of the skin at each menstrual period. Still others get herpes, and this applies especially to young people, when they overeat of candy. In such a case the eruption is most apt to appear in the mouth.

An outbreak of herpes of the mouth may be occasioned by dental work, or herpes of the genitalia may result from coitus, in both instances evidently a sequence of traumatism. It is important to know this as in rape the grayish or yellowish patches may be mistaken for venereal infection. Herpes progenitalis in some men so frequently follows coitus that they learn to associate the act with the eruption as cause and effect. Climate undoubtedly has an influence in some cases. I one time knew a patient who was plagued with an outbreak of herpes of the glans penis, and prepuce every few weeks, and thinking it a venereal disease he was reduced to despair by his malady. During the gold rush he went to Alaska and was gone for over a year, and from the time he left Portland, his shipping port, till the time of his return to Portland he had not a single eruption. On returning to San Francisco he settled down to having his eruption at as frequent intervals as before he left. No other cause of his freedom in the North could be found than change of climate.

But the traumatism of dental work, the traumatism of rape, or the traumatism of coitus would have no effect in producing herpes if the tissues were not in this peculiar manner sensitive or disposed. Neither would the fluxions of blood caused by a common "cold" or by menstruation occasion the eruption if the disposition or sensitiveness was not present. In some this disposition is supposed to be caused by syphilis, in others by rheumatism, in others by malaria, and in still others neither rheumatism, nor syphilis, nor malaria is found to account for the disposition. The following is an instance of a patient in whom rheumatism may have furnished a predisposing cause: This patient used to get a well marked group of herpetic vesicles on the right cheek every four or five years. Her mother had well marked deforming rheumatism of the fingers and of the right knee, and her maternal grandfather for years before he died had to be wheeled in a chair because of rheumatism. The pa-

tient herself had aortic valvular disease because of an attack of acute articular rheumatism and it was after this attack of rheumatism that the herpes of the cheek first broke out. At one time this patient got herpes zoster of the right intercostal nerves, a wholly different disease from herpes, that ran the usual course except that it left the skin of this region sensitive to light pressure for years afterwards. In this case there was neither syphilis, nor tuberculosis, nor malaria, nor any other general disease with the exception of rheumatism to account for the disposition to herpetic attack.

The foregoing is an exposition, as complete as the present state of medical knowledge permits, of the etiology of herpes simplex. A comprehensive statement of this is necessary in order to understand the more complicated etiology of herpes buccalis recidivus, of which the following is an excellent example:

This patient was a salesman for a tobacco firm, and consulted me September 13, 1911, on account of sores on the tongue and lips that he connected with a syphilitic infection acquired three years previously. The patient was a tall large man, not overfat, forty years of age. His chancre had appeared in the usual situation, and was followed by an eruption on the palms and soles. The realization of his predicament, for he was married, caused a profound psychic disturbance, as he was fundamentally a good fellow. After making what reparation he could he separated from his wife. This nervous shock likely contributed to his nervous irritability, of which we shall speak later. Although the patient himself did not have rheumatism his father had suffered severely from it. When the patient first consulted me he had a number of nervous troubles referrable for the most part to his digestive system. He had violent frontal and occipital headaches; he grew nervous and was drowsy and listless through the day and sleepless at night; he would get attacks of headaches, thirst, diuresis and malaise, during which the herpetic patches in the mouth would grow worse; and he had a deep red tongue that at first sight seemed "cobblestone," but was not so. He had the habit of taking protoiodide of mercury pills with a view to curing his malady, and from them would get pain in the left side over the cardiac end of the stomach. His skin was full of blood, as if from intestinal intoxication, and occasionally he would get an eczema, which in one instance at least began as a seborrheic folliculitis on the back of the wrists. The lesion I first saw was a minute affair; a little raw area on the edge of the tongue surrounded by an opalescent border, which indicated more a mucous patch than a true herpes, but it was not pronounced enough either way to be determinative. Although he consulted me to obtain antisyphilitic treatment, and particularly an injection of salvarsan, I dissuaded him from it as being certain that the herpes was due to gastrointestinal intoxication and not to syphilis. He nevertheless went on having attack after attack of herpes, some of which attacks were so severe and involved the lips to such an extent that he could not attend to his work. Finally on October 16, 1911, during a particularly violent outbreak he received an intravenous injection of 0.60 of salvarsan followed by twenty-six rubs of 33 per cent. mercury ointment of five grams each. In one week after receiving the salvarsan the herpes had practically cleared up. For a few weeks he had an occasional solitary vesicle but so slight as in no way to disturb him. Finally even the vesicles ceased to appear.

This is not, however, all of this man's history in which we are at present interested. On April 1, 1912, four and a half months after receiving the salvarsan injection above referred to, he called, complaining of nausea, vomiting, nervousness, a circumscribed distressed area in the median line of the abdomen just above the navel, a seborrheic folliculitis of the thighs, and a seborrheic eczema of the forearms. There was neither sugar nor albumin in the urine, but there was much indican blue, and a green tinge with nitric acid as if from bile. He had had a steady pain over the liver for the past two months. His Wassermann was slightly positive. He was not at this time in a position to take another injection of salvarsan. He called again January 7, 1914, complaining of gastrointestinal disturbance, and the following day he was given an intravenous injection of neosalvarsan (0.90 grams), and ten days thereafter an herpetic patch, about one inch in diameter, broke out on the left buttock. The patch was red with a purplish tint, and round about was a rather broad light red erythematous halo. The eruption was accompanied by a slight burning sensation, and so attracted his attention, otherwise he would not have been aware of its existence. He had never had herpes of the free surface before and had had no herpes of the mouth since shortly after receiving the salvarsan-mercury treatment in 1911. It may here be remarked that he had not taken mercury by the mouth since some time previous to his first salvarsan injection, but he had never given up the use of tobacco; the relevancy of this observation will be taken up later. This attack of herpes of the buttock cleared up without incident, and I went on giving the patient a course of injections of grey oil according to my usual custom. It is to cases such as these that the term herpes recidivus buccalis is applied.

In the above instance we have a most complicated etiology. Although the patient was not rheumatic himself, one of his immediate ancestors was markedly so, and he was subject to gastrointestinal disturbances that are frequently associated with rheumatism, and the gastrointestinal irritation and intoxication would of themselves render the mucous membrane of the mouth sensitive. Besides this his nervous system was in a highly irritable condition, and there is always a feeling that herpes and irritability of the nerves are linked together etiologically. Besides this the patient used mercury and tobacco, both of which are irritants for the buccal mucous membrane and are regarded as incitors to herpetic attack. In these cases of herpes recidivus buccalis, syphilis occupies a peculiar position etiologically. Fournier and Emery found lues present in nineteen out of twenty cases. The attacks usually begin in the early stages of the disease between the first and fourth years, to last indefinitely, and before the introduction of salvarsan they were most refractory to treatment. Fournier considered that the recurrence of syphilitic lesions in the mouth, together with the use of mercury and tobacco, furnished the local irritation necessary to bring on the attacks of herpes. Trautmann* considers that syphilis may contribute in two ways to the occurrence of these distressful cases. Like Fournier, he thinks that it may act as a local irritant through the local recurrence of true syphilitic lesions in the mouth, and besides this, by the development of a constitutional change or disposition, it may render the tissues so sensitive that a trivial local irritant may bring on an attack. However this may be, there is no doubt of the importance of syphilis as an etiological factor in the present case, as he was cured of his buccal attacks by salvarsan, an eminently good antisyphilitic remedy. The effect of arsenic as an epithelializer may have contributed somewhat to this result, as I never saw a mouth clear up so rapidly under any remedy as occurred here. This epithelializing effect would, however, be only temporary, whereas the cure has for over two years been permanent. The patient, however, still maintains his herpetic disposition or diathesis, as shown by the patch breaking out on his buttock after the second dose of salvarsan, and salvarsan may have been the immediate cause of this, as herpetic outbreaks both of herpes and of herpes zoster are well known to occur on giving arsenic.

*Trautmann, Gottfried: "Die Krankheiten der Munhöhle und der oberen Luftwege."

Disturbances of the digestive tract have been mentioned as being capable of giving rise to herpes, and I have seen two instances resembling absolutely the Fournier-Emery type of herpes recidivus buccalis that seemed to rest on this basis alone. At least the digestive disturbances were present and their management brought about a decided amelioration of the conditions in the mouth and also of an eczema ani, which was present in each case. In neither of these was there any history of syphilis and repeated Wassermanns were negative. Nor was there any history of rheumatism or malaria.

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RETROPHARYNGEAL ABSCESS.

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The following cases, comprising my experience in private practice, are cited to show the unsatisfactory clinical course of this condition, even when it is recognized quite early:

Case I.—C. A., male, 13 months old, was seen Feb. 6, 1909. He had been languid and feverish for three days. Refused breast. Seems to have some difficulty in swallowing. There is an occasional snoring respiration. Right sub-axillary region is swollen. No cough. T., 105.4°. P., 180. R., 34, occasionally snoring. Throat: tonsils much enlarged, no membranes visible. Field obscured by mucus and milk. Heart and lungs normal. Abdomen moderately distended, tympanitic.

Diagnosis.—Tonsillitis.

Calomel and castor oil and mixture containing potassium chlorate and tincture of iron chloride in glycerin were prescribed.

Feb. 7.—Bowels have moved freely. Some stiffness of neck. Coughs. Slept poorly. Dysphagia continues. T., 105°. P., 210. R., 40, noisy, snoring. Throat shows swollen uvula and tonsils. No membrane. Palpation discloses the same. Gave antitoxin, 5,000 units.

Feb. 8.—Patient looks better. Slightly more interested in surroundings. T., 104.4°. P., 162, strong. R., 50, less noisy. Rigidity of neck persists, apparently painful. Winter's and Kernig's signs both negative. Throat somewhat less swollen. Much mucus. Heart normal. Lungs, a few fine moist râles in right lower lobe.

Diagnosis.—Retropharyngeal abscess (?). Continued treatment.

Feb. 9.—T., 100.6°. P., 150. R., 50. Soft swelling in posterior pharyngeal wall. Lungs show numerous fine moist râles generally distributed. Ordered creosotal ♏ v every four hours. Incised pharyngeal swelling. No pus found.

Feb. 10.—Both ears discharging. T., 100.6°. P., 135. Ordered warm boric acid irrigations.

Feb. 12.—Condition unchanged. T., 99°. P., 132. R., 30. Both ears discharging freely. Respiration snoring. Lungs contain creaks and sibilant and sonorous râles. Very few moist râles. Throat looks clearer. Posterior pharyngeal wall exhibits a soft swelling. Mother refused another incision and the case was discharged. Subsequently a throat specialist was consulted. He evacuated the abscess and the patient recovered.

Case II.—E. F., female, 3 years old, was seen April 26, 1911. The following history was recorded: Patient had always been puny with a capricious appetite. Has had varicella since April 18. For three days has been feverish. Anoxexia. Vomiting. Bowels constipated. Complains of stiff neck. T., 101.2°. P., 120. R., 30, quiet. Color and nutrition poor. Mouth breather. Tongue heavily coated. Breath foul. Throat negative to inspection. Heart, lungs, and abdomen normal. Enlarged cervical gland on right side.

Diagnosis.—Rheumatic fever. Salicylate of soda was prescribed.

April 28.—Patient is no better. T., 102°. P., 130. R., 30. Retropharyngeal bulging. Much salivation. Stiffness of neck. Easily bent forward; cannot bend backward.

Diagnosis. — Retropharyngeal abscess. Incised. Considerable pus evacuated. Recovery was rapid and uneventful.

Case III.—I. P., male, 7 months old, was seen March 16, 1914. Was a bottle-fed baby, one of twins, with vomiting habit and consequent malnutrition and constipation. The following history was recorded: Child has been ill two days. Feverish. Left ear discharging. Coughs. Stiffness of neck. Slight swelling of left side of neck. T., 100°. P., 160. R., 50, noisy, oral. Heart and lungs normal. Abdomen normal. Left ear shows perforation in drum membrane. Throat negative to inspection. Palpation shows swelling in posterior pharyngeal wall on the left side.

Diagnosis.—Retropharyngeal abscess (Otitis media). Boric acid irrigations were ordered for the ear and next day the pharyngeal swelling was incised. No pus evacuated, but there was immediate though partial improvement in breathing.

March 19.—T., 103.2°. P., 180. R., 40, oral, less noisy. Left ear drum is again bulging; there has been no discharge for one day. Incised drum membrane. Continue boric irrigations.

March 21.—T., 102°. P., 150. R., 40. Child coughs. Lungs have a few scattered, moist râles in both sides. Ammonium chloride and ipecac were prescribed.

March 24.—T., 101°. P., 160. R., 40, noisier than on last visit. Vomits all medicine, even including milk of magnesia. Abscess has reformed. Incised, evacuating large amount of foul pus. Ordered sweet oil enemas daily. Sinapisms to chest. Stop all medication.

March 27.—T., 98.6°. P., 120. Small swelling in left side of posterior pharyngeal wall. No fluctuation. Ear dry. Case discharged.

Anatomy.—"The posterior pharyngeal wall is inclined upward and forward, and forms the vault of the pharynx above by meeting the anterior wall at a rounded angle. On the upper part of the posterior wall, at and above the level of the Eustachian orifices, there is seen, particularly in early life, a considerable collection of lymphoid tissue, associated with a thickened and folded condition of the mucous membrane in the child. This is the pharyngeal tonsil; upon the center of the pharyngal tonsil is an orifice leading into a small recess into which numerous mucous glands open.

"The lymphatics of the pharynx pass chiefly to the upper set of deep cervical glands. Those from the upper part of the posterior wall join a few post-pharyngeal glands which are found on each side between the pharynx and the rectus anticus major muscle, in front of the upper two vertebræ. These latter glands, which are large in the child, small in the adult, but apparently always present, are of considerable clinical interest, as they often form the starting point of post-pharyngeal abscess. They receive affluents from the prevertebral muscles and fascia, and the posterior part of the nose" (Cunningham).

From this it is seen that infections entering the mucous membrane of the posterior part of the nose or the nasopharynx, whether lesions are produced at the port of entry or not, may cause retropharyngeal lymphadenitis, which may go on to abscess. The swelling may be quite large before abscess forms, according to Holt. In two of my cases cited above, early incision evacuated no pus, while a later one succeeded.

Symptoms and Diagnosis.—When fully developed the cases are said to present these characters: Fever and prostration, changed cry resembling a quack, dysphagia, obstructed breathing, noisy mouth breathing, a fixed position of the head backward and toward the affected side, swollen glands at the angle of the jaw, and visible pharyngeal bulging. If the physician is called early in the disease there is frequently nothing evident but a sick baby with fever, and, at most, rhinitis to account for it. Later it may bear a superficial resemblance to adenoids, croup, or laryngeal diph-

theria. Indeed, Kerley has seen a case complicating laryngeal diphtheria.

The condition is frequently overlooked, simply because the attendant omits palpation of the pharyngeal wall. Inspection under the usual conditions of a squirming, gagging infant giving but momentary glimpses of the throat seldom reveals it.

To palpate properly, have the child seated in the mother's lap, its right side toward you. Stand beside it, your left hand flat on its left cheek, pressing the head against your side. Get the mouth open, then gently push the cheek between the jaws with your middle finger, and introduce the palpating index finger of the right hand rapidly back, exploring nasopharynx and oropharynx as far down as possible. This measure should be employed in every case of obstructed breathing, no matter how clear the diagnosis may seem.

Treatment.—Some neglected cases, and those arising from vertebral caries point in front or behind the sternomastoid, and are best incised externally under antiseptic precautions, and drainage inserted. More frequently the abscess is found pointing into the pharynx, and may rupture spontaneously. It requires some judgment to decide when the swelling should be incised. I believe now that in Case III, and possibly Case I, cited above, suppuration had not taken place when incision was first made, though the mass was soft and large. Yet early incision in Case III gave partial relief to breathing, and was, therefore, justified. Furthermore, it may be noted that these two cases were complicated, it may be noted that otitis media, the latter probably caused by extension of the infection and by interference with drainage.

Anesthesia is dangerous. Many authors say the mouth-gag is also extremely dangerous, and should not be used. Most pediatric surgeons operate with patient in upright position; but Coakley advises that the head be held lower than the body. Many descriptions of the operation presuppose a trained assistant and nurse, which are not always available.

I have learned that with inefficient assistance the upright position means too small an incision, perhaps even insufficient penetration, and that the head-mirror is worse than useless. I tried both in my first case, and it was torture for patient and mother. The following procedure is rapid but deliberate, simple, and thorough.

The attendant sits facing me and lays the child's head in my lap, which has been protected with towels. At my right is a good light. The Denhard mouth-gag is introduced on the left side and opened, while the little finger hooked under the chin keeps the jaw, and with it the hyoid bone and the tongue, well forward, thus avoiding the sudden asphyxia which authorities speak of, and which undoubtedly is caused by the crowding of the hyoid structures upon the swollen pharyngeal wall. The same hand may manage a bent spoon acting as a tongue depressor, while the right introduces the bistoury, guarded to within one-half inch of the point, perforating the most prominent part of the abscess, then enlarging the incision downward.

The head has up to this time been turned partly to the side. As soon as pus wells up the child is turned over completely on its face, that the pus may be freely spit out. Later the finger is introduced and any septa present are broken up.

The after-care is simple: Food, tonics, cod-liver oil; but the child should be watched for several days, as the cavity occasionally refills.

In case external incision is decided upon, Hilton's method of operating has been recommended. A one-inch incision is made behind the sternomastoid, starting one inch below the mastoid tip, and deepened to expose the muscles of the floor of the posterior triangle. Then with blunt dissection the wound is deepened, passing behind the vessels and nerves of the neck, using a grooved director under the guidance of one finger in the pharynx. When the abscess cavity is entered a closed forceps is inserted, opened and withdrawn, and a drainage tube inserted, properly guarded against disappearing into the wound.

378 Ninth Street.

Medicolegal Notes.

Disqualification of Physicians as Witnesses.—The Arkansas statute, Kirby's Dig. §3098, provides that no person authorized to practice physic or surgery shall be compelled to disclose any information which he may have acquired from his patient while attending him in a professional capacity, and which was necessary to enable him to prescribe as a physician, or to act for him as a surgeon or trained nurse. In an action upon a life insurance policy it was held that where the insured's attending physician requested another physician to accompany him on a visit to the insured in order that the attending physician might have the benefit of the other's opinion with reference to the insured's condition, and both examined the insured and consulted concerning his ailment, both were disqualified to testify in the case.—Mutual Life Ins. Co. v. Owen, Arkansas Supreme Court, 164 S. W. 720.

Malpractice—Insufficient Evidence.—In an action for negligence against a physician for closing a wound without first removing a piece of gauze, the petition charged "the *defendant* negligently and with gross negligence, unskillfully and unprofessionally *closed* the wound made by said operation, without first removing therefrom" a piece of gauze. It was proved by the plaintiff's own testimony that the wound was not closed by the defendant, and was not closed by nature until long after the plaintiff had left the care of the defendant. The expert called by the plaintiff refused to testify that the presence of the sponge was hurtful or leaving it where the defendant did showed negligence. In fact, there was no evidence whatever that the presence of the sponge had been injurious. Judgment for the plaintiff was therefore reversed, it being held that the evidence was insufficient to go to the jury.—Boner v. Nicholson (Mo.), 161 S. W. 309.

Liability for Medical Services to Another. — In an action for medical services, the controlling issue in the case was whether the defendant contracted, as an original undertaking, to assume liability for medical services to be rendered in behalf of another by the plaintiff, who was a physician. The evidence authorized a finding that, even if the defendant did not expressly contract to pay the plaintiff for medical services rendered the defendant's son (who was *sui juris*), it was at least understood by both the plaintiff and the defendant that the plaintiff would not perform further services unless he was employed by the defendant; and the defendant, by accepting the contract, upon the condition and in the sense in which he knew it was understood by the plaintiff, must be held to have assented to it in that sense.—Reinschmidt v. Dorough, Georgia Court of Appeals, 81 S. E. 252.

Action for Services—Implied Contract.—In an action for professional services it appeared that the plaintiff, a physician and surgeon, was called to a hospital late one night by some person unknown to attend the minor son of the defendants. The son had received an injury, and an immediate operation was necessary. The plaintiff performed the operation with the acquiescence of the defendants and continued to treat the patient with their knowledge and assent. The defendants were liable upon implied contract, but the plaintiff's complaint alleged that the services were rendered at the special instance and request of the defendants. It was held that the addition of this allegation made the pleading one upon both express and implied contract, and did not defeat recovery upon the implied contract.—Lufkin vs. Harvey, Minnesota Supreme Court, 147 N. W. 444.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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New York, December 12, 1914.

TRAUMATIC SPONDYLITIS.

IN 1891 Kümmel applied this name to what he regarded as a definite clinical entity. The rôle of traumatism was apparently clearly established in the five cases that he reported. Three distinct stages of the disease were delineated: the first corresponding to the few days following the traumatism and characterized by the presence of pain in the region of the original injury; the second marked by apparent well-being; and the third distinguished by the development of a kyphosis and the onset of radiating pains. This condition was attributed to a rarefying osteitis involving the bodies of one or more vertebræ and resulting in a deformity.

Nicola Caprioli (*Giornale Internazionale delle Scienze Mediche*, September 15, 1914) reviews a series of fifty-four cases of this condition which have been reported in the literature, including two of his own, and comes to the conclusion that there is sufficient evidence to substantiate the original claims of Kümmel about which considerable controversy has arisen. Many have been the theories advanced to explain the clinical and pathological phenomena in so-called Kümmel's disease: Helle suggesting vasometer disturbances; Goltz and Kroening citing an experimental osteoporosis of the vertebral bodies secondary to trophoneuratic changes in the adjacent spinal cord; Virchow and Recklinghausen advancing the hypothesis of an osteomalacia or rarefying osteitis of the spine; Mikulicz pointing out the possible rôle of an intra- or extradural hematoma; Schede, Kirmisson, and others believing in the existence of an actual fracture of the vertebral column without mobility of the fragments but with a slow attrition of the latter; and finally Oberst including all cases of traumatic spondylitis within the broad classification of tuberculosis of the spinal column.

Comparatively few cases of this condition have come to autopsy. Examination of all the clinical histories reported indicates that little has been added to the original picture portrayed by Kümmel, the chief features of which are as follows: Sequent to a direct or an indirect injury to the spinal column, the patient complains of pains which may last from a week to several months and which may or may not be accompanied by symptoms of spinal commotion, such as motor or sensory disturbances in the legs, sphincteric impairment, etc. Little by little all symptoms disappear and the patient feels perfectly well. This stage of apparent health lasts for a period varying from several months to several years, after which the patient again begins to experience pains radiating from the site of the original injury into the hips and legs. At the same time there appears the vertebral deformity which is usually a kyphosis, though sometimes a scoliosis or kyphoscoliosis, slowly and progressively increasing unless arrested by suitable orthopedic treatment. In making a diagnosis of Kümmel's disease there must be excluded Pott's disease, acute osteomyelitis of the spine, syphilitic spondylitis, and traumatic syringomyelia. The possible aid of the *x*-rays should not be overlooked.

The conclusion is reached that traumatic spondylitis is the result of a direct or indirect injury of the spine followed by a rarefying osteitis of the spongy tissue of the vertebral bodies. The original traumatism may be a contusion of the bone or an actual though latent fracture.

ARSENIC EATERS.

FOR about a generation we have ceased to hear accounts of the Alpine toxiphagists who fairly consume arsenic and are the better mountain climbers therefor. No doubt a feeling of scepticism has been engendered as a result of this silence, which also extends to the society women who are reputed to secure for themselves an aristocratic pallor and transparency of skin by a similar consumption of this mineral. So, too, the stories of wall paper poisoning are no longer heard, although it is probable that arsenical paper is used as much as ever, despite all protective enactments. No well-informed person doubts for a moment that all these beliefs have a solid foundation in fact: but there should be some word of explanation as to the continued silence of the medical and lay press on such subjects. In cases of alleged homicidal poisoning with arsenic, it is the policy of the defence to claim that the victim was an arsenic addict. In this way the question of arsenicism is kept alive, but these forensic cases make no lasting impression on the public mind.

At a session last summer of the Berlin Society for Medical Jurisprudence (*Berliner klinische Wochenschrift*, October 26), Fraenckel discussed the subjects of arsenic eating and arsenical poisoning. He claims that the former is a widely spread custom or vice, but that little is known of its consequences. The supposed beneficent results are increased sexual potency, a subjective feeling of increased muscular power, and a relative immunity towards infectious diseases. The maximum tolerated daily dose may reach twenty grains of arsenous acid! If the drug ingestion is suddenly suppressed, very severe deficiency symptoms may result, even death itself. In alleged deliberate slow poisoning from arsenic, it might become necessary to discriminate between excess and defect symptoms. In prolonged ingestion of large doses for whatever motive, the drug should be found stored in the spongy tissue of the small flat bones. Hence autopsy finds

cannot distinguish between addiction and homicidal feeding.

The course of the symptoms might serve to distinguish between the two types of cases, but here again the parallelism does not fail; for the addict when he begins the use of the drug may show toxic or intolerance symptoms, just as may the victim of a poison plot. Animal experiment throws no light on the situation, for progressive immunity cannot be developed in animals. There is upon record the case of an addict who ingested arsenic freely per os (his stools containing large quantities of the drug), but who was killed by a relatively small subcutaneous injection. All of which goes to show that the silence on arsenicism may be a natural result of the extreme difficulties associated with the subject of addiction to a drug which does not influence the behavior and which causes no specific phenomena.

SURGERY IN MODERN WARFARE.

No one who heard the presidential address of Dr. Antoine Depage of Brussels before the fourth Congress of the International Saciety of Surgery held in New York in the spring could fail to be impressed with its eloquence. The speaker when he delivered it little knew its timeliness, and moreover in the face of recent occurrences his proud boast that "it was the privilege of little Belgium to offer a meeting place for the learned of all countries, as she was covered by Europe herself with the shield of peace and liberty" has been disproved in the most terrible manner. However, Dr. Depage's address on the surgery of war was most valuable and practical, seeing that he had gone through the Balkan wars in the capacity of a surgeon.

Among other apt phrases used by the speaker was that the fate of the wounded depended above all on the aid given on the line of battle, for as long as the engagement lasted the ground was inaccessible to the ambulance men; hours passed during which the wounded were helpless. It was therefore necessary to instruct every soldier in the principles of first aid to furnish him with a properly fitted surgical packet. He must realize fully the danger of infection from earth, dust, and water. Of what use was a sterilized compress if it became soaked in polluted water? No operating should be done in the temporary hospital stations at the front; they should simply serve as places where the sick and wounded were sorted out. Violation of this rule in the Balkan wars produced deep suppuration in wounds. Operations must be reserved for the hospitals of the second line, which remained fixed and unchanged and should be manned by experienced surgeons.

Little has become known as yet with regard to the treatment of the wounded on the battlefield during the present war, and although the Balkan wars were noted for their ferocity, it is probable that the fighting now going has never been surpassed in fierceness and in disregard for human life. Undoubtedly, so far as is possible, the wounded have been well cared for surgically, but the numbers injured have been so enormous that it is unreasonable to imagine that a considerable proportion of those struck by shell, bullet, or steel have been efficiently treated. There is a limit to human powers, and the powers of the surgeons in this war have been taxed in many cases beyond this limit.

FIRST AID DENTISTRY IN THE GERMAN ARMY.

In the present war dentistry will very likely be raised to the dignity of a surgical specialty in the dressing stations and field hospitals, and the work there initiated will be continued in the relay and reserve hospitals. Of even greater significance for the common welfare, however, is dental prophylaxis before hostilities begin. While teeth with diseased pulp should not be sacrificed, all dead roots had best be extracted, lest they give rise to abscesses and fistulæ.

First aid dentistry is considered by Dieck in an article in the *Deutsche medizinische Wochenschrift* for October 8. Hitherto the dentist was instructed to assume activity only in connection with the relay hospital, save in case of emergencies, when his presence might be desired at the field hospital. He was not supposed to visit the dressing stations either in time of battle or otherwise. Nevertheless, there is a class of cases in which first aid by dental surgeons should be indispensable. These comprise injuries to the jaws, from any cause whatever—falls, blows, projectiles, horse-kicks. Expert technical skill at such junctures may prevent necrosis of the bones. For example, let us suppose that a piece is carried away from the superior maxilla and lies free in the buccal cavity save for soft part attachments. Only immediate reposition and fastening can save this fragment. As a rule the jaw cases may be properly cared for at the field hospital and sent directly home, as a first duty here is to render cases transportable, while first aid in the field is to meet the severest emergencies. Rapid direct transportation to a reserve hospital will give these wounded the benefit of the best dental talent. The Army Sanitary Order of 1907 provided only two dental surgeons and one technician for an entire army corps, who were to be in attendance at the regular military hospital. It is very probable that this limited service will be greatly augmented during the course of the war.

Pulmonary Wounds in the European War.

The enormous casualties in the present war are certain to result in a vast amount of new data for teaching, whether or not such knowledge can be directly applied to the injuries sustained in civic life. Thus von Hösslin (*Berliner klinische Wochenschrift*, October 12) was able to follow up 18 cases of wounds of the lung from the time they were inflicted. All but two of the soldiers, irrespective of their position at the time, fell prostrate and many lost consciousness. Pain was not complained of; instead it was dyspnea or sense of suffocation. In all but two cases blood was expectorated, while many also bled from the wounds. Extravasations were absorbed very slowly. The heart in a number of cases was displaced to the opposite side. Treatment was entirely expectant in character. As a rule pneumothorax was promptly absorbed. There were

but three complicated cases, two by empyema, while the third was due to a separate wound of the trunk. The other patients were already convalescing.

Cheap Remedies for First Aid in War.

According to the Military Supplement of the *Münchener medizinische Wochenschrift*, September 29, the following remedies have been recommended as adapted to general use on the battlefield: Crude turpentine as a wound dressing (it is painless and does not irritate the kidneys); pure liquid paraffin as a dressing for severe wounds (iodoform may be added up to 2 or 2.5 per cent.); sublimate solutions, 1:3000 or 1:5000 being sufficiently strong, for antiseptic wound dressing; tincture of iodine, 5 per cent. instead of 10 per cent. for the same purpose. For diarrhea, cognac with the addition of a few drops of iodine tincture is a practicable resource. Von Hösslin proposes the revival of an old internal remedy in wound infection, the basis of which is bichloride of mercury and potassium iodide (the latter to remove the metallic taste of the mercury). The daily dose of mercury is from 0.015 to 0.02 gm. (about ¼-grain) to be taken for several successive days.

News of the Week.

New York's Death Rate.—For the week ending November 28 there were 1,389 deaths in this city, making a death rate of 12.98 per 1,000 of population. This rate is considerably higher than the rate for the corresponding week of 1913, which was 12.51, the difference being equivalent to 101 deaths. This increase is due to the greater number of deaths from diphtheria, croup, and diseases of the respiratory tract.

Street Accidents.—According to the report of the National Highways Protective Association, recently issued, thirty-eight persons, twenty of them children under 16 years of age, were killed by vehicular traffic in this city during November. Automobiles caused the death of 24, wagons killed 8, and trolleys 6. Of the fourteen children killed by automobiles five were roller skating. The report shows that for the last eleven months 591 persons were killed by automobiles in the State, 152 by trolley cars, and 146 by wagons. Of this total number 247 were children under sixteen years of age. In New Jersey in November 22 persons were killed by automobiles, 3 by trolleys, and 2 by wagons.

Typhoid Fever in Detroit.—In a recent discussion before the Wayne County (Mich.) Medical Society it was stated that Detroit was one of the worst typhoid cities in the United States, the reason being a contaminated water supply. In answer to this Dr. John E. Clark publishes the following record of typhoid cases for the past eleven months—a very low record: January, 6; February, 2; March, 5; April, 1; May, 5; June, 3; July, 11; August, 9; September, 10; October, 4, and November, 4; giving a total of only 60 cases in nearly a year. Of these cases Dr. Clark says a number have been traced to infected milk, but not one directly to the city water supply.

Dr. Carl von Ruck's Experimental Work on Tuberculosis Immunization, described in the Medical Record of August 31, 1912, has recently been confirmed in Sir Almroth E. Wright's laboratory in London.

Banquet of the Philadelphia Neurological Society.—On the evening of November 28 a banquet was given by this Society at the Art Club, the invited guests including Dr. George W. Jacoby, representing the American Neurological Association, Dr. Morton Prince of Boston, Dr. Hugh T. Patrick of Chicago, Dr. Smith Ely Jelliffe of New York, Dr. Edwin N. Brush of Towson, Md., Dr. Henry M. Thomas of Baltimore, and Dr. William L. Rodman, President-Elect of the American Medical Association.

Dr. Malcolm S. Woodbury has been elected superintendent of the Clifton Springs Sanitarium, to succeed the late Dr. Mumford. Dr. Woodbury has long been connected with the institution.

Dr. Albert Calmette, Director of the Pasteur Institute at Lille, who has been acting as one of the chiefs of the medical service of the French army, is a prisoner of war at Münster, Westphalia.

Absorbent Cotton for Russia.—On two steamships that have sailed recently for Vladivostok via the Panama Canal are 1,000,000 pounds of absorbent cotton, and a third will soon take another 500,000 pounds by the same route.

Dr. Duncan's Autotherapy Endorsed.—A committee appointed last February to investigate Dr. Charles H. Duncan's method of autotherapy in the treatment of infectious diseases has recently made a report to the Homeopathic Medical Society of the County of New York commending the procedure as sound in principle and giving good results in practice. The membership of the committee consisted of Drs. Seward, Harrington, Laidlaw, Dieffenbach, Gillingham, and Stearns. The investigations of the committee were carried out in the fields of both human and veterinary therapeutics. In the latter it was found that autotherapy was of especial value in all septic conditions, in ozena, acute infections of the hoof, necrosis of the withers, and lacerated wounds of the legs involving the tendon sheaths in horses, some of which conditions were formerly regarded as incurable. In the field of human therapeutics the committee reviewed articles which had appeared in the Medical Record and elsewhere, examined patients treated by the method, and took the testimony, verbal and written, of physicians who had employed autotherapy. The committee found that the technique of autotherapy required further elaboration and precision in the size of the dose and the interval between doses, but that this did not detract from the soundness of the principle, nor should it take from Dr. Duncan the credit of being the first to see the principle clearly and of having started autotherapy on a sound practical basis. Dr. Duncan was also commended for having made no secret of his method, for having given the work freely to all inquirers, being actuated by a high sense of professional honor and of responsibility to the sick, and for having refrained from exploiting the method among the laity at a time when some of his fellow physicians were hostile and his friends indifferent.

Medical Missionary Conference.—The Sixth Inter-Denominational Medical Missionary Conference was held in Battle Creek, Mich., November 17-20, about 200 workers from home and foreign fields being in attendance. The meeting was presided over by Bishop E. R. Hendrix of Kansas City. The probable effect of the war on mission work was very generally discussed, the consensus of opinion being that a temporary withholding of mission gifts would be experienced, but that the final effect would

be a broader brotherhood and a most salutary condition in mission work in general. Among the most notable addresses delivered were the following: "Medicine in China," Reverend Isaac T. Headland, Pekin, China; "Better Organization for the Medical Work," Reverend Levi B. Salmans, Mexico; "Physiological Therapeutics on the Mission Field," Dr. J. H. Kellogg, Battle Creek Sanitarium; "Forty-five Years in Asiatic Turkey," Reverend George C. Raynolds, M.D., D.D., Van, Turkey; "The Outlook for Missions in View of the War," Bishop Eugene R. Hendrix, D.D. The Conference will meet again in 1915 at Battle Creek.

Medical Society of the County of New York.—The one hundred and ninth annual meeting was held November 23, the entire evening being devoted to the executive session, especially to a consideration of the proposed amendments to the By-Laws, all of which were defeated after a prolonged and animated discussion. The following motion, made by Dr. William S. Gottheil and amended by Dr. Henry S. Stark, was unanimously adopted: "That the schedule of fees for physicians working under the Workman's Compensation Law is insufficient compensation, and is hereby repudiated by the Medical Society of the County of New York; and that its delegates to the State Society are instructed to introduce a resolution to the same effect at the next meeting of the State Society and to support it in every way possible." The announcement of the result of the election of officers and delegates will be made at the meeting on December 28.

Harvey Society Lecture.—The fifth lecture of the series will be given at the New York Academy of Medicine, 17 West Forty-third Street, on Saturday evening, December 12, at 8.30 P. M., by Prof. L. J. Henderson, of Harvard University. Subject: "The Excretion of Acid in Health and Disease."

Medical Society Elections.—At the annual meeting of the New York Academy of Medicine, held December 3, 1914, the following officers were elected: *President*, Dr. Walter B. James; *Vice-President*, Dr. Edward D. Fisher; *Corresponding Secretary*, Dr. D. Bryson Delavan; *Treasurer*, Dr. Reginald H. Sayre; *Trustee*, Dr. Wisner R. Townsend; *Member of Committee on Library*, Dr. Lewis F. Frissell; *Members of Committee on Admission*, Dr. N. R. Norton (5 years); Dr. W. L. Stowell (3 years); Dr. W. L. Niles (1 year).

The St. Louis Medical Society elected the following officers at its annual meeting on November 25: *President*, Dr. R. Emmett Kane; *First Vice-President*, Dr. Emmett North; *Second Vice-President*, Dr. William H. Luedde; *Secretary*, Dr. F. C. Kuhlmann; *Members of the Council*, Drs. A. M. Koetter, Joseph Grindon, G. Richter, and Ralph Thompson. The council will meet next month and elect the treasurer.

The Southeastern Iowa Medical Association, at its thirty-ninth annual meeting, held in Mt. Pleasant, November 19, elected for the coming year the following officers: *President*, Dr. A. O. Williams, Ottumwa; *Vice-President*, Dr. C. A. Boyce, Washington; *Secretary and Treasurer*, Dr. E. F. LaForce, Burlington. Washington was chosen as the next place of meeting.

The Wabash County (Ill.) Medical Association elected the following officers at its annual meeting held at Mt. Carmel, November 24: *President*, Dr. P. G. Manley; *Vice-President*, Dr. W. H. Roberson; *Secretary*, Dr. J. B. Maxwell; *Treasurer*, Dr. W. B. Baird; *Censor*, Dr. E. A. Buchholz; *Delegate to the State Society*, Dr. J. J. McIntosh; *Alternate*, Dr. C. E. Gilliatt.

The Middle Tennessee Medical Association, at its annual meeting held in Murfreesboro, November 19 and 20, selected Lebanon for its next place of meeting in May, 1915, and elected the following officers: *President*, Dr. O. N. Bryan, Nashville; *Vice-President*, Dr. B. F. Reagor, Shelbyville; *Secretary and Treasurer*, Dr. R. W. Billington.

Obituary Notes.—Dr. STEPHEN C. PETTIT of Brooklyn, N. Y., a graduate of the Long Island College Hospital in 1895, a member of the Brooklyn Pathological and the Brooklyn Medical Societies, died at his home on December 3, from blood poisoning contracted during the course of an operation, in his forty-third year.

Dr. CHARLES HENRY REED of Philadelphia, a graduate of the University of Pennsylvania, Department of Medicine, in 1878, died recently at his home.

Dr. CHARLES H. MORDOFF of Genoa, Ill., a graduate of the Chicago Homeopathic Medical College in 1881 and of the Hahnemann Medical College and Hospital, Chicago, in 1903, and a member of the Illinois State and the Vermilion County Medical Societies, died at his home after a short illness on November 16, aged 58 years.

Dr. ROBERT M. SADLER of Okolona, Miss., a graduate of the Louisville Medical College, Louisville, Ky., in 1877, died suddenly at his home on November 10, aged 65 years.

Dr. GEORGE WASHINGTON BOYD of Washington, D. C., a graduate of the College of Physicians and Surgeons, Baltimore, in 1895, and a member of the American Medical Association and the Medical Society of the District of Columbia, died at his home from Bright's disease, after a long illness, on November 22, aged 55 years.

Dr. MARSHALL T. SHIVELY of Marion, Ind., a graduate of the Medical College of Ohio, Cincinnati, in 1874, and a member of the Indiana State Medical Association and the Grant County Medical Society, died at his home from cerebral hemorrhage on November 23, aged 65 years.

Dr. SAMUEL W. COOMBS of Bowling Green, Ky., a graduate of Vanderbilt University, Medical Department, Nashville, Tenn., in 1885, and a member of the Kentucky State Medical Association and the Warren County Medical Society, died at his home suddenly, on November 20, aged 52 years.

Dr. CHARLES BAILEY SIMCOE, first assistant physician at the State Hospital for the Insane, Nevada, Mo., a graduate of the Missouri Medical College, St. Louis, Mo., in 1884, died on November 21, aged 54 years.

Dr. SARAH C. MILLEN of Omaha, Neb., a graduate of the College of Physicians and Surgeons of Keokuk, Ia., in 1882, died at her home from paralysis, on November 22.

Dr. CLARK M. GALLOWAY of Xenia, O., a graduate of the Medical College of Ohio, Cincinnati, in 1877, and a member of the Ohio State Medical Association and the Greene County Medical Society, died on November 20, after a short illness, aged 70 years.

Dr. FREDERICK SEITZ died of apoplexy at Philadelphia on November 23 at the age of 63 years. He was graduated from Jefferson Medical College in the class of 1886.

Dr. GEORGE S. CRAMPTON has been elected attending surgeon to the eye department of the Pennsylvania Hospital in succession to Dr. Peter N. K. Schwenk resigned.

Correspondence.

CHOLERA IN AUSTRIA.

To the Editor of the Medical Record:

Sir:—In the issue of the Medical Record of October 24 I find among the news of the week under the heading "Cholera in Austria," a report from Rome saying that there are several thousand cases of cholera in Galicia and Hungary, and that the Russian army has withdrawn from Hungary, repelled by the comma bacillus rather than the Austrian bullets.

I wish to state that the cholera appeared in Galicia only after the first weeks of the war, when the Austrian army came in contact with the Russians and made the first prisoners (from Padolia) who brought with them the Asiatic sickness. Before the war there were no cases of cholera in Austria-Hungary, and it will be easily believed that sanitary conditions in Austria are in a little better state than in Russia.

The Austrian State Department of Health is publishing daily and weekly, as is done in the United States, every case of infectious disease, and up to the present there have been only a few hundred cases, all among soldiers and privates returned from the northern theatre of war.

Dr. Alfred Brunner.

Piazza Ponterosso, 6,
Trieste, Nov. 11, 1914.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

BRADSHAW LECTURE AT ROYAL COLLEGE OF PHYSICIANS—NESTOR TIRARD ON GLYCOSURIA AND GANGRENE—ROYAL SOCIETY OF MEDICINE—NEW NATIONAL COUNCIL—OBITUARY.

London, November 21, 1914

This year's Bradshaw lecture at the Royal College of Physicians cannot fail to delight clinical observers. Dr. Nestor Tirard took for his subject the study of glycosuria, illustrating it by some careful clinical contributions of considerable importance. But these constitute when looked at as a whole a powerful appeal to reinstate clinical research in the position from which it has been somewhat lowered by the devotion of so many laborers to laboratory work. Not that he undervalued pathology or bacteriology, but found glycosuria is encountered under too many varying conditions for it to be due to one constant lesion. Atrophy of the pancreas has been the most frequently observed, but is by no means constant, only 13 out of 27 cases examined by Saundby showing it, all the others having the organ enlarged, congested, or normal. Dr. Tirard regards glycosuria as a perversion of a natural physiological process which might be compared with the perverted growth of natural cells seen in cancer. But we cannot expect to trace these causes of perversion at the post mortem. Lesions may be found if the perversion has been long continued, but not definite, as various organs may be altered without being the result of the glycosuria. The rapidity of the termination may leave all parts wasted alike.

The lecturer then drew attention to a series of graphic records from charts he had constructed and employed for years to show daily the total quantity of sugar (estimated from a mixed specimen of known volume). They also show the amount of liquid taken and passed, the sugar grains per ounce, and other items. The charts confirmed previous knowledge and indicated distinctions between diabetes in the aged and the young, etc.

The relative influence of diet and drugs was next considered. Of the latter, codeine, which has been used by many, did not give very obvious or constant results. Sodium salicylate or acetylsalicylic acid gave more satisfaction. In a case in which the glucose had been reduced by dieting it disappeared under the drug and this benefit continued when a moderate amount of carbohydrate was allowed. For a time bread was at once followed by reappearance of glucose, but at length two ounces could be taken after the salicylate was left off.

To the salicylate the lecturer often added two or three times as much bicarbonate of sodium, according to the degree of acidity or tendency to drowsiness or other toxic symptoms. He also made free use of laxatives, especially salines in moderate doses, but he had also tried the large doses lately recommended in urgent cases for two or three days in succession.

The relations between sugar and loss of weight and also of urea and points of prognosis having been noticed, Dr. Tirard came to the most interesting suggestion of his lecture—the relation of glycosuria to gangrene. He seems first to have been impressed by some grave cases of glycosuria sent to the medical from the surgical wards as unfit for operation with so much sugar passing. All seemed very severe and yet all recovered rapidly, all had some form of suppuration or gangrene. It has been previously observed that gangrene and glycosuria have occurred together and that more than once, though it was not suggested that they were interdependent. Searching his records, Dr. Tirard was surprised to find how often patients had mentioned some suppurative attack as preceding the glycosuria, and how often, too, clinical clerks had recorded such statements without a thought of their possible importance. Having further learned the value of early removal of pent-up pus, or of gangrenous tissues, he asked, can we not go a step further and add another theory of glycosuria knitting together in a new light the results of clinical observation, physiology, and pathology? Of drugs the most useful, the salicylates, are those we credit with most power over toxic processes due to microorganisms. By removing sloughing tissues and gangrene we find glycosuria quickly reduced and some cases seem due to pancreatic perversion and toxic absorption. If so, might a vaccine counteract the toxic influence?

A National Council for Combating Venereal Diseases was inaugurated last week. The movement originated with Major Leonard Darwin, President of the Eugenics Education Society, who applied to the President of the Royal College of Surgeons for cooperation. He agreed, and enlisted the presidents of the Sister College and the Royal Society of Medicine. A strong committee was formed who communicated with the Royal Commission on the subject. They extended the proposals so as to embrace the question of popular instruction, especially for the poor, on the dangers of ignorance and recklessness.

The new council will aim at providing accurate information, facilities for treatment, more opportunities of study for students and practitioners, cooperation with existing associations and in connection with them organizing and supervising lectures and literature. Finally, the council will promote such legislative, social and administrative reforms as are relevant to the above stated aims.

The Registrar-General in the supplement to his report this year, for the first time tabulates the marital condition of females. In the earlier years of married life wives have a heavier mortality than spinsters. But from about 45 to 55 the position is reversed and later on there is not much difference. All through life until old age the rate of mortality of widows is high. Above 80 there is scarcely any distinction between the three classes—single, married and widowed.

On Wednesday another medical research expedition—the 32d—set out from the Liverpool School of Tropical Medicine. This is bound for Sierra Leone to investigate the biting insects associated with the tropical diseases of the colony. The members of this expedition are Professor (of Parasitology in the Liverpool University) Warrington Yorke and Dr. Blacklock, Director of the Runcorn Research Laboratory. They are empowered to provisionally select a site for a laboratory which is to be established to unify the study of diseases, under the will of Sir Alfred Jones.

The Royal Portsmouth Hospital has now received the radium purchased for it by public subscription for £2,000, and the radium department is established.

Dr. Eustace Smith, Physician to the East London Hospital for Children, and Consulting Physician of the City Hospital for Diseases of the Chest, died November 14, in his 80th year. He was appointed a Chevalier of the Order of Leopold by the late King of the Belgians, to whom he was a physician. He took the M.D., London, in 1865; was elected F.R.C.P. in 1874, and later served a term on the Council of the College. You well know his "Practical Treatise on Diseases of Children," it being generally regarded as a valuable statement of the subject up to the date of each edition—several having been called for.

PARIS IN WARTIME.

To the Editor of the Medical Record:

Sir:—About the middle of the fifth century, when the fierce Attila and his Huns were threatening Paris, a woman by the name of Geneviève, who had previously warned the inhabitants that this danger would come upon them, now exhorted them to hold fast in their islands in the river and in this way escape the peril. This they did; the woman was subsequently canonized at Ste. Geneviève and became the patron saint of Paris; and the Pantheon, on the Montagne Ste. Geneviève, was erected in her honor. During the Revolution, however, her remains were burnt and scattered to the winds; but some of her relics, with her tombstone, were piously gathered together by the faithful and preserved in the adjacent church of St. Etienne du Mont, where they have since continued to be objects of veneration.

In view of our recent escape from our enemies I had the curiosity to cross over to St. Etienne the other day to see whether anything unusual was going on at Ste. Geneviève's tomb. To my way of thinking, St. Etienne is the most interesting and picturesque church in Paris, both historically, architecturally, and on account of its very fine old stained glass, I always look in there when I am in the Latin Quarter, and time only strengthens my opinion of the beauty of this edifice. And, sure enough, the devout had been equally conscious of the narrow escape they had just had, for the saint's catafalque had been opened, presumably exposing the relics to view, her chapel was blazing with a host of votive candles, a priest was holding service, and about him, out in the choir-ambulatory, and behind the catafalque in the adjoining chapel, was a large body of worshipers whose attitude was singularly different from that of the congregations one ordinarily sees in these churches. It was a very striking sight, and I stood in the semi-darkness back on the other side of the church and watched it for quite a while. There is little doubt but that the venerable saint did us an uncommonly good turn in the early days of last September!

I paused as I left the building to take a last look at its wonderful old glass windows; one never knows, in these times. It was only last spring that I was at Rheims, whose magnificent and absolutely priceless glass now lies in a million fragments; any one who has seen the afternoon sun stream the length of the Rheims nave through that marvelous west orange window will realize a small part of the havoc wrought. There was nothing in the world to equal the Rheims stained glass, the nearest approach, though from afar, being that of the cathedral at Tours. Quite recently one of the enemy's aeroplanes also contrived to drop a bomb on Notre Dame de Paris, though fortunately the damage done was insignificant, a slight tear in the roofing, I believe. If they had succeeded in getting it through into the transept, the two famous and superb rose windows would naturally have been blown to atoms, and one of the chief glories of Paris would have perished.

This war has made many a strange and unexpected victim, and will undoubtedly continue to do so; but among them few seem more deserving of sympathy than the nurses, now quite a number, who have succumbed to septic infection while caring for the badly wounded soldiers. Not only are pus-fingers followed by fatal, generalized septicemia, but this can occur from a single deep prick of the finger without local abscess; and among the different agents through which this is brought about, it seems that the common safety-pin is one of the most dangerous. Such a pin is taken from a septic bandage, laid aside, inadvertently used again, and the nurse pricks her finger in inserting it. In these times, when septicity is so rampant that the whole trend of surgery has had to be changed, asepsis given up, and a return made to the antiseptic practices which had long disappeared, too much care cannot be taken in the handling of pointed instruments and in the protection of even the smallest solutions of continuity of the face or hands. To succumb to generalized septicemia through the careless management of a safety-pin is a tragedy of the first magnitude.

From a medical point of view the present conflict will probably be known in the future as the tincture of iodine war. At any rate on this side of the affair all of the wounds are being dressed in this manner, and the consumption of this preparation must be something enormous. But how slowly the human mind does act! Years before this war everybody's opinion was made up here as to the efficacy of tincture of iodine in the treatment of wounds; everybody was equally convinced of the truth of the venerable adage that preventive action is the only one that counts in medicine. Yet not only were all the individual emergency dressing packages prepared for the army without any tincture of iodine to apply to the wounds, but it has taken the authorities three months of actual hostilities to evolve the idea that it might be well to

supply each soldier with a very small sealed tube of tincture of iodine for use *before* he applies his dressing to his wound! However, this is now being done in all haste, and it is hoped that before long this precaution, combined with better attention to the wounded at the closest evacuation bases, will tend to diminish this appalling array of cases of tetanus and gas gangrene that has thrown a maleficent shadow over the wards of our ambulances. During a recent tour of inspection one of our surgeons says that he saw well over a hundred cases of tetanus! Since touching on this subject in a former letter, two other statistics have come to my notice; in one of the R. A. M. C. ambulances at Rouen they saved two cases of tetanus out of twelve, the two being tardy, mild cases; but Doyen of Paris who treats this disorder by intraspinal injections of first 60 c.c. of serum, and two days later, 40 c.c., the patients being then tilted backwards at an angle of 45°, on the supposition that the serum is going to filter upward toward the nerve centers, claims to have lost only three out of twenty-four! This is such an utterly different tale from *all* of the other statistics that one is somewhat perplexed; it would mean a mortality of only about 12 per cent., whereas all of the other surgeons report 80-90 per cent.!

The other substance that has been used on a very large scale during this war is peroxide of hydrogen; most of these vicious germs being anaerobic, the line of action has been to open up all bad foci, clear out fragments, clots, foreign bodies, etc., and then drop in peroxide. What the patients' impression of this process is like can perhaps be gathered from the remark made by one of them to his nurse during a dressing: "Sister, I am not going to look at what he is doing; but just give me warning when he is about to drop in the *tabasco sauce!*" A surgeon of my acquaintance tells me that he cured a bad case of gas gangrene in a Morocco negro by driving a tube beneath the skin and under the fasciæ and pumping the patient full of oxygen gas,—keeping this up for sixty hours!

An immense advance in the ambulance of today over that of former wars is the absence of all smell of antiseptics. Those who remember the sickening odor of phenol, combined with that abomination, iodoform, will appreciate the clean, fresh atmosphere of the wards of our times.

C. K. AUSTIN, M.D.

PARIS, November 14, 1914.

OUR LETTER FROM THE PHILIPPINES.

(From Our Special Correspondent.)

MEETING OF THE PHILIPPINE ISLANDS MEDICAL ASSOCIATION—HOSPITAL CAR OF THE HEALTH BUREAU—HEALTH CONDITIONS AMONG THE "REMONTADOS"—ISOLATION OF CHOLERA CARRIERS—MAJOR MUNSON ADVISORY HEALTH OFFICER—EXPECTED RETURN OF DR. HEISER—SOCIAL CENTERS IN MANILA AND THE PROVINCES.

MANILA, October 20, 1914

THE annual meeting of the Philippine Islands Medical Society will be held in Manila on November 4, 5, 6, and 7, in the College of Medicine and Surgery. The officers of the Society are: President, Dr. N. M. Saleeby; vice-president, Dr. A. G. Sism; secretary, Dr. R. B. Gibson. The Councillors are Drs. Victor G. Heiser, W. E. Musgrave, Benito Valdes, M. W. Ireland, and Ferdinand Schmitter. The committee having the arrangements in charge was composed of Dr. S. C. Gurney, chairman; Drs. H. D. Kneedler, P. K. Gilman, A. G. Sison, and R. M. Thomburgh.

The hospital car of the Bureau of Health, loaned by the Manila Railway Company, has just been finished and should shortly be put into operation. It is painted very attractively in white and gold and will shortly be sent into the field with a sanitary exhibit, moving picture outfit, and native lecturers. There will be a small museum of apparatus and appliances needed in the provinces, models, photographs, and charts. It is expected to carry the gospel of health and cleanliness wherever the railroad penetrates.

The Secretary of the Interior recently organized a party to inspect and examine into the condition of a number of "remontados" or semi-wild people of the mountains who had appealed for government aid. Many had lived on the mountainous area of the Manila water shed, and had been removed therefrom to prevent any water pollution. Sickness, locusts, and drought had reduced them to extremities, and they came in to San Mateo, about an hour by automobile from Manila, coming in from their mountain retreats. They proved to be a physically weak, small, and degenerate outfit, infected with malaria, hookworm, skin disease, and tuberculosis. They had a prognathous facial angle quite different from that of the coastal Filipino, wavy hair, and frail physique. The Government gave them rice, clothes, quinine, etc., and is to settle them on government land in the foothills and provide seeds, farming implements, and instructors in their use. They own no carabao or stock, and many are so backward that their only farming implement is a bolo. About a hundred of them came down, and another hundred ventured near the town, but took to the hills when someone told them of the European war and said that they would be liable to be drafted therein. Their numbers in the mountains back of Manila are variously estimated, with a maximum of about three thousand. Their death rate is high, and there is little if any increase among them.

Hospitalization of cholera carriers has been finally accepted by the native press and people as a necessary factor in cholera control, though two or three months ago it looked as if serious opposition was developing which would prevent its employment. Cholera in Manila has now been brought down almost to the vanishing point, and the chief factor has undoubtedly been the detection and isolation of cholera carriers. So far, over 600 have been found and held until cleared up, and nearly 2000 examinations are being made daily.

It appears that Major E. L. Munson, Surgeon, U. S. Army, who was offered the appointment as acting Director of Health, declined to accept it, but has been assisting the government in an advisory capacity only. Dr. de Jesus, the assistant director, has been the executive head of the bureau, while Major Munson has given advice as to policies and methods. The arrangement is new to the Philippines, but is much like that of the "Residents" which the British and Dutch maintain in India, Java, etc., for the assistance of native authorities.

It is reported here that Dr. V. G. Heiser, the Director of Health, will probably return from leave of absence early in December. The papers state that several flattering offers have been made to him to undertake health work in the United States. Certainly the results which he has achieved have warranted the belief that he could successfully handle sanitary problems anywhere, after surmounting the difficulties here.

The papers are having a good deal to say about the "social centers" which are being established in Manila and in various parts of the provinces. While these are common in many parts of the United States, they are new to the Philippine Islands, where they should prove very successful. Various government bureaus are cooperating, with the support of outside individuals and organizations. The usual unit is established in a school building, where there are facilities for reading, lectures, social entertainments, etc. A library is established in the school building, and the school playground made available to others than scholars at certain times. A school garden is conducted for demonstration and educational purposes by the Bureau of Agriculture. Nearby the Bureau of Health conducts a dispensary and clinic and the municipal doctor examines school children. The Mother's League maintains a maternity and visiting nurse, and supplies nursery accessories and infant and other food to mothers unable to pay for them. The Antituberculosis Society also maintains in cooperation with this social center its visiting nurse, and supplies, food and supplies, without charge to the indigent. Much emphasis in an educational way is being laid upon health matters, and these establishments should soon exert a profound effect on the betterment of public health and welfare.

Progress of Medical Science.

Boston Medical and Surgical Journal.

November 26, 1914.

1. The Laboratory in the Study and Treatment of Crime. V. V. Anderson.
2. Some Things that Influence the Mortality After Prostatectomy. A. L. Chute.
3. Magnesium Sulphate in Purulent Cerebrospinal Streptococcic Meningitis. W. S. Bryant.
4. The Modern Treatment of Amebic Dysentery. E. F. Haines.
5. Intestinal Putrefaction with Convulsions. W. L. Thompson.
6. Two Unusual Traumatic Cases. Removal of Bullet from Atlas. Puncture of the Rectum by the Axle of a Baby Carriage. F. H. Lahey.
7. A Case of Rotary Dislocation of the Atlas. J. J. Morton, Jr.
8. The Shaft of the Radius as a Pin Cushion. H. F. R. Watts.

2. The Mortality after Prostatectomy.—A. L. Chute believes that the high mortality following prostatectomy is unnecessary and is to be avoided in two ways: First, by getting kidneys that are not doing their work into a condition where they are acting efficiently; and, second, by avoiding injury to embarrassed or susceptible kidneys at the time of operation. The question of the mortality hinges almost wholly upon the condition of the kidneys, or perhaps upon the functioning of the kidneys. The task of getting them into condition must be done before operation. A certain amount can be done after operation, but for the most part whether or not a patient is going to recover has been decided before one begins a prostatectomy and depends upon the renal function.

3. Magnesium Sulphate in Streptococcic Meningitis.—W. S. Bryant reports a case of this condition in a man aged 22 years, complicating acute otitis media. The diagnosis of cerebrospinal meningitis was established by the symptoms and lumbar puncture. A decompression operation gave immediate relief from intracranial pressure. The toxemia was combated by magnesium sulphate water and drainage. A cure of the cerebrospinal meningitis followed in a few days. Infection of the cranial wound resulted from contamination of the dressings. The result was a recurrence of the toxemia together with encephalitis, with death on the 190th day from time of the decompression operation. The cause of death was encephalitis and toxemia and not cerebrospinal meningitis.

4. The Modern Treatment of Amebic Dysentery.—E. F. Haines concludes on the basis of the treatment of four cases of amebic dysentery that emetine acts well in chronic cases of this condition and that in these it shows its most wonderful therapeutic action. Some have objected to emetine on account of the relapses that have occurred. It seems that the entamebas that are not killed or driven out of the intestinal tract during emetine treatment are stimulated to encystment and thus rendered harmless to their host. However, the cases that continue to harbor the entameba in an encysted form are carriers of the disease, and thus are a danger to the public health. It would seem, therefore, that in order to complete the treatment of amebic dysentery, some form of irrigations should be used. Quinine irrigations have proved of value in the treatment of amebic dysentery, and it seems as if their use in conjunction with emetine would reduce the number of carriers of this disease. Before condemning emetine as a potent factor in the treatment of dysentery, one should make sure of the causative organism, for in the bacillary form of dysentery emetine is useless.

5. Intestinal Putrefaction with Convulsions.—W. L. Thompson reports the case of a six-year-old boy who at the age of two years, while in apparently good mental and physical condition, began to have attacks of dizziness in which he would stagger and sometimes fall. These attacks occurred at first only during waking hours, increasing in severity until the typical symptom-complex was established. Spasmodic movements of the arms and legs were accompanied by congestion of the face, gurgling expiration through clenched teeth, and rigidity of the neck and body. The child occasionally fell to the floor but never lost consciousness. The duration of each seizure was very short. The attacks gradually increased in frequency, varying from 10 to 50 in the course of twenty-four hours. Night attacks, during which the parents were awakened by the child's stertorous breathing, were common, but of short duration. The salient features of this case were as follows: (1) The great number (50) of the convulsions per diem; their mild character; their brief individual duration (1 to 2 minutes); their occurrence for three consecutive years. (2) The preservation of unusually sound mental and physical health. (3) The rapidity and the completeness of the cure following thorough sterilization of the intestinal tract. (4) The preservation of the sterility thus obtained by acclimatization of the lactic-acid bacillus. (5) Confirmation of Metchnikoff's contention that the large intestine, by reason of putrefactive processes occurring there, is the chief portal of entry to the system of profoundly toxic substances.

New York Medical Journal.

November 28, 1914.

1. Phlegmons of the Upper Respiratory Tract. J. O. Roe.
2. Intestinal Stasis. B. Robinson.
3. Convulsions During Pertussis. L. Fischer.
4. Sciatic Pains. A. M. Forbes.
5. Epithelioma Varium. W. P. Cunningham.
6. Parageusia and Its Treatment. T. F. Reilly.
7. Voice Fatigue in Singers and Speakers. I. W. Voorhees.
8. Post Partum Hemorrhage and the Treatment. J. Gardiner.
9. An Aid to the Auscultatory Blood Pressure Test. F. A. Faught.
10. Garcia Fernandez. W. B. Jennings.
11. The Determination of Exceptional Development in Children. M. P. E. Groszmann.

1. Phlegmons of the Upper Respiratory Tract.—J. O. Roe from a study of these phlegmons in their various relations reaches the conclusion that the virulence of the disease depends more largely upon the condition of the patient—that is, the soil in which the germ becomes implanted—than upon the strain or character of the germ, the activity of the germ de-

pending upon the condition that quickens it into activity, which may be local or general or both. Chronic affection of the throat may provide in many cases the inviting condition for the activities of wandering germs. Farmers and fanciers recognize the importance of introducing new strains in order to increase the vigor and productiveness of their animals; so may it be that the introduction of a new strain of streptococci into the old saprophytes starts a new and prodigious activity. Davis in a bacteriological study of chronically diseased tonsils and their relation to arthritis, nephritis, and endocarditis, almost invariably found in the crypts large quantities of virulent hemolytic streptococci fatal to guinea-pigs and rabbits, with joint and other manifestations. These germs were ever ready to take on an active form of existence when excited to activity by external influences or given a chance by the weakening of the defenses of their host.

2. **Intestinal Stasis.**—B. Robinson holds that the old methods of treating obstinate constipation are better than the new and is not convinced that the use of purified mineral oils by the mouth is any advance over the well-known and approved olive oil by enema. Indeed, the purest California olive oil only contains one-fifth of one per cent. fatty acids and is shown to be a very poor culture medium. Taken, therefore, by the mouth it is quite as innocuous as the nonabsorbable mineral oil. Moreover, it has a very decided advantage in that it promotes healthy nutrition, as well as being an equally good intestinal lubricant. The former quality the mineral oil does not possess. When properly given, *i.e.* small doses to begin with after meals, it does not occasion dyspeptic symptoms which cannot be readily neutralized with a little pancreatic extract as an emulsifier. Finally, good olive oil promotes intestinal peristalsis and thus prevents bowel stasis with its sequelæ. This action is obtained when olive oil is used both by the mouth and rectum, and usually it may be employed advantageously at the same time for a while at both ends of the digestive tube.

4. **Sciatic Pains.**—A. M. Forbes states that in the majority of patients suffering from sciatic pains a primary lesion may be found in the spine or sacroiliac joints. This lesion is of a so-called rheumatoid nature, amenable to treatment.

6. **Parageusia and Its Treatment.**—By T. F. Reilly. (See MEDICAL RECORD, September 5, 1914, page 438.)

8. **Postpartum Hemorrhage and the Treatment.**—J. Gardiner states that in the treatment of postpartum hemorrhage, the first factor of importance is to control the bleeding. The patient should be placed in the Trendelenburg position, and the abdominal aorta compressed either digitally or mechanically. If the hemorrhage is from the uterus, that organ should be stimulated by massage and irrigated by hot intrauterine douches of dilute acetic acid or iodine solution. If the uterus does not contract, it must be packed with sterile gauze from the roof of the uterine cavity, layer by layer, through the cervical canal and the vagina. Chrolak issues a warning that a tampon inefficiently applied is often the cause of a fatal issue. It is convenient to use strips of folded gauze, two inches wide and five yards in length, on which tape has been sewn, long enough to extend outside of the vagina. The tape assists in the removal of the gauze. An abdominal binder should be applied to keep up the intraabdominal pressure. A good binder is a proper sized huckaback towel. It is firm and strong and can be pinned to fit the contour of the hips and abdomen. An abdominal compress, sand bag or shot bag, may be used. The parametrium in hemorrhage may be clamped from the uterus or cervix. The two medicinal remedies for this condition which stand out preeminently above all others are ergot or its derivatives and pituitary extract. The latter, while it has proved not to be an obstetrical panacea, has a definite limited use in postpartum hemorrhage. When the hemorrhage occurs, even though pituitary extract has been used, the dose should be repeated, as repetition of the dose in no wise injures the mother. In cases of severe hemorrhage, it has been used intravenously with splendid results. The majority of writers advise the use of pituitary extract in combination with some form of ergot. The contraindications are advanced cardiac disease and arteriosclerosis.

Journal of the American Medical Association.

November 28, 1914.

1. Services to be Expected from the Psychanalytic Movement in the Prevention of Insanity. J. J. Putnam.
2. Genetic Factors in One Hundred Cases of Psychoneurosis. D. Gregg.
3. Notes on Public Institutional Work in Mental Prophylaxis, with Particular Reference to the Voluntary and "Temporary Care" Admissions and the "Not Insane" Discharges at the Psychopathic Hospital, Boston, 1912-1913. E. E. Southard.
4. Efficiency of Sodium Chloride in the Therapeutics of Bright's Disease. A Further Clinical Study. H. Lowenburg.
5. The Role of Functional Kidney Tests and Preoperative and Postoperative Treatment in the Reduction of Prostatectomy Mortality. B. A. Thomas.
6. The Relief of Sterility by Means of Permanent Epididymostomy, with the Formation of an Artificial Sac for the Storage of the Sperm. V. D. Lespinasse.
7. The Direct Method of Intralaryngeal Operation. C. Jackson.
8. Indirect Intralaryngeal Method for Removal of Benign Neoplasms. H. H. Curtis.
9. Method of Suspension (Killian). Demonstration of the Latest Form of the Apparatus. R. H. Skillern.
10. Health Services in American Colleges and Universities. W. E. Forsythe.
11. The Therapeutic Effect of Iodine. J. W. Jobling and W. Petersen.
12. Contribution to the Study of the Value of Quininization in the Eradication of Malaria. A. J. Orenstein.
13. A Colloidal Compound of Strychnine and Its Pharmacology. H. McGuigan.
14. The Intraspinal Treatment of Syphilis of the Central Nervous System with Salvarsanized Serum of Standard Strength. Report of Cases. H. S. Ogilvie.
15. The Prevention of Communicable Diseases in General Hospitals. D. L. Richardson.
16. Oil of Chenopodium in the Treatment of Hookworm Infections. R. L. Levy.
17. Congenital Phthisis Bulbi, with Report of a Case. A. Brav.
18. A Severe Case of Exophthalmic Goiter, with Complete Recovery Without Operation, Rest or Medication. E. Swasey.
19. Traumatic Rupture of the Healthy Aorta Without External Signs of the Cause of Death. G. G. Copeland.
20. Exophthalmic Goiter as a Clinical Manifestation of Hereditary Syphilis. O. Clark.

2. **Genetic Factors in Psychoneurosis.**—D. Gregg presents the following conclusions drawn from the analysis of 100 cases of psychoneurosis: In the majority if not in all cases of psychoneurosis there exists an essential factor, namely, a natural psychopathic tendency, hereditary or acquired in fetal life. If the age at which symptoms occur among psychoneurotic individuals may be considered an index of the potency of the essential factor at work, leutic, insane, neurotic, and alcoholic defects among forebears are of importance in the order named in the production of psychopathic tendencies. Among psychoneurotic individuals, somatic difficulties tend to induce symptoms earlier than do difficulties of environment. The longer a psychoneurosis exists, the more numerous will the symptoms probably be. Prophylaxis against the psychoneuroses can be furthered by early diagnosis, and by the elimination of the provocative agents of somatic and environmental difficulties with the aid of medical treatment, psychoanalysis, and psychotherapy, but no prophylaxis can be effective that fails to consider the essential factors in the production of the psychoneuroses.

4. **Efficiency of Sodium Chloride in the Therapeutics of Bright's Disease.**—By H. Lowenburg. (See MEDICAL RECORD, July 4, 1914.

5. **Reduction of Prostatectomy Mortality.**—B. A.

Thomas states that the most appropriate method of prostatectomy in a given case depends on the pathological condition present, rather than on the normal anatomical relationship of the prostate. This pathological condition is of greater consideration than the statistical low mortality-rate of either the perineal or suprapubic method, and more discrimination in this respect offers a means of shaving even the present low percentage. The cystoscope is a most important aid in the determination of the avenue of approach in the particular case. Although the renal function is the paramount consideration in determining the operability of a case, consideration of other organic conditions must never be slighted. Indigocarmine is superseded by no other kidney test in the estimation of the renal function. Apparently of more dependence than merely the onset and quantity of excretion of indigocarmine is the index of elimination, described by me. The reduction of the mortality following prostatectomy to 3.3 per cent. is attributed largely to cystoscopical aid in determining the method of operation, and also to the index of elimination of indigocarmine in discrimination as to the operability of cases.

7. Direct Method of Intralaryngeal Operation.—C. Jackson concludes that the direct method is the only one by which the larynx in children can be operated upon. The indirect or mirror method is applicable only to adults. The reversal of the image sagittally, without reversal laterally, compels the operator to develop the ability to move his forceps backward when the image appears to require the forward direction; and, more difficut still, is the necessity to combine for diagonal movement a reversed anteroposterior with a true lateral movement. The difficulties to be surmounted by the direct method of intralaryngeal operation require prolonged and constant practice, but not nearly to the same extent as required by the mirror method. No anesthetic, general or local, is necessary for operations on the larynx in children. In them, cocaine is dangerous in any case, and general anesthesia is absolutely contraindicated in all cases with even the slightest degree of larynx stenosis. Local anesthesia should be used in adults, general anesthesia, preferably with ether, being required only when cocaine is contraindicated or when the ischemic accompanying its use causes the growth to shrink to such an extent as to hinder accurate removal. No one method can be said to be best for all cases and all operators. The laryngologist should try all methods and instruments so that he may decide for himself what best suits his personal equation and he should then be fully prepared to use the method which, in his hands, is best adapted to the particular case.

15. Prevention of Communicable Diseases in General Hospitals.—D. L. Richardson notes that infectious diseases are introduced into the hospital chiefly by new patients. Well-equipped and well-managed isolation wards should be provided for all suspicious and infectious cases and for all children under 14 years during a detention period. There should be very careful admission of all patients, nurses, and help, and supervision of the same. There should be sufficient equipment for all wards and better teaching of nurses and help about infectious diseases.

16. Chenopodium in Hookworm Infections.—R. L. Levy finds that oil of chenopodium is an effective vermifuge in the treatment of uncinariasis. It is not unpleasant to take, its ingestion is followed by no disagreeable symptoms, and it is cheap. In therapeutic doses it is non-toxic. Oil of chenopodium, he thinks, deserves a most thorough trial in the campaign against hookworm disease.

The Lancet.

November 21, 1914.

1. Treatment of Wounds in War. Sir W. Watson Cheyne.
2. Splenomegalic (Hemolytic) Jaundice Associated with Bile Pigment in the Urine. Report of a Case in Which Splenectomy was Performed. T. R. C. Whipham and H. W. Carson.
3. Pityriasis Rosea of Gilbert. E. G. Little.
4. Traumatic Rupture of the Liver; Laparotomy; Recovery. L. H. Taylor.
5. Morphological Types of Bacilli as an Element in Prognosis in Pulmonary Tuberculosis. H. R. Wilson.
6. Note on the Wounds Observed During Three Weeks' Fighting in Flanders. G. H. Makins.
7. The Position of Belgian Doctors and Pharmacists. C Jacobs.

1. The Treatment of Wounds in War.—Sir W. Watson Cheyne describes his method of disinfection of wounds as follows: The patient having been placed under an anesthetic, the first thing is to control the bleeding. In the case of an extremity a tourniquet is applied, but where the wound is situated in the trunk any visible bleeding points should be clamped and the wound temporarily stuffed with gauze or large sponges. The next step is to cleanse and disinfect the skin thoroughly. In the first place scrub it thoroughly with 1 in 20 carbolic lotion and ether soap, then shave it, and finally wash it thoroughly again with the carbolic lotion, leaving a cloth saturated with the lotion over the whole area, so as to continue the disinfecting action and protect the skin while the interior of the wound is being attended to. The interior of the wound must now be disinfected, and if it is necessary to gain access to the deeper parts in order to enable one to see what one is doing, which is very important, the wound must be sufficiently enlarged by incisions made in suitable directions.

The blood must be thoroughly swabbed out, the wound made as dry as possible, and the skin or fat or other structures which are visibly soiled with earth or dirt should be cut away. The wound being then held wide open by retractors, a piece of sponge dipped in the liquefied carbolic acid is carefully and thoroughly applied to the whole surface of the wound and to all the recesses, care being taken, by holding a swab in the other hand on the edge of the wound, to prevent the acid running over the skin. It is well to sponge out the wound after the first application, and then to apply the acid a second and even a third time if there is bad soiling.

If at the bottom of the wound there is a long narrow track leading to the tissues, it may not be necessary to disinfect it along its whole length, because the probability is that the bullet or fragment of shell does not carry the organisms in to a very great depth. If it is a large wound which has to be soaked with the undiluted carbolic acid, it may be well, after about five to ten minutes, to wash it out first with 1-20 carbolic lotion and then copiously with saline solution, so as to get rid of the excess of carbolic acid and thus reduce the chance of absorption. The author advocates the use of antiseptics at the very commencement of the treatment, but at that time, in order to serve the purpose, they must be sufficiently powerful. The author is much opposed to their use in suppurating wounds. Some object to the use of those strong antiseptics on the ground that they may cause a slough. This, however, is a mistake; used as the author advises they may kill a miscroscopic layer of the surface of the wound, but they cause no visible slough. Even if they did cause a slough, however, if one has absolutely destroyed the bacteria the slough is of no material consequence; it will be absorbed like any other piece of dead tissue, and a slough, the author maintains, is of little consequence as compared with the life and future usefulness of the patient.

British Medical Journal.

November 21, 1914.

1. The Treatment of Wounds in War. W. W. Cheyne.
2. The Principles of Wound Treatment as Established by Lister and the Subsequent Modification in Treatment. F. M. Caird.
3. The Borderland of Disease. G. Rankin.

2. Wound Treatment as Established by Lister.—F. M. Caird points out that in so far as septic prophylaxis is concerned an antiseptic method has given way to an aseptic. Antiseptics remain still essential for the cleansing of the skin; boiled water and sterile dressings accomplish all else. Provided one exclude all causes of putrefaction from the tissues, "all they need is to be left alone." Lister's ideal has been realized; the surgeon is master of the wounds he has himself inflicted. One must, however, note that the pendulum of fashion may have swung a little too far in the direction of aseptic surgery. This has led some surgeons who have forgotten the value of the older methods to abandon the succeeding prolonged laborious washing and scrubbing of the integument, and to substitute therefor the use of tincture of iodine as the most convenient and serviceable antiseptic for this purpose. They may have good reasons for adopting such a plan; it does not, however, seem to be the best agent for the purification of wounds.

3. The Borderland of Disease.—G. Rankin in concluding his article on this subject ventures the belief that there is perhaps almost no such thing as "perfect" health, but it is possible by careful inquiry and patient investigation to make sure that one does not find a firm opinion upon a casual observance of physical signs or a mere negation of subjective symptoms. It would be a provident and wise plan if every man went to his doctor for a thorough overhaul once in six months, not because he is driven to him on account of feeling ill, but because he is led to him by the desire to keep well. It is true that physicians are more frequently consulted about trivial ailments than on account of acute and serious disorders; nay more, their time is often vexatiously encroached upon by having to listen to a long tale of imaginary woes and a formidable recital of pains for which one can find no physical explanation, but, if the author's contention is right, all such patients are on the borderland of disease. Their discomforts, whether physical, mental, or emotional, have a foundation in fact somewhere, and clearly point to a fault that disturbs the harmony of perfect physiological activity. The engine is not tuned up to the best work it is capable of, and unless adjusted in time, some part must inevitably become permanently faulty, and constitute the blemish which spells premature consignment to the human scrap-heap. "Prevention is better than cure" is truer today than ever before, and physicians will do much to justify the proverb and to hasten its full realization if they direct their attention more and more to the borderland country and the evidences which are constantly to be found there of the earliest movements on the part of the enemy of mankind.

Berliner klinische Wochenschrift.

October 19, 1914.

Treatment of Tetanus.—Weintraud and Unger each make contributions to this subject. The latter relates a case of moderately severe tetanus in which he injected 20 c.c. antitoxin directly into the arch of the aorta (through the internal carotid). Slight improvement followed and on the following day an intravenous injection of 100 serum units was made. In 48 hours from the aortic injection there was almost complete muscular relaxation. In the use of Meltzer's method he suggests as a result of animal experiments that a catheter be introduced through a minimal tracheotomy wound as far as the bifurcation and connected with an oxygen bomb. With this precaution it should be possible to use large doses of magnesium sulphate. Weintraud's article is an exhaustive one especially in its review of the magnesium method of Meltzer. The mortality of the disease despite the several innovations in treatment is at present high. In one small Wiesbaden series of 8 cases but 3 were saved and these by the use of magnesium. In Limburg in another series of 8 cases but one patient was saved. In a third series of 8 cases at Weilburg but two ended favorably. No details of treatment are mentioned, save as above. The army tetanus which is now so much in evidence partakes somewhat of the nature of an epidemic, such at least as occasionally occur in lying-in institutions in both mothers and infants. Many cases are atypical. Some seem harmless at the outset—a little stiffness in a limb or muscular twitching. In civil practice with sporadic incidence this local tetanus seems unknown to the ordinary practitioner who if he sees it fails to recognize its nature. Other early and usually overlooked symptoms are profuse sweats, vertigo, difficult urination. The sore face, stiff neck, and especially certain pains in the chest which suggest pleurisy are only too frequently misinterpreted. When the victim suddenly becomes completely rigid the nature of the condition flashes across the mind of the medical man and he sends at once for antitoxin. It is not yet too late to profit somewhat by the latter if it us used in large dosage and is given in part by the intralumbal method. But serotherapy is not sufficient alone save as a prophylactic. There must be something to quiet the muscular excitability. The narcotics which have been used merely as palliatives have not infrequently saved life. The author now reaches the subject of the magnesium therapy. Magnesium sulphate has shown itself in animal experiment the ideal narcotic in tetanus, and although this discovery was made eight years ago the great majority of practitioners have not yet begun to realize that so familiar a drug can exert such power over a disease like tetanus. In regard to its use in mankind over 50 cases have been reported. Stadler, an associate of the authors, has determined that the mortality thus far under magnesium treatment is but 35 per cent. Kocher lost but one patient out of six thus treated. Yet the technique of its exhibition is by no means yet perfected. The author would give antitoxin if the case is seen in its inception, repeat its use and also give it intralumbally, but would associate with it the magnesium treatment, if necessary by the cord; and also make free use of the old narcotics and sedatives.

Food of the Worker and the Principles of Nutrition.—Hirschfeld sums up an article on some recent studies of this subject as follows: the need of a high protein fraction in the daily nutriment has not been shown. The protein requirement will be fully covered by an amount sufficient to make up the daily waste. In sound, healthy subjects under favorable external conditions, small quantities of meat will suffice, but one should not renounce its use entirely for even the poorest people miss the deprivation keenly. If the workers are not in good health and somewhat broken down physically, and have to perform hard muscular labor they should receive meat in abundance and refrain from eating too much bulky vegetable matter, especially if they have not been accustomed to this diet of vegetable foods the potato is unsurpassed. It is cheap, readily digestible and well utilized in the intestine. It is also very favorable for fat addition and may be made to serve as a breadstuff. Prisoners were once believed to suffer because of a

meat poor diet. It has, however, been possible to overcome the supposed deficiency symptoms without any increase of meat in the ration—by greater variety, greater concentration, by adapting the calories to the patient's necessities, by the use of relishes, etc.

Münchener medizinische Wochenschrift.

October 6, 1914.

Practical Viewpoints in the Tetanus Problem.—Kreuter of Erlangen begins with the truism that tetanus is a most dreaded form of wound infection. In times of peace its incidence is sporadic. In warfare, its occurrence is massed—every hospital furnishing its quota of cases. With its high mortality prophylaxis makes the first demand, and this is both local and general. The former may be summed up in the phrase "simplification of all wound conditions." There must be no recesses or diverticles and no foreign bodies to find shelter therein. In other words drainage must be ideal, a difficult task when the wounds are due to shell fragments and shrapnell bullets. Injuries which are followed by gas formation, etc., are ominous. Wounds made by horseshoes, however received, are dangerous. General prophylaxis is assured in large measure by serum injections, but the serum is very expensive. As the immunity conferred amounts to but two weeks on the average, prophylactic injections have to be timed properly, and must be given subcutaneously and in large dosage—100 units at least. We cannot always assume that the disease will fail entirely to develop. In cases of great natural virulence it is a therapeutic triumph to convert a malignant into a mild case by deferring its appearance and causing it to pursue a mild course. Is the disease preventable after its initial manifestations have developed? In the most malignant cases these do not tarry to develop. Dysphagia with no corresponding picture of angina is an initial symptom—perhaps one might term it a prodrome—which calls for a most energetic exhibition of serum. When trismus sets in there is no question of its nature—it is not a prodrome but an essential part of the disease. Yet it does not always set in, and in mild or deferred cases the initial tetanus may be confined to the muscles of the injured member. Cases with an incubation period of 8 or 10 days have a very bad prognosis, while if this period is over two weeks in length it is much more favorable, and serotherapy appears to give positive results. Treatment consists in the intravenous and intralumbal injection of serum. Intracerebral exhibition does more harm than good. Serum neutralizes the toxin but has no direct power over the conclusions. To antagonize these we may give in addition to morphine and chloral sulphate of magnesium, if necessary, under control of tracheal insufflation of oxygen. Baccelli's phenol method is powerless against severe tetanus in Austria and Germany. Although the author has seen much tetanus since the war began he does not draw upon his own experience, preferring to quote the dicta of special writers on the subject.

Bilateral Phrenicotomy for the Respiratory Spasms of Tetanus.—Jehn of Professor Saarbruch's clinic, Zürich, while not active in the war, writes a timely account of this new resource. After a series of animal experiments had shown that phrenicotomy paralyzed the diaphragm without serious consequences to the victim, the intervention was tested on an eight-year-old boy with tetanus. Of passing interest is the fact that a diagnosis of diphtheritic pharyngitis and laryngitis had been originally made. Soon the complete picture of tetanus had developed including a severe spasm of the diaphragm. In the course of a general spasm of the extensors the thorax was suddenly fixed in the maximal inspiratory position, while both the throat and abdominal muscles were rigid. The face was cyanosed as respiration became arrested. Consciousness was finally lost and three or four minutes expired before the seizure passed over. Sauerbruch now divided both phrenics behind the sternomastoid muscles. The patient then had numerous convulsions without dyspnea. Attacks of the latter returned, however, and were met by artifical respiration and inhalations of oxygen under pressure. As the patient on account of esophageal spasms was no longer able to take nourishment gastrostomy was performed. Patient made a slow recovery, having sustained thirty-five severe suffocating spasms. Phrenicotomy was of great benefit and did not interfere with expectoration, but seemed rather to favor it. By reason of the diaphragmatic paralysis the respiratory exchanges were found diminished on recovery and patient could only blow 200 c.cm. into the spirometer. His general health did not suffer as a consequence. The only drug received during the course of the tetanus appears to have been chloral.

Influence of Hypnosis on the Vegetative Centers.—Mohr considers first the temperature center. In a patient with purely hysterical or cerebral fever the temperature was brought to the normal and maintained there. The heat center had clearly been under the influence of cortical changes, which had been rendered null by psychotherapy. Next the author considers the secretion of gastric juice. In a patient with anacidity suggestion brought about a flow of gastric secretion. This should occasion no surprise because merely thinking of appetizing foods will produce the same result. The third case considered is that of coryza, which often possesses a nervous component. Since coryza depends largely upon a reflex mechanism we may speak of a "center" for colds, which is perhaps sensible to cortical changes. Kohnstamm believes that when atropine checks the oversecretion it acts in part upon this center.

Münchener medizinische Wochenschrift.

October 20, 1914.

Pulsus Irregularis Perpetuus.—Hering concludes a serial article on the rhythmical auricular tachysystole and pulsus irregularis perpetuus as follows: The two conditions differ to the extent that the latter is accompanied by auricular fibrillation. They have in common the so-called tachyerythism or increased stimulus frequency, the heterotopic origin of the stimulus, the disturbance of transconduction, the elective influence upon the latter of the vagus. The rhythmic auricular systole may pass over into the pulsus irregularis perpetuus, for example, under the influence of digitalis. When this occurs a presystolic murmur previously in evidence disappears. In auricular fibrillation the stimuli probably have a polytopic origin. It is influenced both by the vagus and accelerators, and is promoted by dyspnea (CO_2), dilatation of any segment of the heart, stenosis of the coronaries, certain poisons (digitalis, adrenalin) and certain alterations of saline concentration.

Treatment of Tetanus with Serous Transudate from the Abdominal Cavity.—Durlacher reports the following case which occurred at the Reserve Hospital at Ettlingen: On August 25 an officer was struck on the dorsum of the left foot with a fragment of shell which was extracted three days later. Meanwhile a cellulitis became apparent on the plantar surface. Two days later the parts were incised and given a dry dressing.

On September 3 the patient began to complain of stiff neck which was attributed to a draught. Two days later by reason of suspicion of tetanus he was isolated. In a few days more the entire picture of severe tetanus had developed. Not only was swallowing almost impossible but the respiratory muscles were badly tetanized. The temperature was not high. The only remedy mentioned at the outset is chloral in large doses. On the eleventh day of the disease some serous transudate was infused beneath the skin of the thigh and sudden relief was experienced. The infusion was repeated on the next day with the same result, although the first one seems to have caused a general and cutaneous reaction. Three infusions were given in three consecutive days and each was followed by pronounced relaxation in various muscle groups, although other groups appeared to be uninfluenced. The general impression was so decisive that no more infusions were given for several days. On September 21 only the abdominal muscles were still rigid. The patient received only chloral and bromides. On the 22d a fourth infusion was given as the tense abdominal muscles gave no sign of relaxation. General improvement followed and the patient's condition caused no further apprehension. The action of the transudate was specific in character. The latter was obtained from the peritoneal cavity of a patient with an uncompensated heart lesion, and was infused with as little delay as possible. It contained an abundance of lymphocytes and albumin. These should have undergone some breaking up in the patient's blood and the substances formed may have possessed antitoxic properties. This successful case may open up a new chapter in serotherapy. The author suggests that as dogs are somewhat refractory to tetanus canine serum is worth a trial.

Be Sparing in the Use of Cotton Dressing Materials!—Professor Williger warns the readers of the *Wochenschrift* of the great increase in the price of cotton and cotton goods. It has been advised to return to the use of charpie or lint, which, however, has been out of favor for many years. But the lint of 1870 was prepared under insanitary conditions. The author naïvely relates that his mother, assisted by the larger school girls, prepared lint in a dusty schoolroom. The cotton rags were collected from the villagers, were more or less soiled, the fingers of the girls were dirty, the lint was poorly packed and then shipped to France. Sterilization could have remedied these faults but it also would have destroyed the usefulness of the lint as a supple and absorbent dressing material. The author states that while we may have to come to lint in time there are at present materials which answer better. He is using jute to line splints, and in other situations in which cotton wadding is employed. Cellulose is a never-failing substitute for white cotton wherever the latter is used in large quantities. Cellulose, moss, cotton waste, etc., may be used for stuffing cushions and similar purposes.

Deutsche medizinische Wochenschrift.

October 8, 1914.

Von Behring on the Serotherapy of Tetanus.—That the Behring serum is able to cure tetanus is shown by the following case: A worker in the author's laboratory infected himself accidentally in the palm of the hand from a tetanus culture, a flask of the latter having broken with penetration of fragments of glass among the tendons. The wound at once received antiseptic treatment and an injection of antitoxin was made in the corresponding arm. The wound healed promptly but in four days after the injury a somewhat atypical tetanus appeared, certain isolated muscle groups showing rigidity (legs, shoulders, jaws, eyelids). The right axilla was now laid open, and the main nerve trunks isolated and infiltrated with the most powerful serum. The disease was at once and permanently arrested. The natural malignancy of the disease, which was not checked by the prompt injection of antitoxin, could be attributed to the dose of virulent culture received into the wound. The disease even if favorably modified showed a very short incubation period, while the general symptoms were of such a character that the prognosis had been very grave. The author now teaches that the tetanus toxin combines at once with the intramuscular nerve endings and while it cannot be neutralized in this combination it can still enter the blood, in which it should be exactly neutralized by intravenous and subcutaneous injections. To save life in these cases the so-called neural treatment as practised by the author, holds out the only hope. These injections do away with the need of resection of nerve trunks, but in cases in which serum is not available the question of a temporary resection of one or more trunks comes up very seriously. The reader is surprised to see little or no mention of the dried antitoxin as a wound dressing or of the intraspinal exhibition of the serum. Doubtless the teaching that nerve terminals are depots of infection will greatly modify future treatment.

Primary Lesion in the Rabbit from Inoculation with Pure Culture of Spirochetes.—Schereschewsky of von Behring's Institute, who was one of the first to make pure cultures of the spirochete, has succeeded in rabbit inoculations of the same. The microorganisms were obtained from a human papule and cultivated through seven generations. The culture was injected into the scrotal sac and parenchyma of the testicle. No primary reaction resulted and not until the forty-first day did a lesion appear, which evolved into a typical primary sclerosis. A second animal inoculated by scarifying the cornea developed parenchymatous keratitis at the end of thirty-three days. The inoculation experiments were carried out in a peculiar manner. The culture material was used four days after sowing, at a period too recent for the ordinary development of cultures. The author was at first working to ascertain at which period cultural virulence is the greatest. The positive outcome of the tests raises the question as to whether newly-proliferated spirochetes had actually been inoculated, or whether the transmission was due simply to the "seed" of the culture. The author excised the primary sclerosis from the scrotum of the rabbit, but a "chancre redux" at once developed in its site. The rabbit's semen was filled with spirochetes. Incidentally the author found that his cultures when kept in the incubator retained their virulence almost indefinitely.

Experiments with Abderhalden's Dialysis Procedure.—Otto and Blumenthal of Professor Loeffler's Institute have been testing the Abderhalden reaction with special reference to the diagnosis of pregnancy and to The behavior of precox patients towards testicular substance. The placental substratum was prepared with extreme care, but was broken up by sera of non-gravid women and by that of cancer patients. The test is very valuable to this extent that when it is negative pregnancy can be excluded with great probability. The test is almost always positive in the gravida, but the percentage of positives is equally high in cancer patients and positive finds are common in miscellaneous affections. A perfectly negative result appears to indicate freedom from disease in general, and from pregnancy in female subjects. The test is

not well suited for routine general practice. When the testes are used as substratum the serum of precox patients gives positive results in a very high percentage of cases. The same result is seen in the gravid, in manic-depressives and miscellaneous subjects in a sometimes high but very variable percentage. Precox serum breaks up placenta even more frequently than testicle. It therefore seems likely that in atypical or incipient precox positive finds with testes and placenta should possess considerable diagnostic significance. In a second brief article on the A. R. by Eder of Koblanck's clinic similar conclusions are reached. With a negative A. R. pregnancy can be excluded with the highest degree of probability. On the contrary, with positive A. R. we have to exclude at least the presence of cancer, syphilis, and suppurative processes before we can pronounce a woman pregnant.

Eye Lesions in Warfare.—Grounow writes for the benefit of surgeons in the dressing pavilions. Very common in soldiers is conjuctivitis from dust which should be treated with zinc sulphate solutions of ½ per cent. or borax 4 per cent. by instillation, twice daily. Compresses of 3 per cent. boric acid solution may also be used. As trachoma is common in Russia, prisoners from that country should be carefully examined, and, if necessary, isolated. The field surgeon should be able to differentiate between trachoma and simple granulated lids in adult patients. Simple foreign bodies in the conjunctival sac often require removal. Aside from these small responsibilities all other lesions should be cared for at the nearest field hospital, save for such first aid dressings as may be necessary. These comprise cleansing from foreign material and a first aid bandage.

Deutsche medizinische Wochenschrift.

October 22, 1914.

Morbidity from Marching.—Schuster first considers the seemingly insignificant condition characterized simply as foot soreness. This has, of course, a prophylaxis which consists in properly fitting socks and shoes. The device known as the "foot sparer" enables the soldier to wear a more roomy shoe, and he can use extra stockings in cold weather. The foot sparer also enables the soldier with falling instep to march without pain. The feet should, of course, be kept clean. Excessive perspiration should be kept down with salicylated talcum, and if necessary formalin in 10-20 per cent. solution. Salicylic acid plaster should be used for corns. A serious lesion once thought to be due to rupture of the transverse ligaments of the metatarsals has been shown by the *x*-rays to consist of actual fracture of these bones—usually the second metatarsal. The result of this injury is pressure pain and doughy swelling on the dorsum of the foot. In certain cases the bones do not break but undergo a periosteal thickening. These conditions often disable the soldier, sometimes permanently, as the condition may relapse as soon as he returns to the front. The foot sparer ought to be of prophylactic use, but much also depends on skill in marching on the efficiency plan of suppressing all unnecessary movements, and a proper employment of the rest periods. New recruits also suffer at times from tenosynovitis and periostitis. The former affects chiefly the tendons on the dorsum of the foot. If an effusion has not occurred the presence of the condition is betrayed by crepitus. If it has occurred the dorsum of the foot swells and there is inhibition of function. Periostitis develops on the upper third of the shin extending often from the knee to the middle of the bone. It appears as a painful swelling which pits on pressure. The victim is unable to plant his feet firmly. The condition is brought about by the large extensors of the foot which spring in part from the tibia, which become torn and distended with their own blood. Soldiers with either of these conditions require a few days bed rest with water compresses or iodine application to render them fit to walk. They should not, of course, participate in forced marches until they have completely recovered. The only other serious condition to which infantry troops are exposed is heat stroke and the author goes very minutely into this subject. Even in peace times the mortality from heat stroke is considerable and thousands perish annually from this cause alone. The troops march in the direct sunlight, heavily dressed, armed, and accoutered. No distinction can be made between an actual exposure to actinic rays and simple overheating. Humidity is a component, for as soon as this reaches 65 per cent. the danger is markedly increased. Absence of motion in the air adds to the risk. Before the stroke it is often noted that the soldiers cease to converse with animation and to sing. They stare fixedly, the countenance becomes dusty, individuals begin to drop and do not reply when interrogated. The men recall that they felt confused, saw spectra, felt palpitation, and precordial anxiety. The surgeon can do much when any of the prodromes are in evidence by calling a halt from time to time, allowing the men to unburden themselves and drink freely of cool water. Those exhausted by marching fall easy victims to heat stroke. The clinical picture varies greatly. Some soldiers do not lose consciousness, while others are comatose, convulsed (epileptoid), delirious, confused. Apparent recovery is often followed by fatal recurrence of symptoms. Aside from these cases death when it occurs does so within seven to nine hours. For recovery two weeks are required, but this does not mean restitutio ad integrum, because not only are there numerous reminders present in the shape of myalgia, prostration, insomnia, vertigo, headache, emaciation, bradycardia albuminuria, glycosuria, but definite sequelæ such as paralyses, neurasthenia, hysteria, epilepsy, psychoses, dementia (in some cases real or pseudoparesis). The simplest type of heat stroke is a mere swoon, to be managed as such. If the subject does not revive under this plan he should be treated with cold effusions; at times by venesection, saline infusion. To antagonize the dangers of heat stroke maneuvers and drilling should enable the authorities to weed out those specially predisposed. But these exercises are performed only in the cool of the day, and presumably after a night's rest, two conditions not realizable in actual war. Excesses of all kinds, notably in alcohol, can be inhibited in actual war. Flasks can be filled with cold coffee and tea. In daily water drinking too large quantities should not be taken at a time. Parades in hot city streets add to the risk of heat stroke.

True Bone in Sputum.—Kretschmer reports a case of this very rare phenomenon. The patient, a man of 31, brought to the clinic some pieces of spongy bone which he claimed to have expectorated. He was found to have a pleuritic effusion, probably an empyema. In the sputa were elastic fibers. A slight kyphosis was found, corresponding to the last two dorsal vertebræ. The patient continued to expectorate bone during the observation period. The first diagnosis was abscess of the lung with secondary erosion of the vertebræ, but this opinion was changed to a tuberculous abscess of the vertebræ with rupture of the same into the pulmonary tissue.—*Berliner klinische Wochenschrift.*

Insurance Medicine.

The Prognosis of Heart Disease, with Special Reference to Life Insurance.—Dr. Robert H. Babcock, Chicago, Ill., states that in determining the prognosis of any valve lesion something more is required than a mere examination of the heart and circulatory system. Habits of life, vocation of the individual, illness experienced, such as rheumatism, tonsillitis, grippe, mouth conditions which may produce foci of infection, should all influence the decision of the home office with reference to the insurability of the individual affected with a cardiac condition.

A bruit is merely an abnormal sound and its real significance depends on its location and rhythm, together with the associated or secondary signs. This is emphatically true of systolic murmurs, while a diastolic one is rarely if ever produced by any other condition than an organic lesion. A presystolic murmur possesses grave significance, and the prognosis depends largely on the secondary effects on the heart, as shown by the degree of enlargement of left auricle and right ventricle. Aortic regurgitation is a serious lesion for several reasons. When of rheumatic origin and well compensated it is not incompatible with the individual living to middle age, but such is the exception. Consequently, as with mitral stenosis, this valvular defect may be considered justly to bar the person against insurance unless as a defective risk at a high and practically prohibitive rate. With reference to a bruit in the aortic area, such as most practitioners regard as stenosis of the aortic orifice, it must be remembered that in aortic stenosis there is usually a systolic thrill having the same situation and time as the bruit, that the aortic second sound is either enfeebled or replaced by a diastolic murmur, that the left ventricle is distinctly hyperthrophied, and that blood pressure is low. On the other hand, if the aortic systolic bruit is found in a person of middle age, if the second sound is accentuated and perhaps clanging, if the accessible arteries are thickened, and if the blood pressure is abnormally high, the condition is probably sclerosis of the aorta and not stenosis. The left ventricle may or may not be hyperthrophied, and careful percussion as well as the *x*-ray may reveal some degree of dilatation of the aortic arch. In this case the coronary arteries would be diseased. Such a combination of physical findings justifies the rejection of the applicant. Occasionally there is found a soft, systolic murmur in the aortic area, particularly distinct when the person is in the recumbent position, which is not associated with a palpable thrill or appreciable alteration of the second sound. Neither is hypertrophy of the left heart or sclerosos of the peripheral vessels demonstrable. These cases are puzzling, but must be considered from the standpoint of anamnesis and age before being rejected. If the report is favorable from these points, then the bruit may be considered accidental and not organic. Another puzzling systolic murmur is that not infrequently heard in the second and perhaps third intercostal space at the left of the sternum. Such a murmur is common in women, especially when their hemoglobin is low. Sometimes there may be perceived also a soft, less distinct bruit at the apex and in the aortic area. Babcock considers that under these circumstances this murmur in the pulmonary area does not indubitably indicate mitral insufficiency. A systolic murmur at the base of the sternum may be produced by several conditions, namely, patency of the ductus arteriosus, patency of the foramen ovale, stenosis of the pulmonary orifice, mitral regurgitation, etc. These all need careful percussion and outside assistance in the form of the *x*-ray, etc., before a prognosis could be given. Pulmonary stenosis can scarcely be overlooked when it has led to the production of a systolic murmur in the second left interspace close to the sternum. The presence of a thrill, of a feeble and rudimentary second sound, and of hypertrophy of the right ventricle should not escape an examiner. This lesion is of course not insurable.

In the consideration of a systolic murmur in the mitral area two questions at once arise: Does a murmur always indicate mitral regurgitation, and if so, what is its influence on life prospect? If the first tone is also audible, if the apex-beat is in its normal situation, if the pulmonic second sound is not accented, if right heart dullness is not increased and undue epigastric pulsation is wanting, then an apex systolic bruit may be considered accidental or at least of no serious significance sufficient to warrant a refusal by a company. On the other hand, a systolic murmur at the apex in a person of middle age is of pathological significance in all probability and usually will be associated with significant changes in blood pressure, in the vessel coats and in the size of the heart, as well as in some of its tones. If this murmur is soft, may be heard more distinctly or only in the dorsal decubitus, and accompanies but does not replace the first tone, it is indicative of muscular mitral insufficiency. It goes without saying that prognosis in such a case is not favorable. Another systolic murmur sometimes heard and which may be mistaken for that of mitral regurgitation, is that of right ventricle dilatation from strain. This usually occurs in young men given to violent exercise and yields to digitalis and quiet living. The remaining systolic murmur to be considered from the standpoint of insurance is that of mitral regurgitation from rheumatic origin. There can be no doubt but that this lesion is the most favorable as regards prognosis of valvular diseases in general. Many an individual carrying a murmur due to mitral valve condition from rheumatism has lived to reach the allotted three score years and ten. This proves that more is to be reported in an examination of the individual than the recognition of a murmur, in fact all corresponding data should be noted. The prognosis of combined valvular lesions depends largely on the type of combination, but is most often doubtful.

Regarding prognosis in myocardial affections but little needs to be said, since no one would consider the acceptance of an applicant with unmistakable evidence of cardiac incompetence due to possible degeneration. Life prospects are too uncertain in cases of myocardial degeneration giving rise to symptoms of inadequacy. Simple intermittence of the pulse means little in young people, unless due to syphilis. In persons of middle age it takes on a significance according to the accompanying heart conditions. Babcock believes that persons with arrhythmic and degenerated hearts lack the subjective consciousness of the disordered action which so disturbs the individual in whom intermittence is a manifestation of a neurosis.—Medical Section, American Life Convention.

Book Reviews.

Diseases of the Nose, Throat, and Ear, Medical and Surgical. By William Lincoln Ballenger, M.D., Professor of Otology, Rhinology, and Laryngology, College of Physicians and Surgeons Department of Medicine, University of Illinois, Chicago; Fellow of the American Laryngological Association; Fellow of the American Laryngological, Rhinological, and Otological Association; Fellow of the American Academy of Ophthalmology and Otolaryngology, etc. Fourth Edition, Revised and Enlarged. Illustrated with 536 Engravings and 33 plates. Price, $5.50. Philadelphia and New York: Lea & Febiger, 1914.

An enumeration of the new topics and revisions that appear in the fourth edition of this work shows how well it has kept abreast of the progress that has been made in its subject-matter during the past few years. The most notable addition appears in the one hundred pages of new material on the labyrinth. There are thirteen colored plates illustrating the physiological and pathological manifestations of nystagmus, and twelve drawings portraying the Newman and Hinsberg labyrinth operations. The following are other new features of this work: Mosher's fronto-ethnoid operation, with five drawings; the use of autogenous vaccines in the treatment of hay fever; Haynes' operation on the cisterna magna; the His leucocyte-extract treatment of infections of the nasal sinuses and meninges; salvarsan in the treatment of syphilis of the brain and auditory nerve; and McBeam's theory of the causation of paracusis Willisii. Among the topics that have been revised may be mentioned the functional tests of hearing, otosclerosis, meningitis, and abscess of the brain. These additions and revisions, the large number of superb illustrations, and the excellence of paper and typography, not to mention the didactic and literary skill with which the subject-matter is presented, all tend to maintain the high standard which this work has already achieved.

A Short Handbook of Cosmetics. By Dr. Max Joseph, Berlin. Second English edition, revised with appendix. Price, $1.00. New York: E. B. Treat & Co., 1914.

Just as the alchemists were the precursors of the chemists, and the astrologers were the forerunners of the astronomers, so one may speak of the "beauty doctors" as the prototypes of the cosmetic specialists. Indeed the art of cosmetics has passed beyond the purlieus of the quack into the domain of the legitimate physician. In this small volume of 93 pages there is set forth a clear and practical account of modern cosmetics for the general practitioner. The chapter headings are as follows: Introduction, Cosmetics of the Skin, Cosmetics of the Hair, and Cosmetics of the Mouth. It may seem unnecessary to mention that this book is replete with formulæ and prescriptions of face lotions and creams, hair tonics, and the like. There can be no question that it supplies a distinct want in the physician's library.

A Manual of Practical Hygiene for Students, Physicians, and Health Officers. By Charles Harrington, M.D., Late Professor of Hygiene in the Medical School of Harvard University. Fifth edition, revised and enlarged. By Mark Wyman Richardson, M.D., Secretary to the State Board of Health of Massachusetts. In Collaboration with the Following Officials Connected with the Massachusetts State Board of Health: H. W. Clark, Chief Chemist; X. H. Goodnough, Chief Engineer; William C. Hanson, M.D., Assistant to the Secretary; Hermann C. Lythgoe, Chief Analyst of Food and Drug Department; and George H. Martin, formerly Secretary to the Massachusetts State Board of Education. Illustrated with Twenty-four Plates in Colors and Monochrome, and One Hundred and Twenty-five Engravings. Philadelphia and New York: Lea & Febiger, 1914.

This work represents a complete revision of the admirable treatise written by the late Dr. Harrington and considerably amplified by the editor in collaboration with officials connected with the Massachusetts State Board of Health, who have written special articles on foods, water supply and disposal of sewage, disposal of garbage, and hygiene of occupation. These topics are eminently live ones in latterday discussions on sanitary problems. In the section on milk as a factor in the spread of disease reference is made to the epidemic of 205 cases of sore throat occurring in Dover in 1884 and all traced to a single dairy supplied by cows suffering from foot and mouth disease. The chapter on the hygiene of occupations is a particularly forceful exposition of the facts pertaining to hazardous and dangerous occupations, and is illustrated with photographs showing card stripping in a cotton mill, the grinding of iron castings on emery and carborundum wheels, stone cutting, the broom-corn industry, shovelling lead oxide into hopper, lead working in the manufacture of storage batteries, the manufacture of derby and felt hats, the leather industry, pearl button making, etc. Reference is made to the admirable legislation enacted in the State of Massachusetts with reference to the protection of workmen and chiefly of minors. Of considerable importance and interest are the chapters on the medical inspection of schools; military hygiene; naval and marine hygiene; tropical hygiene; infection, susceptibility, and immunity; the relation of insects to human diseases; quarantine; the administrative control of communicable diseases; and vital statistics.

A Text-Book of Practical Therapeutics, with special Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics, Materia Medica, and Diagnosis in the Jefferson Medical College of Philadelphia; Physician to the Jefferson Medical College Hospital; One-Time Clinical Professor of Diseases of Children in the University of Pennsylvania. Fifteenth Edition, Enlarged, Thoroughly Revised, and Largely Rewritten. Illustrated with 144 engravings and 7 plates. Price, $4.00. Philadelphia and New York: Lea & Febiger, 1914.

The new editions of Hare's "Practical Therapeutics" appear with periodic regularity, and the reviewer, beyond commenting upon the maintenance of the popularity and practical character of this work, has only to mention the new matter that has appeared in the latest edition, which in this instance is the fifteenth. The topics that have been added to or rewritten are those on salvarsan and neosalvarsan, tuberculin, anesthetics, and digitalis and other cardiac drugs. The attitude of the author in preparing the text is perhaps best stated in his own words as given in the preface: "The day has passed for undue therapeutic optimism and has gone far beyond therapeutic pessimism. This is the era of therapeutic rationalism, when remedies are given not because they are recommnded by, or said to be valuable by, some authority, but because their use appeals to the medical man who has a knowledge of the physiological, pathological, and therapeutic problems to be faced, and can, therefore, judge for himself what remedy is best suited to a given case when he is informed how it acts." The plan of the work is as follows: Part I deals with General Therapeutic Considerations; Part II, with Drugs; Part III, with Remedial Measures other than Drugs and Feeding the Sick; and Part IV, with Treatment of Diseases, Table of Doses of Medicines, Index of Drugs and Remedial Measures, and Index of Diseases and Remedies.

Chemistry for Nurses. By Reuben Ottenberg, A.M., M.D., Lecturer to the Nurses' Training School, Mt. Sinai Hospital; Instructor in Bacteriology, College of Physicians and Surgeons, Columbia University; and Assistant in Clinical Microscopy, Mt. Sinai Hospital. Price, $1.00. New York: The Macmillan Company, 1914.

The author of this book remarks in the preface "it puzzles one to understand how, in the past, without chemical instruction, nurses have made any sense at all of much that was taught them in materia medica, physiology, and diet cooking." Probably the nurses did not "make any sense at all of much that was taught them"; and it is believed that the present work will simply add to the mass of undigested matter which they do not understand. Why this book is entitled "Chemistry" we do not know; there is hardly a definition, or statement or explanation of chemical principles to be found in the volume. A glance at the index might cause a careless reader to infer that the volume is a somewhat complete book on chemistry; but on referring to the pages indicated it will be found that the presence of a word in the index frequently denotes no more than the mere occurrence of that word on a given page. The book contains a certain amount of information, but it lacks those features which characterize a good elementary work on chemistry.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held October 20, 1914.

Dr. JOSEPH C. ROPER IN THE CHAIR.

The Focus of Infection—Osteitis—and the Relation of Dentistry to Good Health; the Value of the Roentgen Examination.—Dr. BYRON C. DARLING presented this communication, in which he called attention to the numerous recent articles written by internists, neurologists, bacteriologists, orthopedists, and laryngologists, namely, Rosenow, Billings, Hastings, Camac, Joseph Collins and others, all concentrating the attention on the discovery and removal of the focus of infection as the first step toward the treatment of the particular condition. The clinical manifestations of these conditions in the order of their importance were: chronic joint affections, single or multiple; usually progressive with periods of improvement, directly related to the increase or decrease of the resistance of the patient. There was a great need of definite diagnosis in these cases; ulcers of the stomach and intestines; endocarditis; myocarditis; myositis; migraine; neuralgias; neuritis, and neurasthenia. To the finding of the underlying defect each department of medicine was making its contribution, emphasizing naturally that which lay within its own province. A routine order of search might well begin at the head, where they had first the respiratory tract; nose, throat, and tonsils; second, the middle ear and mastoid; third, the accessory sinuses; fourth, glands of the neck; fifth, the lungs and mediastinal glands. The author stated that this paper was written from the angle of view obtained from the use of the *x*-ray, and such an examination was recommended by the otologist as of the greatest value in mastoid conditions and of considerable value in sinusitis. In lung examinations it was the sole means of demonstrating the glands at the root of the lung, as well as supplementing greatly the physical examination of the lungs themselves. Second, in the routine order of search, was the alimentary canal. Here should be considered the possibilities of the roots of the teeth, the gums, and the jaws as harboring some focus of infection. Any decay extending to or causing the death of the pulp or nerve was a source of infection, which, if untreated, must result in a root abscess, osteitis, with or without fistulas. After describing Riggs' disease, the author said that the *x*-ray examination showed the absorption of the alveolar process about the root varying from an open space the width of a line between the tooth and its socket to that shown by a tooth loose in a bed and swollen and inflaming the gum with disappearance of the adjacent bone. More important still was the demonstration of the root abscess cavities, earlier and small ones as well as the larger ones with fistulas, and finally, whether the tooth had been properly treated by the dentist by completely filling it to its apex. Dr. Darling also reviewed the possibilities of the *x*-ray in locating ulcers of the stomach and duodenum and kinks and adhesions of the large intestine, biliary calculi, etc. Then followed as foci of infection the chronic infections, pyelitis, cystitis, urethritis, prostatitis, and seminal-vesiculitis. Most of the conditions mentioned lay within the province of and were definitely cared for by some one of the distinct specialties of medicine, but the teeth fell between the province of the dentist and the physician, who seldom met for cooperation in diagnosis. Wherever any suspicious condition of the mouth brought the teeth into question the matter should be gone into thoroughly by both the physician and the dentist, leaving no "hidden focus" undiscovered. The physician should examine the mouth of such patients both before and after the dentist had done his work, for too often after the dentist had completed his work the *x*-ray still showed definite lesions.

Dr. Darling gave an *x*-ray exhibition of certain conditions of the teeth already referred to seemingly related to conditions such as multiple arthritis, hip joint disease, destructive lesion of the spine, septic endocarditis, spondylitis deformans, etc. He concluded as follows: (1) As a first, rather than a last, resort, special attention must be paid to the condition of the teeth. (2) Good health demands the constant close attention of a conscientious and scientific dentist. (3) Much old and unscientific dentistry, such as bad crown and bridge work, and unscientific root filling, must be removed and the conditions remaining properly treated; failing this, merciless extraction, with false teeth, but a clean mouth. (4) Pyorrhea alveolaris was a menace to good health, and certainly could be a focus of infection. (5) There should be cooperation with mutual recognition of responsibility between the physician and the dentist. (6) Even though the hidden focus was found and the cause of the systemic infection removed, the seed of the disease had already been sown broadcast and many expedients would be required before the patient was cured.

Dr. R. OTTOLENGUI said that he quite agreed with Dr. Darling as to the value of the *x*-ray in aiding in the diagnosis of septic conditions of obscure origin. Whilst he did not consider that it had yet been absolutely proved beyond scientific doubt that microorganisms, more especially streptococcus viridans, might migrate from root ends to distant parts of the body, causing serious functional disturbances, he was inclined to believe that the time was far off when such proof would be had. In fact, the researches of Dr. Thomas B. Hartzell went very far to substantiate this view. (For a full report of Hartzell's researches to date, beautifully illustrated in color, see official bulletin of the National Dental Association, Volume 1, No. 4, page 48.) Passing this phase of the subject, Dr. Ottolengui said that he would address himself more particularly to the dental aspect. He pointed out that there were no less than three sources of infection in the mouth. First, from pus discharging around teeth, associated with pyorrhea alveolaris; second, from pus discharging through fistulæ leading from the ordinary type of alveolar abscesses; and third, from moderately small granulomas, which were to be found at the ends of root canals, but which did not have fistulous openings, and which, therefore, did not discharge pus into the mouth proper. Dr. Ottolengui said that as the pus discharged from the first two conditions were easily discoverable by the physician, he would discuss more particularly those of the third class, commonly known as blind abscesses. The dangerous feature of these infections lay in the fact that they gave no pain, caused the patient no disturbance whatever, and were most commonly found on teeth which might appear to be well filled and perfectly sound. No tooth, however, was really well filled, supposing that the pulp had been removed prior to filling, unless the root canals were aseptically filled absolutely to their ends, and it was even preferable that a little of the filling material should extrude beyond the end, thus insuring absolute sealing of the frenum. Where a root filling did not reach the end, infectious material was laying in the unfilled portion of the canal and almost invariably resulted in infection. This infection was frequently from a low type of bacteria, very slow in growth, and as they now knew, exceedingly dangerous to the rest of the body. It was, therefore, important for the medical man when, seeking for the cause of the infection, especially where he suspected the mouth, to have radiographs made of all teeth known to be pulpless or suspected to be pulpless because of the presence of very large fillings. In this manner and in this way only could it be determined whether or not granulomas were present. The radiograph easily disclosed this, however, because the root fillings as commonly used were of gutta percha and readily stopped the ray, casting a clean-cut shadow. The root of the tooth did the same, and consequently it was easy to determine whether or not the root filling really reached the end. If it did not, the tooth must either be unfilled and correctly refilled, the same to be proven by the radiograph or else it would be best to sacrifice the tooth by extraction. Dr. Ottolengui then exhibited, with the aid of lantern slides, the accepted method of filling root canals as practised by the most advanced dentists. This involved the clearing out of the root canal as far as the dentist might find it possible at the first sitting. A gold wire was then inserted into the root canal and a radiograph taken. The shadow cast by the wire then disclosed whether or not the dentist had really cleaned out the root canal to the end and the cleansing was continued until a radiograph was obtained which did show a wire passing to or even through the end of the root. The next step was to fill the canal and take another radiograph, by which the dentist checked up his operation and determined whether he had successfully filled the tooth to the end. Dr. Ottolengui declared that a medical man would be warranted in even recommend-

ing a change of dentists where the patient presented teeth with several badly filled roots. In fact, he believed that this course followed by the medical men might be a valuable lever to compel the dental profession to be more cautious and more thorough in this work. The medical men, however, could be of considerable assistance to the dentists in explaining to the patient the importance of having this work well done, because it was an undoubted fact that patients did not appreciate the value of this root service and were unwilling to pay for it. A great majority of the dentists had rather shirked the rather tedious technique necessary to the accomplishment of perfect results.

The Management of Pneumonia Patients.—Dr. SIMON BARUCH read this paper. (See page 993.)

Dr. BARUCH said in reply to questions by Dr. Harlow Brooks and others that he ordered the ten-minute friction bath at 95° F., reduced rapidly to 85° or 80° F., in the pneumonias of children under five years of age, repeating every four to six hours if chilliness was absent an hour after the bath, when the chest compresses were again applied. In reply to the question if he did not regard the cold bath as valuable in sunstroke, Dr. Baruch said that *it was absolutely coontraindicated in this disease* and that its continued recommendation in most books on practice was responsible for many deaths, as had been demonstrated in his work on hydrotherapy. In an article on the fatality of textbook hydrotherapy in the MEDICAL RECORD of 1912, the dangerous fallacy of regarding the coldest bath as the most antithermic was emphasized in order to put a quietus on it. The most popular textbook, translated into many languages, had long stated that the ice-pack gave the best result in this fatal disease, viz., 38 per cent. This was disproved by the fact that an epidemic of sunstroke in New York City killed, in 1896 in one week, 648 persons, the mortality being under iced baths and ice-packs in Bellevue Hospital, 33 per cent.; in the Flower Hospital, under the needle spray of tap water (75°), given only until rectal temperature fell to 103° F., the mortality was 11.5 per cent.; under pouring cold, sometimes iced, water with force over the body and with friction until 103° F. was reached, the mortality was only 6 per cent. in the St. Vincent Hospital, under the lamented O'Dwyer. And Osler's great textbook still taught in its sixth edition the value of the ice-pack, with its 38 per cent. mortality! The lesson he wanted to impress upon them was that the chief action of cold water was upon the vasomotor centre and sympathetic systems, which regulated the functions, including the heat regulation; also that reaction must ensue after all cold procedures by which he did not mean reddening of the skin, but *bien aise* or at least absence of discomfort. He begged of them to stop ordering water treatment unless they had mastered the simple principles upon which safety and success depended. Often they heard and read that hydrotherapy was ordered. This was quite as absurd as to state that drug therapy was ordered. That there might be even a fatal difference between the effect of a cold tub bath and an affusion or spray with water of the same temperature (both being hydrotherapy) the sunstroke observations he had mentioned proved more clearly than any therapeutic fact had ever demonstrated. Let them prescribe water as they prescribed drugs; then would they obtain apparently incredible results.

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, Held October 19, 1914.

THE PRESIDENT, DR. THOMAS S. SOUTHWORTH, IN THE CHAIR.

A Case of Dystrophia Adiposogenitalis.—Dr. EDWARD WAITSFELDER reported this case, presenting the patient. We were somewhat familiar he said, with the action of the internal secretion of the thyroid, suprarenals, testes, and ovaries, as well as, to a lesser extent, that of the thymus; but in connection with the hypophysis, with its different lobes, each having a distinct secretion acting in a different way, there were many problems still to be worked out. Whether, for example, the internal secretions of the testicle and pituitary were synergistic or antagonistic in their action; and whether the persistent thymus gland reacted on the pituitary, and gave rise to symptoms due to faulty function of the latter, and not the thymus, as had heretofore been supposed, as in the case of status lymphaticus, rickets, etc. The patient presented was a Swede, 27 years old. As a child he was stouter than his companions, and when he grew older his schoolmates called him a woman. He preferred to be alone, did not like outdoor sports, and was rather feminine in his tastes. From the age of 15 he had been a ship's cook. He did not use tobacco or alcohol, and denied coitus, masturbation, and libido. One year ago he received a severe blow on the head, since which time he had suffered from headache; and it was for this symptom that he was admitted to Dr. Waitsfelder's service at the Gouverneur Hospital. The patient had the beardless "moon" face so frequently seen in castrates; shoulders sloping, feminine outline; increased deposits of subcutaneous fat under the chin, in the mammary region, nates, and more particularly over the abdomen and mons, where it formed a large cushion. The penis, scrotum, and testicles were extremely small and rudimentary, and there was an absence of pubic and axillary hair. The thyroid gland could not be felt, the larynx was small and cartilaginous, and the voice was high-pitched and feminine. He could read and write, and was much more intelligent than the ordinary seaman. During the first three weeks of his stay in the hospital he was quiet and reserved, but was willing to help about the ward. He was neat in his habits and in no way troublesome. An *x*-ray examination of the skull showed a remarkably small sella turcica, the transverse diameter being 10 mm., and the longitudinal 6 mm. A bridge or arch of bone (undoubtedly congenital) rendered it possible to get the latter measurement. An *x*-ray examination of the bony pelvis showed a decided departure from the usual conformation of the male pelvis, the pubic arch being much wider, the ilia more flaring, and the outlet of the pelvis larger. The femur also somewhat resembled that of a female. The extreme smallness of the pituitary fossa indicated an absent or inefficient pituitary gland, and Dr. Waitsfelder therefore determined to transplant one as soon as the opportunity offered. On August 15, ten hours after death, the pituitary and pineal glands of a robust German, aged 25, who had committed suicide, were removed under strict aseptic precautions and transplanted in the patient—the former in the axillary border of the right pectoral muscle; the latter in the left pectoral muscle. The operation, which was done under nitrous oxide anesthesia, was followed by primary union. On the day following the transplantation a remarkable change took place in the patient, and this continued until his discharge, two weeks later. He became noisy, abusive, and unruly, tearing off the bandages over his wounds, insisting on removing his clothes and going about the ward naked, and continually swearing at nurses and patients. He became filthy in his habits, frequently wetting the bed, and when remonstrated with he was very obscene, and threatened to strike the nurse. Finally he became so unmanageable that he had to be transferred to the City Hospital (on August 31). For the first week after his removal he acted in the same violent way; at times requiring restraint. He then gradually grew more reasonable and quiet, and on October 10 re-entered Gouverneur Hospital. Since then his condition had appeared to be precisely the same as before the transplantation. A fairly extensive search through the literature on the pituitary, the speaker said, had failed to reveal a parallel case, either as regards the lack of the gland or the attempt to establish this internal secretion by the transplantation of a pituitary taken from a human subject. The mental state of the patient following the transplantation had given him considerable thought, and it seemed a fair inference that this had been due to the activity of the internal secretion of the pituitary, inasmuch as it had developed on the day following the introduction of the gland, and subsided after a length of time which might be sufficient to allow the gland to be absorbed. It was unfortunate that the attempts, four in number, which had been made to get an *x*-ray picture of the thymus gland had failed, probably because of the excessive fat deposits over the thorax. The patient's appearance was suggestive of status lymphaticus, a condition in which an enlarged thymus was frequently found.

Dr. REYNOLD WEBB WILCOX referred to a case of retarded growth which he had reported to the American Therapeutic Society in 1908. When the patient came under his observation he was 14 years old and had not grown any for the preceding three years. From the fact that the thymus remains large during the period of growth, and then atrophies, it was reasonable

to suppose that this gland has to do in some way with the general growth of the body. It therefore seemed possible that this boy's lack of growth might be due to thymus deficiency, and, acting on this hypothesis, Dr. Wilcox advised a course of thymus extract. The result was such as might well be considered startling, for in the next three years, during which the extract was administered, with some intermissions, there was a gain of 9½ inches in height and 43 pounds in weight. This single instance, however, the speaker said, did not prove anything. The whole subject was still very obscure, and it might be that the remarkable result observed in this patient was simply a coincidence.

Dr. ROBERT T. MORRIS said that most of the ductless glands belonged to closely connected growths, but the ovary did not appear to be in quite such intimate relationship with any other gland. In his case of testicular grafting, in 48 hours from the time when the grafting was done, the patient was conscious of masculine cenesthesia, after ten years of loss of such feeling. It was extremely difficult to secure a successful transplantation of any of the ductless glands, but in very rare instances normal function could be restored, so far as internal secretion influence was concerned, and sometimes, in the case of an ovary, children might be born.

Dr. WAITSFELDER said he thought there could be little doubt that there was a relationship between the thyroid and the ovary, for the first menstruation was commonly attended by congestion of the thyroid. In Dr. Morris's case of heteroplastic grafting of the testicle he believed it quite impossible that, under the circumstances, there could have been any emission of semen, as claimed by the patient. The secretion noted was, without doubt, that of the prostate. Eunuchs, it was well known, were capable of having erections, with the emission of prostatic secretion.

Pelvic Abscess Following the Employment of the Fowler Position in Appendicitis.—Dr. H. BEECKMAN Delatour, in this paper, said that while the elevated head and trunk posture, known as Fowler's position, had proved a most valuable aid in the saving of appendicitis cases with general peritonitis, it was his belief that a large proportion of the cases reported as instances of general suppurative peritonitis were really not true cases of general peritonitis. In numerous cases of acute appendicitis in which the abdomen was full of serum clouded with lymph, but in which there were not found those changes recognized as inflammatory, it had long been his practice, if the appendix, although gangrenous, had not perforated, to close the abdomen without irrigation and without drainage. Many such cases, he believed, had been reported as cases of purulent peritonitis, and the recovery of the patients credited to postural treatment. He did not wish, however, to convey the impression that he lacked faith in the elevated trunk position as an aid in septic cases. As to whether, in these, it was possible to drain away all the septic material by drainage carried into the pelvis, apparently in the majority of instances this drainage was all-sufficient; but in a few it was not, as some case histories he would present would show. Most surgeons had met with appendicitis cases which had been drained and had done well up to a certain point, but the temperature never became normal and the wound ceased to drain. In some instances, however, the temperature would, after a time, suddenly become normal, and the whole condition improve. From his recent experience he was inclined to believe that in all such cases there was in the deep pelvis a small collection of pus, not highly infective, which was never drained. In those in which the sudden improvement occurred the abscess ruptured spontaneously into the rectum, and the discharge of pus was not recognized. In some the process was not very active, and later encapsulation occurred, or the exudate was absorbed. In 1898, in a paper published in the *Brooklyn Medical Journal*, he had called attention to the importance of rectal examination as an aid to diagnosis in doubtful cases of appendicitis. In conjunction with the cases referred to he wished to again advocate this method as one of the recognized procedures which was frequently not employed. His attention was first directed to the development of pelvic abscess following appendicitis by a case in which the Fowler position was used at the Norwegian Hospital three years ago, which he described. On introducing the examining finger into the rectum there was considerable pain. The finger then detected, just beyond the prostate, a mass bulging into the rectum, and this had so much the feel of a distended bladder that further examination was deferred until the bladder had been emptied. This having been done, the mass was found to be still present, and it gave the sense of fluctuation. Concluding that he had a pelvic abscess to deal with, he had the patient put under ether, thoroughly dilated the sphincter, and introduced a speculum. The bulging in the anterior wall of the rectum was plainly visible, and after the mucous membrane had been thoroughly cleansed a longitudinal incision was made into the mass. About three ounces of pus was evacuated, and a half-inch drainage tube, covered with iodoform gauze, introduced. From this time the temperature became normal, and general improvement followed. On the fourth day all drainage ceased, and two weeks after the evacuation the patient was discharged entirely cured. Since this case the speaker had had six similar ones, which led him to believe that the condition is not rare. In one of them, in which the mass was small and at some distance from the anus, he had employed aspiration with satisfactory result. The point which he desired to emphasize was that in those cases of septic peritonitis in which there is continued increased temperature, but in which the wound looks healthy and careful examination of it shows no undrained pockets, one should be sure to make a rectal examination, especially if the patient be losing ground and has frequent bowel movements, with tenesmus and discharge of mucus. If, on examination, an abscess were found, we should not hesitate to drain it through the rectum, as there was apparently little or no danger of infection from this source. While aspiration might prove satisfactory, he would recommend incision whenever possible.

Dr. MORRIS said that we should always take into account the character of the fluid present in the abdominal cavity. Where this was of thick consistence there was one danger to be apprehended. In the Fowler position gravitation acted more strongly than in most, and there was a tendency for the fluid to pocket and make its way into some one of the hollow viscera. He had been glad to hear Dr. Delatour advocate draining an abscess through the rectum, and it appeared to him to be an excellent plan. With the prone position we were perhaps more likely to have consolidation pneumonia and subphrenic abscess, but, after all, he had not been convinced that any one position offered great advantages over another. The general experience of our hospitals seemed to show that, as a rule, the prone position of the patient was the most desirable. So many patients got well in any sort of position, however, that posture was apparently not a matter of vital importance.

Dr. RUSSELL S. FOWLER said that, postoperatively, pelvic abscesses occurred in two classes of cases: those in which the foundation for the abscess already existed at the time of operation, and those in which material descended to the pelvis, after the operation, from some other part of the abdominal cavity. A separate pelvic abscess might also exist undiscovered at the time of operating upon the original focus. By bearing in mind these three conditions at the time of operation, subsequent abscesses could for the most part be avoided. As to an abscess already existing, it was possible to remove an appendix with so little disturbance of the surrounding intestine as not to rupture or discover an abscess in the neighborhood. Several times he had so removed an appendix, only to discover, by passing a stick sponge into the pelvis, that there was present a distinct collection of pus there. Such cases occurred without reference to the posture of the patient. In females the abscess was drained by a posterior colpotomy, the abdominal wound being closed; while in males a curved glass drainage-tube, with its lower end in the pelvis, was employed. The other two classes of pelvic abscess might occur in spreading peritonitis and in diffuse septic peritonitis cases. In the former it was a question of judgment whether pelvic drainage by vagina or glass pelvic tube should be used at the time of the original operation, or whether no drainage should be employed. At operation there was present a slight amount of sticky fluid in the pelvis. Personally, he usually drained these cases for from 24 to 48 hours by means of a glass tube, though sometimes the pelvis was simply sponged dry, and no drainage used. In such cases not drained it was easy to understand that posture might result in a further collection and localization of the infected material in the pelvis. He himself had not noted post-operative pelvic abscess in this class. When diffuse peritonitis existed, unless the pel-

vis were drained, there was always a possibility that a pelvic abscess would form. Formerly he had closed tight an occasional case of diffuse peritonitis where the peritoneum did not show much structural change, and he did not note secondary abscesses in these cases. His usual procedure, however, was to drain such cases with a glass tube; in which event secondary pelvic abscess did not occur unless the tube was withdrawn or shortened too early. Still, occasionally he had observed an abscess form at the pelvic brim, on the left side. Such an abscess could be opened by removing the tube and inserting the finger through the tube-tract into the pelvis and curving it upward and to the left, thus opening the abscess into the pelvis. In other instances it was necessary to open the abscess on the left side, through an abdominal incision. Secondary abscesses, of course, occurred in other locations in diffuse peritonitis cases. Except in these three ways he did not see how a pelvic abscess could occur post-operatively, nor did he think that the non-use of the Fowler position would prevent the formation of such. These abscesses were bound to occur, so that the position of the patient was instrumental only in localizing them. The examination by rectum, he thought, was important.

Dr. Franz Torek said that after the proper treatment of the abdominal cavity in diffuse suppurative peritonitis (a condition involving the entire peritoneum right and left), in which all the pus had been removed, there was none left to make its way down into the pelvis when the Fowler position was employed. The condition of affairs could be compared to that when a small quantity of liquid was sprinkled on a pane of glass placed upright. It would not follow the law of gravitation, but would adhere to the side of the glass. For this reason he did not put his patients in the Fowler position, except occasionally for the sake of comfort. Fowler had done a great service by reducing the amount of drainage resorted to. Personally, he thought it better to employ no drainage at all. In his cases of diffuse suppurative peritonitis, which included a number of four days' duration, the mortality had amounted to 16 2-3 per cent. In his first series he did not drain a single case. In his operations for this condition, after thorough cleansing of the abdominal cavity the wound was closed completely. In his second series of cases he had in two instances drained down to the cecum, because in that portion of the intestine there was an appearance of threatening gangrene. Here the drain was introduced simply as a safety valve, and not as a means of draining the peritoneum; for it was impossible to drain that. He did not believe that the use of Fowler's position would cause pelvic abscess, and this opinion was based upon the view, previously expressed, that minute quantities of liquid would be controlled by the attraction of adhesion, not that of gravitation.

Dr. Delatour, in closing, said the title of his paper might give the impression that he thought the abscesses were entirely due to the Fowler position. Such was not the case, though he did believe that it was a contributory factor. It had been his practice to employ drainage when there was a leakage from a perforation, but not when there were no perforation and leakage. None of his cases had been in females, but in a case in a woman he would evacuate through the vagina, rather than the rectum.

Physical Defects as a Factor in the Causation of Crime.—Dr. Edward Wallace Lee read this paper. We were told, he said, that man was created in the image and likeness of God, and he interpreted this to mean that the design of Nature was toward perfection, and that perfection would be attained, and superman evolved, were it not for accidental interference. From this standpoint he would maintain that mankind would be morally perfect if it were physically perfect. Men had come to realize that soul, spirituality, and moral sense are the product of intelligence and education, that intelligence is the product of a physiological metabolism, and that the extent of an individual's education depends upon his intelligence, taking into account, of course, the factor of environment. Mankind would have made its greatest progress when it could say, "I am too intelligent to commit a crime." Under our present educational standard every normal, intelligent individual knew what he could do or not do, so far as breaking the criminal laws was concerned. He believed, therefore, that every person who did break these laws was deficient in intellectual control, and that the loss of this control was due in part to some physical defect which destroyed moral stamina. The factors entering into the causation of physical defects were many and might be classified under three headings: congenital, acquired, and accidental. Alcohol was the principal factor concerned with all three classes, and he regarded this as the most potent factor in physical and mental degeneration. The recent researches of Bezzola seemed to prove that the old belief in the bad quality of children conceived during drunkenness was not without foundation. According to the statistics of Forel, about 75 per cent. of venereal disease was contracted by persons under the influence of alcohol. The production of the majority of sexual crimes, also resulting from want of reflection and general motor impulsiveness, could likewise be attributed to its use. Drink made men and women not only gross and sensual, but also negligent, imprudent, and irreflective. The saloon took men from their homes, while addiction to alcohol directly diminished population. Other things being equal, it was found that the nations which abstained from alcohol, or those in which the people were moderate consumers, were more prolific than those given to drink. Alcohol greatly deteriorated the quality of man by causing blastophthoria, or deterioration of the germ, and we must agree with Darwin, Gladstone, Cobden, and Comte that alcohol, even in moderation, does more harm to a nation than war, plague, and famine combined. The recent order regarding alcohol issued by our Secretary of the Navy should place him among the greatest benefactors of the human race. Alcohol, internally, was nothing but a narcotic, and the day would come when medical men who were addicted to intoxicating liquors, or who prescribed them, would be considered a menace to the best interests of society. Personally, he had witnessed eight legal hangings and three or four which were not legal, and the primary cause in all was alcoholic intoxication. The abuse of the use of drugs entered largely into the causation of crime, and there was no strong argument against the crusade now being made to wipe out the pernicious drug habit; but it did seem somewhat inconsistent to make such an energetic war on habit-forming drugs while alcohol was being dispensed ad libitum. From his present viewpoint he would maintain that any pathological condition may be the exciting cause of a psychic neurosis leading to such a disturbed physical change as will result in mental deterioration and acts of crime. Not that all physical defectives were criminals, but he did believe that in all criminals a physical defect might be the exciting cause of criminal instincts. The various physical defects that could be mentioned as the underlying causes of mental deterioration were unlimited. It was only necessary, however, to mention a few in order to demonstrate his ideas along these lines. The speaker then took up successively the deleterious effects of syphilis, malaria, and food. In speaking of the last-named he referred to improper food, proper food improperly prepared, and food immoderately ingested, and in this connection he spoke of some of the mental and psychic results of the toxemia due to intestinal disturbances. He went on to say that crimes were punished too much because they were infractions of the law, the mental and physical condition of the individual not receiving sufficient consideration. Every observant physician knew of mental relief resulting from physical relief, and it would be well for medical men, in making up patients' histories, to find out as much as possible regarding their temperament and moral status. When criminals of all classes were treated as pathological subjects we would be in a position to arrive, by thorough analysis, at their true psychological state, and the more we investigated with the view of ascertaining to what extent all criminal acts were the result of pathological conditions, the better would we be able to handle this most important subject. He believed that sexual perversion and sexual crimes were largely due to some physical defect, especially in the genital tract. He had long advocated castration as a treatment for a certain class of these cases, and had resorted to it a number of times with good results. We all knew the mental effects of pathological thyroids, and the benefit resulting from proper treatment. Now, as to what should be done. In general, the abolition of everything which had a tendency to deteriorate physically the human race. Scientific, not sentimental, eugenics, together with an appreciation of the fact that crime is a disease, should be the starting point. He advocated the careful examination of children and of criminals, and said that the inmates of our penal institutions could be divided into three classes: those who should never have been confined, those who should be treated with the hope of cure, and

those who should be eradicated. The first was composed of individuals who were punished largely through technicalities and did not belong in such institutions. In the second were those who, under proper physical treatment, education, and environment, might be benefited and trained to be useful citizens; and in the third were mental, moral, and physical defectives suffering from atavistic traits, to whom no manner of treatment or punishment would be of the slightest benefit.

Mr. A. C. VANDIVER, counsel to the Medical Society of the County of New York, said it had not been his experience that most crimes were due to physical defects in the criminal. In fact, he had never seen any which he had reason to believe were due to such defects, or even to alcohol.

Mr. DREYER said that the growing child was wholly subject to development, and spoke of the necessity (in order to prevent the creation of criminals) of proper training in accordance with the child's aptitudes.

Dr. MORRIS said that crime was a comparative matter, and in a young man at the age of romanticism it was often due to a spirit of adventure, and sometimes was the result of alcoholic impetus given to a concept. There could be no question as to the desirability of individual training of the child, and this was the ideal of all educators.

Dr. ARTHUR C. BRUSH said that criminals could be divided into two classes: those whom hunger or some other cause compelled to break the law, the accidental criminals; and those who did so because they could not understand the nature of the act or control their impulses. The latter were the habitual criminals, and Lombroso was right up to a certain point as to the frequent occurrence of certain physical deformities in this class. Physical defects were also contributory causes from the fact that they might make the subject an object of contempt or so handicap him that he was unable to keep up with his fellows, and had to resort to crime in order to live. He did not agree that all of this class were of low mental type. In many, as the negro and the Southern Italian, there was marked loss of self-control, just as was found among imbeciles; but there were also those who presented a high degree of mental acuity. The influence of alcohol he thought had been overestimated, for, judging from the habits of Englishmen a century ago, we should now have a degenerate race instead of the present vigorous one.

Dr. J. HERMAN BRAANTH said that by scientific investigation it had been shown that much of criminality, if not all, was due to nervous instability, feeblemindedness, and insanity, and one might without exaggeration say that every feebleminded person was a potential criminal. Heredity and alcoholism were important etiological factors. Dr. Alexander Lambert had stated that many defectives were such owing to alcoholism in the parents, and, as mentioned in a paper written in 1901, in five out of six cases of cleft palate which he himself had seen within a short time, the mothers admitted alcoholic intoxication of one or both parents at the time of conception. A low grade imbecile was more dangerous than a total idiot, but less dangerous than a high grade imbecile, a class which principally made up the criminal element in the community. Mental life was of far greater importance than pyhsical life, and the highest life was attained through cultivation of both mind and body. In the savage was seen the cultivated body and uncultivated though normal brain.

Dr. WILLIAM SHARPE described the first case in which he had done a right subtemporal decompression for the relief of spastic paralysis, in a child that was in a dying condition. This he said was eighteen months ago, and the patient had greatly improved and was now practically normal in his mentality. Since then he had had 79 cases, with 6 deaths. He was accustomed to operate only on the mild cases, and the results, both physical and mental, had been very gratifying.

Dr. M. S. GABRIEL said the views put forth by Dr. Lee were entirely too materialistic.

Creatine and Creatinine Elimination in Diabetes and Nephritis.—D. Lampert states that in diabetes the creatinine excretion either is diminished or approaches the lower limits of the normal variations. In diabetes gravis with a high degree of acetonuria creatine is present in the urine, but in diabetes levis with traces of acetone creatine is either absent or present in slight traces. In nephritis there is always a diminution in the creatinine even when there is a good diuresis.—*Zeitschrift für klinische Medizin.*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

TENNESSEE STATE BOARD OF MEDICAL EXAMINERS.

May 4 and 5, 1914.

(*Concluded from page 950.*)

PRACTICE.

1. What conditions are accompanied by severe pain in the chest, and what characteristic symptoms would enable you to differentiate them?

2. In a case of uremia, indicate the various conditions that must be considered; state the appropriate remedies for each condition and give definite reasons for the use of each remedy.

3. Describe briefly the following diagnostic signs or tests and name opposite each, the disease or diseases in which they may be found: Koplik's spots; Romberg's symptoms; Argyll-Robertson pupil; Babinski's reflex; Kernig's sign; Stokes-Adams syndrome.

4. (*a*) Name the cardinal symptoms of tumor of the brain. (*b*) What is the diagnostic value of pulsating jugulars.

5. Differentiate cardiac hypertrophy and dilatation.

6. Give the cause, symptoms, and treatment of cerebrospinal meningitis; the symptoms of tuberculous meningitis.

7. Name the causes of displaced apex-beat and state the physical signs of one of the conditions mentioned.

8. (*a*) Diagnose and treat herpes zoster. (*b*) What causes a large per cent. of all cases of early blindness? Give preventive treatment.

OBSTETRICS.

1. Give (*a*) bones, (*b*) divisions, (*c*) straits, and (*d*) symphyses of the obstetric pelvis. In what way does it differ from the male pelvis?

2. Name the internal female organs of generation. Describe the uterus fully, and give its relations to the other organs in the pelvis.

3. What is menstruation? How soon would a woman menstruate after parturition?

4. Describe the pregnant uterus, and state how it differs from a normal uterus. How early can you diagnose pregnancy? Give the signs by which you would do it.

5. Give a differential diagnosis between a supposed six months' pregnancy and an ovarian tumor; a uterine fibroid; ascites; a gaseous accumulation.

6. Give the proper management of the breasts before and after labor.

7. Give all the means or drugs that you know to facilitate a tedious and painful labor.

8. What precautions would you take in obstetric work in case of a doctor or nurse who had been in attendance on a septic case?

SURGERY.

1. Give the symptoms, complications, and treatment of fracture of ribs.

2. Define toxemia, septicemia, pyemia, sapremia.

3. Give the causes, symptoms, and treatment of suppurative mastoiditis.

4. Give symptoms of simple, compound, and compound comminuted fracture of tibia and fibula and treatment of each condition.

5. What articular changes take place in dislocations? What are the general principles governing the treatment of dislocations?

6. Differentiate benign and malignant tumors. Name two of each.

7. Give symptoms, diagnosis, and treatment of tuberculous kidney.

8. Give the etiology, symptoms, and varieties of erysipelas.

ANSWERS.

PRACTICE.

1. *Pain in the chest may be due to:* Anemia, intercostal neuralgia, pleurodynia, pleurisy, pneumonia, phthisis, mediastinal tumor, enlarged bronchial glands, herpes zoster, disease of the vertebræ, angina pectoris, pseudo-angina, pericarditis, gastralgia, gastric neuroses, gastric ulcer, gastric cancer, ulcer of duodenum, aneurysm.

2. *Uremia* may occur in the course of acute nephritis,

chronic nephritis, puerperal eclampsia, and when there is obstruction to urinary excretion. *Remedies*—Hot pack, to increase elimination by the skin; elaterin, to increase elimination by the bowels; nitroglycerin, to lower arterial tension; strychnine and digitalis, to support the heart; chloral or chloroform for the convulsions; sometimes venesection and hypodermoclysis will cause general relief from all the symptoms.

3. *Koplik's* spots are small red spots with a bluish-white center, found on the inner surface of the cheeks; they occur in the beginning of measles, prior to the appearance of the rash.

Romberg's Symptom: The patient stands with eyes closed and heels together; extensive swaying of the body occurs if the patient has ataxia of the lower extremities; found in locomotor ataxia.

Argyll-Robertson pupil: The pupil responds to accommodation, but not to light; found in locomotor ataxia, intracranial syphilis, and progressive paralysis of the insane.

Babinski's reflex: When the sole of the foot is tickled there is extension of the toes instead of flexion; occurs in lesions of the pyramidal tract, organic hemiplegia.

Kernig's sign: The patient lies with the thighs flexed upon the abdomen and the legs flexed upon the thighs; if cerebrospinal meningitis is present it will be impossible to extend the legs.

Stokes-Adams syndrome is a complex consisting of slow pulse, cerebral disorders (as vertigo, syncope), and visible auricular pulsation in the veins of the neck. It occurs in heartblock.

4. *Tumor of the brain:* Chief symptoms are headache, vertigo, vomiting, optic atrophy, choked disc, slow pulse, convulsions, and the focal symptoms (which vary according to the location of the tumor).

Pulsating jugulars may denote: Anemia, tricuspid stenosis or regurgitation; the condition may be observed in health.

5. CARDIAC HYPERTROPHY: "*Inspection* reveals fullness or prominence of the precordium with a distinct impulse. *Palpation* detects the impulse one or two intercostal spaces lower down and to the left. It is stronger and more or less diffused—the heaving impulse. *Percussion* determines an increase in the area of cardiac dullness vertically and transversely on the left side of the sternum, unless the right ventricle is also hypertrophied, when the cardiac dullness is increased to the right of the sternum. *Auscultation* in simple hypertrophy without any valvular changes detects a loud first sound of a somewhat metallic quality, the second sound being strongly accentuated. In the presence of valvular disease the characteristic murmurs are heard in addition."—(Hughes' *Practice of Medicine.*)

CARDIAC DILATATION: "*Inspection* detects enlargement and distention of the superficial veins and an indistinct, often wavy and diffused, cardiac impulse. If tricuspid regurgitation is present jugular pulsation will be observed. *Palpation* confirms inspection; the impulse is feeble, irregular, and heaving. *Percussion* serves to determine extension of the area of cardiac dullness transversely and especially toward the right side. *Auscultation* in the presence of valvular lesions reveals characteristic murmurs. If there are no valvular lesions the cardiac sounds are weaker than normal and the first sound is sharper in quality than usual."—(Hughes' *Practice of Medicine.*)

6. CEREBROSPINAL MENINGITIS. *Cause:* The *diplococcus intracellularis meningitidis. Symptoms:* "The symptoms depend upon the area most affected. If the meninges of the brain are diseased, there are delirium, stupor, paralysis of ocular muscles, disturbed vision, deafness and semi-consciousness. If the meninges of the cord are the seat, there will be opisthotonos, hyperesthesia, paresthesia, rigidity and tremor of the extremities, localized spasms of the muscles, which, if irritated, often cause a general convulsion. The onset is characterized by anorexia, malaise, pain in the back of neck, head, and down the spine, slight rise of temperature, chill, or convulsion. Vomiting comes on early, and the pain in the back and head increases. The temperature is not usually high—about 102°—very irregular, and without the diurnal variation so common in typhoid fever. The pulse is full and strong. Intolerance to light and sound is a prominent feature. The skin becomes hypersensitive and a petechial rash appears, hence the synonym—spotted fever. Trophic changes may occur and herpes is common. This is generally a leucocytosis. To test for the distinctive Kernig's sign, the patient lies with the thighs flexed upon the abdomen and the legs flexed upon the thighs; if meningitis is present extension of the legs is impossible, being prevented by the contraction of the hamstrings. Delirium is present usually from the onset, and may be so prominent as to give rise to maniacal outbreaks. The urine is high-colored, scanty, and may contain albumin. Late in the disease it may be passed involuntarily. Occasionally the joints may be swollen." *Treatment:* "Rest in bed, liquid diet, ice-bags to the head, and counterirritation to the back are essential. Pain and restlessness are relieved by morphine, the bromides and chloral. The bowels should be freely opened, and the bladder should be emptied by catheterization, if necessary. The fluidextract of ergot, gtt. 10-20, may be given. Lumbar puncture and laminectomy are sometimes necessary. Alcohol, digitalis and quinine are of value. During convalescence potassium iodide, tonics, rest and quiet, massage, and electricity are indicated. In case of epidemic cerebrospinal meningitis the serum treatment should be resorted to."—(*Pocket Cyclopedia of Medicine and Surgery.*)

SYMPTOMS OF TUBERCULOUS MENINGITIS. "*Prodromal:* The child usually shows more or less definite symptoms of the tuberculous diathesis, such as emaciation, want of appetite, or constipation alternating with diarrhea. Irritability of temper and headache are perhaps the most common features previous to the onset of definite symptoms of the meningeal affection. Such a condition may last a few weeks or months. *Irritative Stage.*—The symptoms are similar to those of the simple variety, but the head is usually more retracted and the neck more rigid; the abdomen is hollowed out or boat-shaped; the temperature oscillates; internal strabismus or other paralysis of cranial nerves may be present, and there is often marked vasomotor paralysis, manifested by the *tache cérébrale* (a red line upon the skin rapidly following a stroke of the finger nail). This, however, is not diagnostic. Vomiting is very constantly present, and may or may not be related to food. The pulse is irregular and slow. This stage continues for a week or so. *Compression Stage.*—The pulse becomes more rapid with the exhaustion of the heart, the symptoms that accompany coma develop, and death may take place in from ten days to six weeks from the onset of acute symptoms. In the *adult* delirium may take the place of convulsions. The course of the disease is more rapid than in children, as the skull cannot expand, and hence intracranial pressure develops more quickly."—(Wheeler and Jack's *Handbook of Medicine.*)

7. *Displaced apex-beat may be due to:* Pericardial effusion, distention of abdomen, pleural effusion, dilatation or hypertrophy of the heart, emphysema, aneurysm of arch of aorta, mediastinal tumors, hydrothorax, pneumothorax.

For physical signs of dilatation and hypertrophy of the heart, see QUESTION 5.

8. HERPES ZOSTER: *Diagnosis* is made by the pain, and eruption along the course of a cutaneous nerve (generally one of the intercostal nerves); it is generally unilateral; the vesicles show no tendency to rupture. *Treatment:* Flexible collodion or a dusting powder locally, to protect the vesicles; antipyrin or phenacetin or morphine for the pain, and zinc phosphide and nux vomica as a nerve tonic.

The gonococcus or some other pyogenic microorganism is the cause of most cases of early blindness. *Preventive treatment:* Whenever there is the possibility of infection, or in every case, wash the eyelids of the newborn child with clean warm water, and drop on the cornea of each eye one drop of a 1 per cent. solution of nitrate of silver, immediately after birth.

OBSTETRICS.

1. The *bones* of the pelvis are: Innominate (consisting of ilium, ischium and pubes), sacrum and coccyx; the *divisions* are true and false pelvis; the *straits* are superior and inferior; the *symphyses* are pubic, sacroiliac and sacrococcygeal.

The chief differences between the male and female pelvis are thus tabulated in Morris's *Anatomy:*

MALE.	FEMALE.
Bones heavier and rougher.	Bones more slender.
Ilia less vertical.	Ilia more vertical.
Iliac fossæ deeper.	Illiac fossæ shallower.
False pelvis relatively wider.	False pelvis relatively narrower.

MALE.	FEMALE.
True pelvis deeper.	True pelvis shallower.
True pelvis narrower.	True pelvis wider.
Inlet more heart-shaped.	Inlet more oval.
Symphysis deeper.	Symphysis shallower.
Tuberosities of ischia inflexed.	Tuberosities of ischia everted.
Pubic arch narrower and more pointed.	Pubic arch wider and more rounded.
Margins of ischiopubic rami more everted.	Margins of ischiopubic rami less everted.
Obturator foramen oval.	Obturator foramen triangular.
Sacrum narrower and more curved.	Sacrum wider and less curved.
Capacity of true pelvis less.	Capacity of true pelvis greater.

2. The *internal female organs of generation* are: Ovaries, Fallopian tubes, uterus and vagina.

The virgin uterus is about three inches long, about two inches wide at the upper part, and about one inch thick; it weighs about an ounce, or an ounce and a half. The uterus lies between the rectum behind and the bladder in front; it is below the abdominal cavity and above the vagina. Its position is one of slight anteflexion, with its long axis at right angles to the long axis of the vagina. The anterior surface of its body rests on the bladder, and the cervix points backward toward the coccyx. The uterus is not fixed, but moves freely within certain limits. It is held in place by ligaments—broad ligaments, round ligaments, vesicouterine and rectouterine. It is pear-shaped; its cavity is very small; it is divided into fundus and cervix; besides the opening at the os there is an opening on each side near the fundus leading into a Fallopian tube; it is lined by mucous membrane, and covered by serous membrane. The nerves are from the hypogastric and sacral plexus, and from 3d and 4th sacral nerves. The arteries are the uterine and ovarian.

3. *Menstruation* is a periodical disturbance in the female, characterized by a bloody mucus discharge from the uterine cavity; it lasts during the period of woman's sexual activity, but is temporarily suspended during pregnancy and early lactation.

A woman usually menstruates about two or three months after her confinement if she *is not* nursing her child, and about seven months after the confinement if she *is* nursing her child.

4. *During pregnancy* the uterus increases in *size* (from 3 to 12 inches in length; from 1½ to 9 inches in breadth), in weight (from about one ounce to two pounds, not including its contents). The cavity is enlarged over 500 times. All the tissues, muscles, ligaments, arteries, veins, lymphatics, and nerves become tremendously hypertrophied. The uterus also changes its position; at first it drops, later it gradually rises, till just before labor (when it again drops).

VIRGIN UTERUS	UTERUS OF MULTIPARA
The cavity is of normal length and triangular.	The cavity is increased in length and oval.
The cervix is small, hard, and cartilaginous, and of the same length as the body.	The cervix is large and soft; it is about one-half the length of the body.
The external os is a transverse slit or pinhole orifice with smooth edges.	The external os is irregular and its edges are fissured.
The sides of the cavity of the body are convex inward.	The sides of the cavity of the body are convex outward.
The uterus is normally anteflexed.	The uterus is straighter, or even retrodisplaced.
There is more or less flattening of the anterior and posterior uterine surfaces.	The contour of the uterus is more rounded, while its diameters are increased.
The fundus is nearly flat	The fundus is convex.
The internal os is closed.	The internal os is patulous.

—(From Dorland's *Obstetrics.*)

5. As a rule a diagnosis cannot be made till the pregnancy is nearly half over, and the most skilful can hardly obtain absolutely positive signs during the first sixteen weeks.

Positive signs of pregnancy: (1) Hearing the fetal heart sound; (2) active movements of the fetus; (3) ballottement; (4) outlining the fetus in whole or part by palpation, and (5) the umbilical or funic souffle.

5.—

PREGNANCY.	OVARIAN TUMOR.
The usual signs of pregnancy are present.	There is an absence of the chief sign of pregnancy, as a general rule.
The patient is generally in good health, with an increase of body-weight; there is no characteristic facies.	In advanced cases the ovarian facies is present—a pale, drawn expression, with yellowness of the skin and general emaciation.
The abdominal tumor is hard- non-fluctuating, situated in the median line, and reveals the fetal signs.	The abdominal tumor is soft, fluctuating, showing usually more or less growth to one or the other side, and does not reveal the fetal signs.
There is generally a suppression of menstruation.	Continuance of menstruation is the rule, although it may be altered in character; suppression has been noted.
The cervix is soft (Goodell's sign).	The cervix is probably not altered.
There is history of exposure to the possibility of impregnation, with rapidly-developing enlargement in the median line.	The history is obscure, with a slowly-developing tumor beginning on one or the other side.

—(Dorland's *Obstetrics.*)

Pregnancy: The tumor is hard and does not fluctuate, is situated in the median line, and may give fetal heart sounds and movements; the cervix is soft, and the other signs of pregnancy are present. The rate of growth of the tumor and the general condition of the patient's health may also help in arriving at a diagnosis.

Uterine fibroid: Menstruation is irregular and sometimes very profuse; absence of the signs of pregnancy; the tumor is nodular, firm, irregular in outline, and while generally placed somewhat centrally is not in the median line, and is not symmetrical; the rate of growth is irregular, being, as a rule, slow, and sometimes extending over years.

Ascites: Absence of the signs of pregnancy; the abdomen is distended, but the shape varies with the position of the patient; on lying down there is bulging at the sides, the tumor fluctuates, and percussion shows dullness in the flanks, with resonance in the median line, but the dullness varies with the position of the patient.

Gas: Absence of signs of pregnancy; the uterus enlarges more slowly than in pregnancy, and when large enough is resonant on percussion and lighter to the palpating finger in the vagina.

6. *Before Labor:* "Comparatively little can be accomplished by any specific treatment of the breasts and nipples, except frequent bathing to prevent the accumulation of crusts from the drying of the secretion which in many instances is considerable. Small and slightly protruding nipples may be lengthened somewhat by gentle traction practised two or three times a day during the latter part of pregnancy. Nipples that are markedly retracted cannot be appreciably improved. Daily bathing with a mild solution of alum in 50 per cent. alcohol will help to harden them and thus aid in the prevention of fissures during the puerperium."—(Jewett's *Obstetrics.*)

"*After the birth*, the nipples need special care to prevent the formation of fissures. The nurse should cleanse the nipple before and after each nursing with a bland antiseptic solution such as a saturated solution of boric acid, to which one-eighth (⅛) part of glycerin has been added; while before each nursing the child's mouth should be cleansed in a like manner with a saturated solution of boric acid, care being used to avoid injury to the buccal epithelium from too vigorous handling. Excessive nursing must not be permitted, for the nipple is injured by long continued maceration, and avenues for infection are opened. The nurse must be warned of the risk of carrying infection to the nipples or to the child, when her hands are soiled from handling the lochial guard. The nipple should never be touched by the nurse until she has first thoroughly disinfected her hands."—(Polak's *Obstetrics.*)

7. *To facilitate a tedious or painful labor:* Remove the cause, if possible; see that the bladder and rectum are empty; rectal injections of glycerin; pituitrin, strychnine, quinine or other stimulants may be administered; uterine massage may be tried; the patient may assume the semi-recumbent or squatting posture during the pains.

8. They should not undertake any obstetric work without having taken more than the ordinary antiseptic precautions. A thorough bath, use of antiseptics, and clean clothes should form part of this care.

SURGERY.

1. The patient feels a snap at the time of injury, and suffers from pain, increased during inspiration. If the back is fixed and the sternum firmly pressed back, pain is felt at the middle of the rib. Crepitus may or may not be felt. *Complications:* Puncture of pericardium, pleura, heart, lung, or other viscera; emphysema; pneumothorax; pyothorax; pleurisy; pneumonia.

Treatment: Strips of plaster reaching from the spine to the sternum should be placed over the injured side during deep inspiration. The strips should overlap, and a bandage should be put on over the plaster. If the fracture is due to direct violence, no strapping should be used, but the patient kept still by placing sand-bags on either side.—(*Aids to Surgery.*)

2. *Toxemia or sapremia* is due to absorption of toxins only.

Septicemia is due to organisms multiplying in the blood.

Pyemia is due to particles of blood-clot carrying organisms to parts distant from the original source, and there setting up abscesses.

3. *Etiology:* Infection from nasopharynx or ear, exanthemata, grippe, inflammation of middle ear. *Symptoms:* Tenderness, pain, swelling, and redness over the mastoid; bulging of the superior and posterior parts of the auditory canal; temperature variable, from normal up to about 104° F. *Treatment:* Hot water, or cold water, or ice; leeches; purgatives; light diet; acetanilid; incision, or mastoid operation. *Operation:* A semicircular incision of the soft parts is carried from a point about one-half inch above the attachment to the auricle, backward and downward, keeping parallel to the auricular attachment and terminating at the tip of the mastoid. The periosteum is now elevated or dissected from the bone and the osseous structure thoroughly exposed by means of retractors, which are held by an assistant, the auricle being pulled forward so as to lie upon the side of the head. The hemorrhage is controlled by the use of hot sponges and artery forceps. The surface of the mastoid is thoroughly examined for areas of necrosis or the existence of a fistulous opening, especially if a fluctuating swelling obtains previous to the operation. If these exist, the openings are enlarged by means of a gouge or a chisel and mallet, and followed inward to their origin. Should the surface present a healthy appearance, the primary opening of the mastoid is made into the antrum by means of the chisel, the point of entrance being effected just below the line of the superior wall of the meatus and about one-quarter of an inch backward from the posterior wall or anterior edge of the mastoid bone. When the antrum has been exposed, the cortex of the mastoid is chiselled away from this point downward toward the tip until a sufficient amount has been removed to expose all parts of the mastoid process. The cells are now all broken down, and every vestige of a necrotic or granulating area is completely eradicated. A free communication of the antrum with the tympanum should be established, which may be proved by syringing an antiseptic solution into the antrum, when it will escape from the external auditory meatus through a previous perforation of the drumhead. The cavity of the mastoid is packed with sterile gauze, and the flaps of overlying tissue allowed to regain their former position, when a gap remains between their edges, through which the dressings may be changed.—(From Alling and Griffin's *Epitome on Eye and Ear.*)

4. In a *simple fracture*, there is history of the injury, disability, deformity, pain, false point of motion, and possibly crepitus; in *compound* fracture, in addition to the above, there is an open wound leading down to the site of fracture; in *comminuted* fracture, the bone or bones are broken into small pieces. Constitutional effects (due to hemorrhage, shock, sepsis, or other complications) may follow. *Treatment of simple* fracture: First of all, prevent it from becoming compound, then reduce it, coapt the edges of the broken bone, immobilize the parts, and attend to the general condition of the patient. In *compound* fractures: Give an anesthetic, thoroughly asepticize the parts, stop the hemorrhage, remove loose fragments of bone, fix the bones, drain, and immobilize; the wound wants careful antiseptic treatment. The leg must be flexed on the thigh to aid in reducing the fracture, and it may be necessary to cut the tendo Achillis. Splints will be necessary.

5. The damages produced by dislocation are tearing of the capsule and surrounding muscles, and perhaps fracture of the cartilaginous or bony surfaces. The joint and surrounding soft tissues are infiltrated with blood. Vessels and nerves in the neighborhood may be contused or compressed. If allowed to remain unreduced, the displaced head becomes surrounded by a false joint capsule, the true articular cavity becomes filled up with fibrous tissue, and the muscles and tendons around become shortened, while adhesions to big vessels close at hand constitute a danger in attempted reduction.

Treatment: All dislocations should be reduced in the earliest stages, either by manipulation or extension. Manipulation aims at making the bone retrace the course by which it left its proper position. Anesthesia renders this very easy by overcoming the spasmodic contraction of the muscles. Extension is employed to overcome muscular contraction. The hands, a jack-towel, and pulleys are used for this purpose. The reduction is usually marked by a distinct snap. The bones are then felt to be in their normal relation, and normal mobility is restored. Rest for a few days and early passive movements soon repair the damage done. —(*Aids to Surgery.*)

6. *Malignant tumors* are not encapsulated, tend to infiltrate the surrounding tissues, give rise to metastatic growths, have a tendency to recur after removal, give a cachexia, have a fatal tendency.

Benign tumors are encapsulated, do not tend to infiltrate the surrounding tissues, do not give rise to metastatic growths, do not tend to recur after removal, do not produce cachexia, and do not have a fatal tendency (except from their location.)

Two malignant tumors: Carcinoma and sarcoma.

Two benign tumors: Fibroma and lipoma.

7. The *symptoms* consist of aching pain in the loin and frequent micturition. Hematuria comes on early and without apparent cause, is not increased by movement or improved by rest. Pus is usually present in acid urine, and the *Bacillus tuberculosis* may in some cases be detected. In the late stages the kidneys may be felt much enlarged. The *diagnosis* is doubtful in the early stages, unless bacilli can be demonstrated by the microscope or inoculation of a guinea-pig. The hematuria is much slighter than in cases of renal calculus, and is not influenced by rest. The hemorrhage is not so profuse as in cases of new growth. Slight attacks of renal colic may occur from the passage of caseous matter, but not severe attacks like those due to calculus. An exploratory incision settles the diagnosis in doubtful cases. *Treatment:* If on exposure of the kidney a limited portion is found to be diseased, a wedge-shaped portion is excised. If, as is more usual, the kidney is extensively affected, two methods may be adopted: (1) If the other kidney is healthy, nephrectomy with removal of as much of the ureter as possible is done. (2) Nephrotomy, followed by drainage, is done when the patient's condition is bad.

8. ERYSIPELAS. *"Etiology: Predisposing causes:* (1) A wound or abrasion; (2) constitutional debility; (3) bad hygiene. *Exciting cause: Streptococcus erysipelatis,* which is indistinguishable from *S. pyogenes.*

Symptoms: Malaise with rigor and headache. Rash appears within twenty-four hours; it appears first round the wound, which breaks open; it is of a vivid red color, which fades on pressure. Pain and swelling are not much marked. The eyelids and scrotum when affected become very edematous. Vesicles and bullæ form superficially, and a fine desquamation occurs, with some staining of the skin as the rash fades away. Lymphatic glands in the neighborhood are enlarged and tender. The patient is very ill, with high temperature—102°-104° F. Delirium is frequent, especially when the scalp is affected. Vomiting is common.

Varieties: Facial erysipelas is often apparently idiopathic and recurrent. *Faucial erysipelas* spreads from the exterior to the pharynx; causes great swelling of the parts, with a tendency to edema glottidis. *Scrotal erysipelas* causes great edema, and in children a tendency to sloughing. *Cellulo-cutaneous erysipelas* partakes of the character of both cellulitis and erysipelas, affecting the skin and subcutaneous tissue.—(Grove's *Synopsis of Surgery.*)

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GUNSHOT AND SHELL WOUNDS.

BY P. C. FAUNTLEROY,

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IN order to understand satisfactorily the injuries received in war it is necessary to have some knowledge of the weapons with which they are inflicted.

The accompanying table will show the principal features of the reduced caliber rifles now used by the great armies of the world. The following more detailed information of the rifles and ammunition which are representative of the modern reduced caliber weapons will be sufficient to give a clear understanding of these and the injuries inflicted by them.

The ammunition of the U. S. A. rifle (New Springfield, model 1913) is described as 0.3083 inch diameter, pointed, lead core, with cupronickel jacket, weight 150 grains, length 1.08 inches; 47 to 50 grains of pyrocellulose powder; 2,700 feet per second initial velocity of translation; 3.240 turns per second velocity of rotation at muzzle; effective range, 4,891 yards; energy, 2,400 foot-pounds. It has a penetration of 33 inches white pine at 50 yards, 24 inches at 500 yards, and 12 inches at 1,000 yards; 12 inches moist, 7 inches dry sand, and 18 inches loam at 1,000 yards; 5 inches brick wall at 100 yards. This ammunition is used in the automatic machine gun also. Our new 1903 Springfield rifle has a point blank range from a standing position of 718.6 yards. It is sighted to 2,850 yards. This is one of the most effective of all military rifles. It weighs 8.69 pounds and with the bayonet is 4 feet 11 inches long. Its magazine holds five cartridges.

The new German Mauser has a caliber of 0.311 (7.9 mm.), using a pointed bullet 0.323 inch diameter, weight 154.3 grains, with a charge of 49.3 grains of smokeless powder. Its muzzle velocity is 2,952 feet per second and it has an effective range of 5,465 yards. It weighs 9.03 pounds and with the bayonet is 5 feet 10 inches long. Its magazine holds five cartridges.

The Turkish rifle (model 1893) is a Mauser, 0.301 inch (7.65 mm.) caliber, using a clip of 5 rimless cartridges (model 1907 and 1908). The bullet is sharp pointed, with lead core, steel nickel-plated mantel, length 1.075 inches; 0.311 inch diameter; weight, 154 grains; density, 334 grains per square centimeter or 0.155 square inch. The cartridge is charged with 45½ grains smokeless powder in flakes and develops a muzzle velocity of 2,788 feet per second and a muzzle energy of 2,661 foot-pounds. It weighs 8.59 pounds and with the bayonet is 5 feet 6 inches long.

The English are equipped with the Lee-Enfield (1907), the magazine holding 10 cartridges, caliber 0.303 inch, using a sharp pointed bullet with lead core and cupronickel mantle; weight, 215 grains; smokeless powder, 31.5 grains; muzzle velocity, 2,060 foot-seconds. It weighs 9.25 pounds and with the bayonet is 5 feet 1 inch long.

For comparison with similar weapons used still by some nations the following description is given of the U. S. Krag-Jorgensen rifle: Caliber, 0.30 inch (7.62 mm.); clip 5 cartridges; bullet, 0.308 inch diameter; length, 1.26 inches; weight, 220 grains, lead core, cupronickel steel mantle. Charge 35 to 42 grains nitrocellulose powder, initial velocity, 2,000 feet per second; velocity of rotation at muzzle, 2,400 turns per second. Muzzle energy, 1,954 foot-pounds. Penetration in seasoned oak across grain, 19.5 inches at 50 feet. Weight, 9.19 pounds.

Examination of the table indicates that in effectiveness the rifles used in the late Balkan War stand in the following order: Turkey, Greece, Servia, Bulgaria.

The Colt automatic pistol, United States Government model, is superior to any other pistol or revolver. Caliber, 0.45; magazine holds 7 cartridges; bullet, 0.45 caliber; length, 0.66 in; lead core; cupronickel mantle; weight, 230 grains; charge, 5 grains smokeless powder; initial velocity, 900 foot-seconds.

The two classes of smokeless powder usually found in use are: Nitroglycerin powder, used for hand weapons, and nitrocellulose powder, used in both small arms and cannon. Both are made from gun cotton, but the first has from 10 to 30 per cent. of nitroglycerin. A nitroglycerin powder, from the high temperature of explosion, causes greater erosion of the metal of the bore, and thus shortens the life of the large costly guns, hence it is that nitrocellulose is preferred for cannon.

The United States Army is equipped with field artillery of the following caliber: 3-inch field gun, mountain, and howitzer; 3.8-inch gun and howitzer; 4.7-inch gun and howitzer, and 6-inch howitzer. These are the usual calibers found in the field artillery of the great nations. The extreme ranges of these guns vary from 5,600 to 6,704 yards, the weights of the projectiles range from 15 pounds to 120 pounds. The shrapnel contains from 252 to 1,074 round lead bullets, varying from 0.5 inch to 0.6 inch in diameter, each weighing from 167 grains to 306.4 grains. The shell when used breaks up into approximately 600 to 1,500 effective fragments. The area of dispersion on explosion at less than 3,000 yards range, vary for the shrapnel from 400 to 150 yards by 200 to 75 yards, and for the shell, 300 to 100 yards by 150 to 75 yards. Germany is now using an 11-inch howitzer, range 8 miles, weight of projectile 748 pounds, which strikes with an energy of 5,000 foot-tons when fired at an angle of 70 degrees.

In the late Turko-Balkan War, Bulgaria, Servia, and Greece were equipped with a Schnider-Creusot quick-firer, 2.95-inch caliber; 13-pound projectiles; range, 7,665 yards. Turkey used a Krupp quick-

MAGAZINE RIFLES OF SMALL CALIBER

Country.	United States	England	Germany	France	Russia	Japan	Portugal	Italy
Pattern	New Springfield	Lee-Enfield	Mauser	Lebel	3-line rifle	Arisaka	Mausa-Vergueiro	Paravicino
Date	1903	1907	1898	1886-93	1891	1905	1904	1891
Number of bullets	5	10	5	8	5	5	5	6
Magazine system	Clip	Clip	Clip	None	Charger	Clip	Clip	Clip
Length of barrel	24 inches							
Caliber	.30 inch	303	311	315	.30	.256	256	.256
Sights: Point blank	530 yards							
Sights: Extreme	2850 yards	2800	2187	2620	2096	2187	1968	2187
Weight without bayonet	8.69 pounds	9.25	9.03	9.22	8.80	8.75	8.16	8.38
Length with bayonet	4 ft. 11 in.	5 ft. 1 in.	5 ft. 10 in.	6 ft.	5 ft. 7 in.	5 ft. 5 in.	4 ft. 5 in.	5 ft. 2 in.
Bullet: Material of core	Lead	Lead	Soft lead	Brass	Lead	Lead	Lead	Lead
Bullet: Envelope	Cupro-nickel, sharp pointed	Cupro-nickel, sharp pointed	Nickel-copper-plated, sheet steel, sharp pointed	None	Cupro-nickel Ogival	Cupro-nickel Ogival	Steel coated with cupro-nickel Ogival	Cupro-nickel Ogival
Bullet: Weight	150 grains	215	154.3	197	214	164	155	162
Weight of charge, smokeless powder	50 grains	31.5	49.3	46	33	33	32	35
Muzzle velocity	2700 ft. sec.							
Remaining velocity at 300 yards	2029 ft. sec.							
Remaining velocity at 600 yards	1509 ft. sec.							
Remaining velocity at 1000 yards	1068 ft. sec.							
Remaining velocity at 1500 yards	853 ft. sec.							
Pressure in chamber, lbs. per square inch	51,000							
Muzzle energy	2440 ft. lbs.							
Remaining energy at 300 yards	1392 ft. lbs.							
Remaining energy at 600 yards	762 ft. lbs.							
Remaining energy at 1000 yards	352 ft. lbs.							
Remaining energy at 1500 yards	243 ft. lbs.							

firer, 2.95-inch caliber; range, 8,700 yards. Both sides used a Krupp quick-firer field howitzer; caliber, 4.72 inches. The French gun is superior to the Krupp because of its independent line of sight, steady carriage, and free recoiling gun, which does not jump back and does not have to be relayed after firing. Its only drawback is it is somewhat heavy and has a small shield. Five hundred rounds of fixed ammunition is carried in the field for each gun.

Shrapnel forms 80 per cent. of the ammunition supply of the field guns and is thus the principal projectile of all modern field artillery. The old solid shot shell, cannister, and case shot, are no longer used in modern guns. The modern so-called solid shot is now hollow with thick walls and is used principally to perforate armor. Modern shrapnel is used against troops in masses and material as well.

The United States Army 3-inch field gun is supplied with shrapnel which is described as a steel tube with solid base and detachable head in which there is a time fuse. It contains a bursting charge of $2\frac{3}{4}$ ounces of black powder at the base. There is a stopper of gun cotton in the central tube to hold the powder in place and to assist in the explosion. There are 862 round balls of 0.50-inch caliber composed of lead, hardened with antimony. The balls are surrounded by a smoke producing matrix which is used to locate the point of bursting. The shrapnel is said to be a man-killer at 6,500 yards. At the latter distance the shrapnel has a remaining velocity of 565 feet per second. On bursting an additional velocity of 300 feet per second is conferred on the lead bullets, making altogether a velocity of 865 feet per second at 6,500 yards. The fuse can be cut to cause the projectile to explode at any one-sixth of a second in the flight. Its weight is 15 pounds; length, 10 inches; initial velocity, 1,700 feet per second. The number of effective fragments on bursting is said to be 1,200. The area of dispersion is about 150 yards wide and 400 yards long at a range less than 3,000 yards.

Hand grenades, hand bombs, mines, and torpedoes figure largely in modern combats both on land and water. They are charged with high explosives and are used against troops and material. Their action is principally rending.

The bayonet and saber are to be found in every thoroughly equipped modern army. From the nature of hand-to-hand conflicts wounds by these weapons are extensive, lacerated, and usually fatal. Only the very slight ever reach the hospitals. The bayonet varies from the well-known, long, entirely thrusting instrument, with a triangular cross section, to the long sword and short knife bayonets used both for thrusting and cutting. The saber is a most effective weapon in the hands of the properly trained officer and soldier. It has been said that these weapons no longer have a place in modern armies, equipped with the long range, high-power magazine rifle and automatic magazine pistol. But such arguments have grown out of mistakes made as to the proper time and place to make use of them. No decisive victory over trained troops is ever won until the attack is pushed home with the bayonet and saber; and if made at the psychological moment, that is when the enemy is already badly shaken by rifle and artillery fire, it is most effective and complete.

The above remarks are made largely to warn the beginner against falling under the influence of the misguided, and in consequence neglect to study the injuries inflicted by these weapons.

It will be found useful for purpose of comparison to give the principal features of the old muzzle-loading rifles:

Minie rifle, 1851 to 1866, corresponding to early Springfield rifle, caliber, 0.702 inch; bullet diameter, 0.69 inch; weight, 680 grains; charge of powder, 150 grains; sighted for 100 to 1,000 yards.

Springfield rifle, 1865, caliber, 0.58 inch; weight of bullet, 500 grains; charge of powder, 80 grains.

Breechloaders have been known for several hundred years, but not until the Austro-Prussian War, 1866, was practical use made of them on a large scale. In 1866 the United States converted its muzzle-loading Springfield to a single-shot breechloader and at the same time it reduced the caliber to 0.50 inches. In 1873 the caliber was further reduced to 0.45 inch, weight of bullet 500 grains, and 70 grains of powder used. This gave a muzzle velocity of 1,301 foot-seconds, point blank range of 350 yards, and maximum effective range of 2,000 yards, penetration of about 3 inches in well-seasoned oak across the grain at 50 feet. Many nations today equip certain classes of their reserves with a similar weapon.

Roumania	Turkey	Holland	Spain, Servia and China	Austria-Hungary	Bulgaria	Greece	Belgium	Norway	United States
Männlicher	Mauser	Männlicher	Mauser	Männlicher	Männlicher	Männlicher	Mauser	Krag-Jorgensen	Old Springfield
1893	1893	1895	1893	1895	1893	1903	1889	1894	1873
5	5	5	5	5	5	5	5	5	1
Charger	None	Clip	Charger	Charger	Clip	Clip	Charger	Loading frame	None
256	.301	.256	276	315	.315	.256	.301	256	45
2270 3	2187	2187	2187	2132	2120	2187	2187	2200	
9 13	8 59	9 26	8 80	8 05	8 03	8.16	8 60	4 0	
4 ft. 8 in.	5 ft. 6 in.	5 ft. 6 in.	4 ft. 10 in.	4 ft. 11 in.	4 ft. 11 in.	4 ft. 10 in.	4 ft. 11 in.	5 ft.	
Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead
Steel coated, with German silver Ogival	Steel, nickel-plated, sharp pointed	Steel coated, with cupro-nickel Ogival	Cupro-nickel Ogival	Lubricated steel Ogival	Steel nickel-plated Ogival	Steel coated, cupro-nickel Ogival	Maillechort (Zinc, copper and nickel) Ogival	Nickel-plated steel Ogival	None. Cylindro-conoidal
159	154	156	172 8	244	244	162 01	219	151 5	500
36.5	45 5	36	38 35	42	42.5	37.81	37	34 5	70 black powder
			2330 ft. sec.						1500 ft. s-c.
			1660 ft. sec.						986 ft. s-c.
			1210 ft. s-c						843 ft. s-c
			920 ft. s-c.						711 ft. s-c
			730 ft. s-c.						580 ft. s-c
			2504 ft. l. s.						1930 ft. l. s.
			1469 ft. l-s.						1079 ft. l. s.
			781 ft. l-s.						692 ft. l. s.
			451 ft. l-s						562 ft. l. s.
			284 ft. l-s.						506 ft. l. s.

Ballistics.—The old round balls, fired from smooth bore guns, had only the forward motion, *i.e.* motion of translation. In order to increase the velocity of the bullet and thereby obtain a flatter trajectory and increased danger zone, it was found necessary to cut spiral grooves in the bore of the gun and to lengthen the bullet. The latter changes gave the bullet a rotary movement in addition to its movement of translation. The velocity with which the bullet leaves the muzzle of the gun is due to the expansive force of the powder-gases generated by the explosion of the charge of powder. A short way from the muzzle of the gun these gases cease to act and the bullet goes forward with a certain velocity, which is affected by the well-known laws of air resistance or friction and gravity.

From the combined effect of the air resistance and that of gravity, the line of flight of the bullet is curved and its velocity grows less and less until finally it comes to rest on the earth's surface.

The motion of rotation is given to the bullet to steady it in its flight and prevent its tipping and tumbling when it begins to take a downward course and the resultant air resistance becomes oblique to the axis of the bullet. This motion is caused by the bullet engaging with the grooves or rifling, as it passes through the bore and continues for some time after the forward movement ceases. The velocity of rotation depends on linear velocity and the twist of the rifling. The United States 0.30 caliber rifle has a right-hand twist of 1 turn in 10 inches. Owing to the twist and to air resistance the United States rifle bullet drifts towards the right 13 inches in 1,000 yards, 61 inches in 1,500 yards, and 148 inches in 2,000 yards. To counteract the effect of this inevitable drift from the vertical plane the slot in the rear sight is placed slightly to one side of the middle line of the rifle barrel.

The effectiveness of rifle fire is proportionate to the flatness of the trajectory. From what has been said it will be seen that the flatness of the trajectory is in proportion to the velocity of the bullet. A flat trajectory is due to high muzzle velocity and low air resistance. Muzzle velocity depends upon the powder charge, the gas pressure, and weight of the projectile. It is limited by the permissible energy of recoil and the strength of the gun. The rifle must not be too heavy and the recoil too great to injuriously affect the soldier's shooting. The projectile must not be too light lest it have insufficient man stopping power or shock effect. It will be readily seen that the greater the sectional density of the bullet the less it will be affected by air resistance. That is by increasing the weight of the bullet and diminishing its diameter the less the air resistance and therefore the flatter the trajectory.

The air resistance can further be reduced by improving the form of the projectile, *i.e.* making it pointed.

The force with which the projectile strikes can be calculated by the well-known formula: $F = \frac{mv^2}{2}$

The ability of a bullet to penetrate a body is proportional to the square of its velocity, and for bullets of equal velocities, it is proportional to the density of section. The force and strength to resist deformation have a great influence in this regard.

In view of the use of air-craft for dropping explosives, arrows, and bullets on the enemy, it may be mentioned that a shrapnel bullet (20 to the pound), dropped from a height of 3,000 feet, would reach the ground with a velocity of 450 feet per second with a force of 160 foot-pounds. Dropped from a distance of 1 mile they would reach the ground with a velocity of 630 feet per second. A force of 60 foot-pounds is sufficient to kill a man. On the other hand the service rifle will send a bullet a mile high in less than 6 seconds and with sufficient force to kill the aviator or severely damage his machine.

Gunshot Injuries.—It may be said in general that the wounds inflicted by the projectiles of the modern firearms are not so extensive in their pathological features as they were from the older weapons, and also that their treatment is correspondingly less difficult.

Let us consider the effects of the old time, larger and lower velocity projectiles, for by comparison with those of the modern, small steel-jacketed, high-velocity bullet we can then better understand the characteristic appearance of bullet wounds in general.

The old round musket balls were of soft lead and from 0.702 to 0.75 inch in diameter. Their initial velocity was from 600 to 700 feet per second.

The destruction of the soft tissues by these round

balls of low velocity was in proportion to their diameter; their mechanical effects being, the tissues were stretched, as it were, to permit their passage.

The wound of entrance was about the size of the ball, the wound giving the impression of having been punched out. An extensive ecchymosis surrounded the wound. This ball occasioned a track of devitalized tissue greater than its diameter. The wound of exit was irregular in shape, with everted edges, and always larger in the skin than that of the entrance.

On striking bone this ball usually flattened itself and nearly always remained in the tissues. Although this round ball, at its maximum velocity, could occasion great damage, the conoidal bullets of a later date occasioned much more extensive injuries. Extensive comminution and displacement of the splinters of bone in the track, was caused by the force of impact of the bullet. The shaft of the bone above and below the seat of the fracture was fissured. The extensive devitalization of the soft parts, together with extensive damage to the bone, offered a field with little resistance to infection and extensive suppuration. To these pathological characteristics must be attributed the great danger to life occasioned by these old round bullets.

The Cylindroconoidal Bullet.—The earlier types of this bullet were used in the so-called Minie rifle. As these guns became more perfect the velocity of the bullet increased to 1,300 feet per second and the energy to 1,879 foot-pounds, with the result that wounds made by these conoidal bullets were marked by such enormous destruction of tissue that until the mechanics of the projectile were properly understood, the beginning of every war was marked by accusations of the use of explosive bullets. Owing to the great so-called "explosive effect" of the modern small caliber high-power ammunition similar accusations were common at the beginning of the recent wars.

The increase of the velocity of the bullet has always been the aim of those seeking to perfect the military weapon. Perfect and close-fitting of the bullet in the barrel was first adopted to bring about this result, which was clearly due to the tightly fitting bullet preventing the escape of the powder gases. To best effect this result necessitated the discarding of the smooth bore, large caliber musket for the rifled bore weapon. It was found that the change increased the recoil so greatly in the large caliber weapons that the accuracy of the soldier's shooting was seriously affected, even if he was not actually incapacitated thereby. This led to the reduction in caliber which not only reduced the recoil but increased the penetrating power of the bullets. The reduction in the size of the bullet brought about a corresponding reduction in the severity of the wounds. There was less contusion and laceration of the soft tissues and the extent to which the tissue surrounding the track was devitalized was less.

The effect produced by the 0.45 caliber cylindroconoidal bullet striking resisting bone, such as the shaft of the long bones of the upper or lower extremities, gave the impression that an explosion had taken place in the wound. Such explosive effects were only seen in the close ranges, say 350 yards. Within this range the wound of entrance, if the skin immediately overlaid the bone, often contained bony sand; otherwise the wound of entrance possessed no special features.

The pulverization at the point of contact in hard bone occasioned a loss of substance. The bone immediately at this point was minutely comminuted, and running from it there were many radiating lines of fracture, thus splintering the bone in first small and then larger fragments, some of which being entirely detached and driven ahead of the bullet, or at different angles to the track, and thus became really secondary missiles. These particles of bone, together with particles of the bullet, having acquired an energy in proportion to the velocity of the bullet, occasioned great destruction of the soft tissues, ahead of them, and a large, ragged, irregular wound of exit, several times larger than the diameter of the bullet. These missiles gave rise to a conical shaped wound-track having its apex at the seat of the fracture and its base formed by the wound of exit. It may be noted here, that this explanation of the cause of the so-called explosive effects of bullets when bone fragmentation occurs, also explains similar effects when organs or cavities containing fluid are penetrated at high velocities,—the particles of water or fluid masses being driven outward in all directions with an energy in proportion to the velocity of the bullet and thus become secondary missiles and rend the tissues in all directions. As the distance increased beyond the proximal ranges the wounds occasioned became less and less marked by these so-called explosive appearances; there was less comminution and less displacement of fragments and no bone sand.

The wound of exit was always larger, however, than the wound of entrance and when noted was a very reliable indication that some bone injury had taken place. At close ranges, however, there was a greater amount of bone dust and hence greater loss of bone tissue and considerable fragmentation on striking the softer epiphyseal ends, but less displacement of these fragments than when the hard shaft was struck, the shaft was little, if at all fissured. Beyond 350 yards these bullets tended more and more to simply penetrate the soft ends of bone without occasioning splinters or fissures.

These effects are explained by the well-known fact that the effects of bullets in bony tissue are always in proportion to the velocity, sectional area of bullet, deformation, and resistance met, in the order of their importance.

Having considered the wounds occasioned by the old large caliber round and elongated lead bullets of low velocity, we are better prepared to understand the effects of the modern small caliber, steel-jacketed, high-velocity projectiles of modern weapons.

It may be said in a general way that the effects of these bullets differ as they occur in one of four zones:

In the first zone (0 to 500 yards) we see explosive effects.
In the second zone (500 to 1000 yards) we see penetrating effects.
In the third zone (1000 to 2000 yards) we see simple wounding effects.
In the fourth zone (2000 to 2500 yards) we see contusive wounding effects.

With two bullets of the same caliber and weight but with unequal velocity, the shock occasioned will always be the greatest with one of greater velocity. But notwithstanding the far greater velocity of the smaller, modern, reduced-caliber projectile, the shock occasioned within the effective range of the respective weapons, it is far less in the case of the modern smaller bullet than that which obtained with the old larger caliber lead bullet of slower velocity. This is due to the fact that while the velocity is the most potent of the factors in producing the so-called explosive effects, and is about double in the modern bullet to that of the older ones, the energy has not

correspondingly increased because of the reduction in sectional area and weight. This gave rise to serious objections on the part of military men, but experience in four wars has shown that except in the case of savages and animals, the shock is quite sufficient to cause the soldier to stop and fall to the rear.

The vastly increased velocity, greater penetration, far greater accuracy, and increase in the danger zone from the flatter trajectory brought about by the reduction in caliber, can, however, be carried to such an extent as to reduce the stopping power of the weapon below the requirements of modern civilized warfare, when the weight of the bullet is likewise reduced. The changing of the ogival point of the modern bullet to a sharp point, making what is now known as the pointed or Spitz bullet, is the latest modification in the interest of increasing the before mentioned ballistic characteristics of modern high explosive ammunition. This form of bullet was adopted as it was found that atmospheric resistance was so greatly reduced that a much flatter trajectory was obtained and the danger zone greatly increased. This change was at the expense of the shocking or man stopping power, but not below that needed in civilized warfare as was found in the late Turko-Balkan War. This change in the bullet moved the center of gravity well back of the middle point, toward the base, thus reducing the stability of the bullet; so that it immediately tumbles on striking small twigs or like unresisting objects in its flight, also in passing through objects or media of unequal densities, such as the human body. This tumbling which occurs after passing through the abdominal or thoracic walls, results in the production of a slashing wound in the viscera with greater hemorrhage and laceration than obtained in wounds with the more stable ogival-pointed bullets. Wounds in the extremities from these tumbling balls are likewise more lacerated with the frequent occurrence of false aneurysm. Many of these were seen in the hospitals of Bulgaria. A singular one is recalled in which the femoral artery was involved, the ball being found in the artery itself—evidently a ball very much spent by tumbling before striking the soldier. Wounds of the lungs invariably gave pronounced signs of pneumohemothorax.

Within and up to a range of 350 yards the explosive effects of the modern reduced-caliber projectiles are about the same as described in the case of the old large caliber lead bullets.

As has been the case in all the recent wars in which the high explosive, reduced-caliber ammunition has been used, the infrequency of explosive effects seen among the wounded in the hospitals is due to the fact that such effects most frequently occur in the vital organs encased in resisting bony walls, as the brain, or in those containing fluid, as the heart and abdominal viscera, and hence to be found only among the dead on the field, of whom the surgeon rarely has time to make more than a hurried examination; many he will never see.

The small sectional area of these modern ogival-pointed bullets and the still smaller frontage of the Spitz or pointed bullet, cause the wounds in the *soft tissues alone* to have such small wounds of exit and such narrow tracks that they heal up very rapidly. Such clean-cut punctured wounds occur only when the bullet is intact and not deformed with irregular, jagged edges from previously striking or glancing off some hard object such as a rocky surface, or in the case especially of the Spitz bullet, where the bullet is not tumbling. The kindly and rapid healing of such flesh wounds, which form the majority of all battlefield casualties, is shown in the recent Turko-Balkan War by the fact that of 35,000 sick and wounded brought north of the frontier from the early battles around Adrianople, Kirk Kalisse, Lule Burgas, and Tchatalja, 28,000 were discharged from the hospitals within five weeks after admission. Owing to the fact that a large proportion of wounds, seen at the hospitals, were inflicted by tumbling bullets, and to the very frequent occurrence of false aneurysm, it is believed that serious if not fatal hemorrhage occurs more frequently in wounds inflicted by the Spitz bullet than by the ogival-pointed one. The damage, however, to the large vessels was not so extensive in the majority of cases *seen in the hospitals* as to prevent repair by suture, and the continuity of the vessel thus preserved.

Beyond the zone of explosive bullets the fracture occasioned in the shafts of long bones presented larger fragments which did not require removal. Such injuries required only disinfecting, reduction, and fixation. Transverse fractures were seen, there being only two fragments. The epiphysis of the long bones at the kneejoint and such cancellous bones as the os calcis, at these long ranges were simply perforated, and the injury required only disinfection and fixation. The upper ends of the femur and humerus, lower end of the tibia, and both ends of the radius and ulna were usually comminuted. The joints when perforated never required more than turning out of blood-clots, disinfection, and immobilization.

Eighty per cent. of such cases were returned to duty within a few weeks.

The behavior of the small caliber steel jacket bullets at the different ranges is often directly opposite to that which is expected. For instance, clean-cut perforations of the shafts of long bones are seen among wounds inflicted at short and mid-ranges; and again great comminution not infrequently occurs in the shafts of long bones at distant ranges.

It may be said in explanation of these seemingly contradictory findings that the bones of many men, especially the younger ones, have a great amount of animal matter, and are consequently less brittle than those of the older men; and therefore the less resistance met by the bullet in the comparatively softer bones, at short ranges, permits the passage of the bullet without explosive effect. In the cases of the older men and more brittle bones the bullet at long ranges causes great damage, especially as the bullet at these long ranges has become unsteady from loss of velocity and strikes the bone sidewise and thus transfers its energy over a greater area than if it had struck point on. Owing to the change in the position of these bullets at the long ranges, the effect produced in the bony tissues is at first in the short ranges very severe from the high velocity, but in the mid-ranges the effects are less severe because of loss in velocity, and at long ranges the effects become severe again because of the impact being made with the side of the bullet. The wound of entrance made by such tumbling bullets is oval or key-holed, similar to that often made by a ricochet shot.

One was greatly impressed with the large number of gunshot fractures of the skull found in the Bulgarian hospitals and their recovery from the

immediate effects of the wounds. This favorable result was especially noted in those cases which had been operated early and the wounds disinfected and the pressure removed. Notwithstanding the unusually large number of penetrating gunshot wounds of the skull, which recovered under proper treatment from the effects of this modern, high velocity ammunition, it is believed that the majority of skull fractures from such ammunition are immediately fatal on the battlefield. It was frequently noted that transportation of the serious gunshot wounds of the skull invariably increased the gravity of the patient's condition and usually caused a fatal ending.

Within the effective ranges of the respective weapons, the modern small caliber high-velocity bullet lodges far less frequently than the old lead one.

The great frequency with which the Spitz bullet lodged in the Bulgarian wounded is to be explained, probably, by the fact that the Turks fought always from entrenched defensive positions, and the battlefields being rolling, open, barren, and treeless in character, the fire from the Turks became effective at long ranges, say 2,000 meters, when the missile was tumbling and greatly spent therefrom. There being no adequate medical organization with the troops, nor stations for the slightly wounded, the hospitals as far back as Sofia were crowded with injuries of a slight nature, which, having occurred at long ranges, the bullet generally lodged in the tissues, and thus the frequency with which the surgeon encountered the missile is to be accounted for.

Wounds from ricochet shots often showed two or more fragments of the bullet; especially was this true in the case of bone lesions, the impact against the bone being sufficient in some cases to entirely separate the deformed and loosed jacket from the lead core.

These modern, small caliber, steel-jacketed bullets rarely carry foreign bodies, such as pieces of clothing, into the wound. Judged by the very small number of resections and amputations required, the rapid healing of the flesh wounds, and the smaller number of permanent cripples, and the great reduction in the number of those wounded who can honestly be found to have a pensionable disability, it must be said that the modern small caliber, steel-jacketed bullet is far more humane than the old leaden one. It must be said, however, that the new Spitz bullet, from its instability and consequent tumbling, becomes a more dangerous projectile than the ogival-pointed one.

Owing to the greatly increased range of the modern small caliber rifles over the old large bore weapons, there occurs now a much greater number of "slightly wounded" than formerly, and from this many are misled into thinking that the pointed bullet is the most humane one yet made use of, but a thorough study of the casualties will show a greatly increased number of those killed outright.

Wounds Received from Shrapnel Shell.—As has been said, shrapnel have an initial velocity of 1,700 feet per second, and at a distance of 6,500 yards, 565 feet per second. On bursting 1,200 effective fragments are thrown in all directions, each having an additional velocity of 300 feet per second, and are very effective within a zone of 90 feet wide by 60 feet long.

The wound occasioned by the fragments of the shell, as well as that by one of the 0.50 caliber round lead balls, of which there are 262 in each shell, is always a lacerated and contused one. Those occasioned by a fragment of the shell are irregular and of a size varying with the shape and size of the piece. These fragments and balls nearly always lodge in the wound. The character of the wounds made by these missiles is that of a low velocity missile such as described for the old low velocity leaden bullet.

There is always a varying amount of shock from the mere bursting of the shrapnel in addition to that inflicted by the impact of the fragments. This is at times quite serious and when so requires many months to recover from. In wounds involving the bony tissues there are always to be found small flakes of lead which are clearly seen in the Roentgen photographs of such injuries.

When shrapnel burst on striking the ground there are many secondary missiles, such as small stone, wood splinters, and particles of dirt, added to those of the missile itself, and are not only effective in producing wounds, but dangerously contaminate those produced by the shell fragments. It is among the wounded from shrapnel that most of the tetanus cases and gas bacillus infections occur.

These shrapnel were exceedingly destructive in the recent Turko-Balkan war, 20 per cent. of the total casualties among the Bulgarians being due to them, and among the Turks about 33 per cent. of all wounds at Kirk Kalisse and Lule Burgas, and 60 per cent. at Tchatalja.

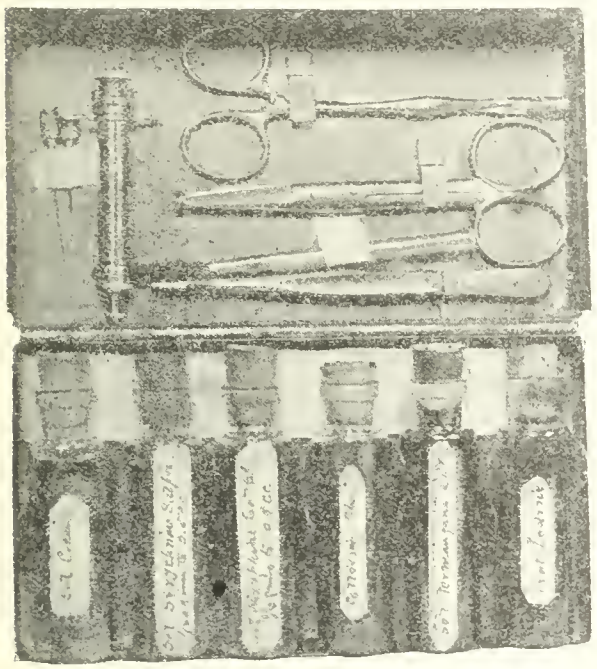
It was among the wounded from shrapnel that the great majority of mutilating operations were found necessary. In some cases seen it was found impossible to save more than a part of any of the four limbs. Fractures of the skull were very frequent from the Turkish shrapnel, and it may be added from the sharp-pointed rifle ball also. These invariably gave a greater percentage of total recoveries and always more rapid convalescence when the wound was properly sterilized and fragments and pressure removed by early trephining. Those not so treated were followed by sepsis, cerebral prolapse, and permanent paralysis, when not by death. Rough transportation in such cases greatly lessened the chances for recovery.

A case was seen of what would no doubt have been called "wind contusion" by the old writers. This was a Turkish infantryman who was injured about 200 meters from the Bulgarian line at Kardoniky October 28, 1912. No wound of any kind was to be found, but he was paralyzed completely below the level of the umbilicus. He was admitted to the hospital in Sofia November 7, 1912; temperature 38° C., and found to have paraplegia and cystitis, the latter having occurred as the result of faulty catheterization. He died two days later, but no lesion was found by the young surgeon who performed the autopsy. This case, as all such cases are now believed to be, was the result of a heavy projectile of low velocity striking him obliquely without occasioning any visible surface injury, but evidently severe injury to the spinal cord. The most pronounced wounds from large projectiles are to be found among the wounded from a naval engagement.

The character of such wounds was very clearly to be seen among 93 wounded Turks resulting from the engagement between the Greek and Turkish fleets off the Dardanelles January 17, 1913. The wounds were marked by extensive laceration of the soft tissues, with great comminution of the bones.

All were badly infected and every man was superficially but extensively burned by the gases from the exploded projectiles and also by hot flakes of lead paint, said to have been driven in from the great impact of the Greek projectiles on the outside of the ship, and from the hot paint scattered from the inside by the bursting of the projectiles inside the ship. These flakes of hot lead stuck to the skin. The majority of deaths were said to have occurred from suffocation by the extremely hot gases from the exploding projectiles. One 10-inch shell is said to have killed 18 and wounded 37 Turks.

Observations among the Bulgarians and later among the Turks confirmed the belief from previous experiences that a medical officer of a moving command cannot depend on having any medical or surgical supplies on the battlefield in time other than those which he carries on his immediate person. This belief led me to improvise before the campaign against Santiago de Cuba in 1898 a *pocket* case containing standard *solutions* of morphine, strychnine, permanganate of potassium, and col-



Pocket-case for use on the battlefield.

lodium, hypodermic syringe, and surgeon's plaster. Later a solution of quinine sulphate was substituted for that of permanganate of potash.

It was found that these previously made solutions were invaluable, saving everybody concerned much time and suffering and extending greatly the zone of the medical officer's activity.

In a report to the Surgeon General of the Army in 1910, attention was invited to the great applicability of tincture of iodine to battlefield casualties, and it was added to the pocket case.

In 1912 a brass metal case was made (of which a picture is here given) containing the before mentioned articles, together with the few instruments needed by the surgeon on the battlefield in the majority of cases. The picture of this case is here shown as a suggestion because of the firm conviction that the regimental surgeon who depends on his orderly always being near him with these solutions or that he can under any circumstances hope to have such necessaries in time of battle, unless he has previously prepared them in such a usable and portable form, will be grievously disappointed and his usefulness greatly curtailed.

The modern method of treatment of gunshot injuries in the immediate rear of the firing line permits little more than the sterilization of the skin, the wound, and protruding bones with tincture of iodine, or a 1:500 alcoholic solution of corrosive sublimate, and a *sterile* occlusive dressing. If there is a bone or joint injury or if the soft parts are extensively involved, there should be a reduction of the deformity so that the part can be immobilized properly and with safety and comfort to the patient. Hemorrhage of course should be arrested immediately by compression and a bandage. After hemorrhage has been arrested, shock and pain should be relieved by means of strychnine and morphine.

The means of meeting these indications are to be found in this small surgeon's field case, and the first-aid dressing carried by the man and the improvisation of splints possible at the scene of accident. If the surgeon's orderly, with his large pouch or the small hospital corps pouch, is at hand, there will probably be ample bandages and splint material and nothing else is needed in the vast majority of cases. At times it will be necessary for the surgeon to remove pieces of clothing, equipment, or gross particles of dirt or splinters by means of the forceps in the case. On still rarer occasions when limbs are struck by large projectiles, it may be necessary to clip with the scissors a small strip of skin, which is the only remaining link by which an extremity is attached. There are many wounds of the face and trunk, which after sterilization, can be securely occluded by means of small pieces of gauze or absorbent cotton, with the flexible collodium or strips of adhesive plaster. The solution of permanganate of potash was put in the case to neutralize the poison of snake-bite wounds and that of the gas bacillus.

Statistics.—The usual ratio between killed and wounded has been 1 to 4 or 5. In the Russo-Japanese war on the side of the Japanese 1 to 3.4. In the Boer war it was on the British side 1 to 3.6.

In the late Turko-Balkan war it is believed that this ratio was much different, and will be found to be for the Turks about 1 to 2.1, and for the Bulgarians about 1 to 2.5. This change was largely due to the large proportion of casualties from shrapnel and the large number dying on the field.

It has been computed that the percentage of casualties for each fighting day during the Civil War (1861-5), Federal, was 4.5 per cent.; Franco-German (1870-1), German, was 4.7 per cent.; Russo-Japanese, Russian, was 1.7 per cent.; Japanese, was 2.0 per cent.

Many of these engagements lasted for many days but the losses were not evenly distributed for each day, and, therefore, such figures do not indicate the conditions which had to be met by the medical service on any one day or at any one place. For instance, some regiments lost 68 per cent., while others lost none. The maximum casualties to be expected are about as follows: For an army corps, 25 per cent.; for a division, 30 per cent.; for a regiment, 60 per cent.

About 70 per cent. of the wounded will be among the infantry and the rest among the artillery, cavalry, etc.

It is of especial interest to note the increasing proportion of casualties due to shrapnel and shell: In the Civil War (1861-5) about one-half of 1 per

cent. of all Federal casualties were due to artillery; in the Franco-German war (1870-1) about 8.4 per cent. of the German casualties; in the Russo-Japanese war about 17 per cent. of the Japanese casualties, and in the Turko-Balkan war (1912) about 20 per cent. of the Bulgarian and 33 per cent. of the Turkish casualties.

It has been stated that the Japanese army casualties in their war with Russia were classified as to weapons as follows: Rifle 76.42, artillery 15.78, bayonet 0.63.

It is said that the

Russians lost, of those that reached the hospitals	3.4% by death
Japanese lost, of those that reached the hospitals	5.8% by death
Germans (1870-1) lost, of those that reached the hospitals	11.0% by death
Federals, in Civil War, lost, of those that reached the hospitals.	13.2% by death
Bulgarians (1912) lost, of those that reached the hospitals	23.0% by death
Turks (1912) lost, of those that reached the hospitals	26.0% by death
Americans (Spanish-American War) lost, of those that reached the hospitals	6.0% by death
English (Boer War) lost, of those that reached the hospitals	8.0% by death

The great improvement in this respect among the Russians and Japanese, English and Americans was due to the better antisepsis on the battlefield, better surgery in the hospitals and to the slight character of many of the wounds inflicted by the reduced caliber rifle.

Nowhere does the result of antisepsis as a factor in the results of war injuries more strikingly appear than in the case of gunshot injuries of the knee joint.

For the Civil War (large caliber *minus* antisepsis) 53.7 per cent. died, amputation was usually performed.

For the Russo-Turkish War (large caliber *plus* antisepsis) 11.1 per cent. died; 28.9 per cent. recovered fit for duty.

For the Spanish-American war (small caliber *plus* antisepsis) none died (American); 81.1 per cent. recovered fit for duty.

From the delay in receiving treatment and the hurried character of the transportation service following large engagements from 40 to 90 per cent. of all wounds will become infected before reaching the stationary hospitals. The wide variation is due to the character of the wounds, the character of the weather, whether wet or dry, hot or cold. The larger percentages of infection occur in winter and among shrapnel wounds. If promptly and properly treated after reaching the hospitals infection can be largely eradicated and bad end results avoided.

Gunshot injuries are distributed about as follows:

	Head	15%	Mortality 51%
	Neck	2%	Mortality 18%
Perforating	Spine	2%	Mortality 75%
Perforating	Chest	4%	Mortality 25%
Perforating	Abdomen	3%	Mortality 65%
	Upper extremities	25%	Mortality 2
	Lower extremities	30%	

For purposes of the sanitary service for estimating the character and the amount of material and transportation needed and the time necessary to police the battlefield, battle casualties may be classified as follows:

Twenty per cent. killed.

Eight per cent. non-transportable—serious head and abdominal wounds.

Thirty-two per cent. requiring transportation—20 per cent. sitting up, 12 per cent. recumbent.

Forty per cent. slightly wounded—28 per cent. able to walk to dressing station and field hospital, 12 per cent. able to walk to advance base.

A word in general may be said as to treatment of gunshot injuries:

On the battlefield treatment should be directed to the relief of shock, arrest of hemorrhage, and the prevention of infection.

The treatment of shock is directed to the restoration of the reduced blood pressure by placing the patient at rest in a recumbent position; arresting hemorrhage by tourniquet and bandage; conservation of body warmth; stimulation of the heart; relief of thirst and pain, and application of proper dressing to injury after reducing dislocation and fracture.

Arrest of hemorrhage is effected by compression with hands, application of tourniquet, compress, and firm bandaging and ligation of large vessels.

The prevention of infection is accomplished by avoiding touching the wound with the hands and anything unclean, avoiding any attempt to wash the wound or cleanse it by any other means than the forceps and piece of sterile gauze; the application in and around the wound of the tincture of iodine or an alcoholic solution of bichloride of mercury 1-500; the application of a simple sterile occlusive dressing and of appropriate means of immobilization in the normal position. In the case of penetrating wounds of the abdomen, no food or drink by mouth should be allowed for 72 hours and the patient should be subjected to as little disturbance by transportation as is compatible with securing the necessary shelter.

At the hospital the patient should be thoroughly examined, cleansed, and bodily needs supplied and such measures adopted as are indicated, such as redressing, disinfection and drainage, removal of foreign bodies and loose fragments of bone, excision, amputation, laparotomies, appropriate treatment for aneurysm, hemorrhage, etc. When not imperatively urgent all major operations should be reserved for the base hospitals.

Later in the chronic stages of gunshot injuries it often becomes necessary to operate after use of the *x*-ray for the removal of foreign bodies, necrosed bone, correction of deformities and the restoration of loss of function. Plastic operations are often needed after extensive injuries.

As to penetrating gunshot wounds of the abdomen, a few words may not be amiss in regard to operating. The explosive effects of the pointed small caliber bullet are greatest within a range of 400 yards, but such effects have been noted up to 900 yards. Within this distance there is usually nothing in the external appearance of the wounds to indicate whether the intestines are simply perforated or lacerated and torn by the explosive force. In some cases the discharge of fecal matter and urine may occur, in which there can be no doubt that serious damage has been done. The extent of the injury, however, is usually in proportion to the degree of shock, which is apparent. The symptoms of continuous and serious hemorrhage, when present, will also be apparent. From these latter signs we could say that we have a case demanding immediate laparotomy, provided, of course, we have the facilities at hand to relieve the shock present. Some men might be able to survive from the additional shock from the operation without restorative treatment, but certainly the vast majority would succumb.

If we can restore the patient to a condition which would admit of operating, we would then have to decide whether the surrounding conditions and the facilities for doing a laparotomy are sufficiently favorable and adequate to give a reasonable assurance of obtaining a satisfactory result.

No one who has ever experienced the inevitable lack of means, the usual unfavorable surroundings, the disturbed condition of affairs, and the overwhelming amount of work during and after an extensive engagement would think for a moment that laparotomies with suture of viscera could or should be attempted at regimental aid stations or dressing stations. At the latter stations the most that can be done in an operaive way for such desperate cases will be the establishment of proper drainage, when circumstances permit. When such a procedure is impossible these cases can best be treated at these stations by keeping them at rest, relieving shock and pain and preventing any liquid or food being taken by the mouth. The Fowler position is the best in which to keep the patient. We can rest assured that if the explosive effects have taken place in the viscera any possible operation to close such injury by suture would be futile, hence we have acted wisely by not attempting such.

In a large number of cases of simple perforation of the intestine we know that by adhesion to neighboring viscera or omentum the perforation will be closed in a few hours, if the patient is kept at rest, the bowels kept quiet by morphine hypodermically, and no food and drink is taken by mouth. Hence, under the circumstances, an operation is not as wise as keeping the patient strictly at rest and preventing the taking of food and drink by the mouth, and applying an occlusive dressing after disinfecting the wound with tincture of iodine.

In the cases of increasing internal hemorrhage, when circumstances permit, laparotomy, hemostasis and drainage are indicated, but the surrounding conditions at these stations usually render laparotomy too dangerous and would take away any chances the patient may have of surviving his injury. To subject cases in any of the previously mentioned categories to transportation by any method would but add another danger and largely take away any chance they may have for recovery.

If these cases are retained at the regimental or dressing stations as long as possible the best will have been done for them.

Let us consider these cases after they reach the field hospital.

In the cases in which explosive effects have taken place, operation further than that mentioned is futile.

In the cases of simple penetration, adhesions have closed the wounds in the viscera and immediate operation is no longer indicated.

In the cases of increasing abdominal hemorrhage, laparotomy should be performed, if the surroundings and facilities permit of such being performed.

The prognosis for perforating gunshot wounds of the abdomen depends largely upon the possibility of complete rest and abstaining from food during the first five days. If transportation is obligatory during this time stretcher transport is better than ambulance.

Abdominal wounds by shrapnel bullets are always graver than by the undeformed, small rifle bullet, owing to their large diameter, lower velocity, and usually deformed condition, all causing greater contusion and bruising effect, extensive perforations, prolapse of intestinal mucous membrane and discharge of contents. The shock is very great and closure of perforation by adhesion very unlikely.

Shrapnel wounds of vessels, liver, spleen, and kidneys are usually fatal.

Tangential wounds of viscera by spent rifle or shrapnel bullets usually result in adhesion, inflammation, and later abscess formation, which with proper surgical treatment usually recover. Owing to the large size, low velocity, and usually deformed condition, shrapnel usually carry in pieces of clothing and, therefore, infection; hence surgical interference is always indicated, when conditions are suitable for operating.

In the case of abdominal wounds by deflected bullets, fragments of shells, and bayonets, the operation should proceed by careful dissection of layer by layer, in order that the abdomen may not be opened unnecessarily. Whenever the operation of laparotomy is performed and septic conditions are found the free use of tincture of iodine diluted with equal parts of grain alcohol, as a disinfectant, is strongly advised. All such cases should be drained with a large split rubber tube in which there is a wick of iodoform gauze. Laceration of liver, spleen, or kidneys should be closed by catgut sutures. Gauze packing should be used freely when indicated, and the use of iodoform gauze wrung out in sterile, anhydrous, neutral petroleum is recommended. The patient should be kept in the Fowler position and the continuous instillation per rectum of warm normal salt solution or sterile water, by the drop method, be given until the patient's temperature remains normal and the drainage is removed. No food or fluid should be given by the mouth during the first three days following the operation.

INFANT FEEDING WITH TOP-MILK.*

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In the discussion of a paper on infant feeding read before a medical society in June of the present year, the writer heard a specialist connected with a post-graduate teaching institution in this city remark that he never used top-milk; he had never understood it. He used so much milk, so much cream, so much water, or other diluent, etc.

Now, apart from the mere matter of convenience, which in itself is no small item, there are two very good reasons for using top-milk instead of "milk and cream." In the first place cream is very expensive, and secondly, in New York City, cream is at least a day older than the regular supply of bottled milk. These reasons must be my excuse for endeavoring to demonstrate that it is very easy to understand the practical part of infant feeding with top-milk. The top five ounces of milk in a quart bottle as delivered in New York City in the morning, after standing two or three hours longer, contain approximately from 12 to 16 per cent. of fat. In other words, this quantity of cream and milk, carefully removed from a quart bottle by means of a spoon and dipper, is practically the same as 12 to 16 per cent. gravity cream. If we keep going deeper into the bottle we are getting more and more of the skimmed milk. But, nevertheless, when we take out one pint of top-milk from a quart bottle we are still getting a milk containing from 6 to 8 per cent. of fat, and top-milk, therefore, will enable us to secure approximately the desired percentages of fat, when properly diluted.

*Read at the meeting of the Hospital Graduates' Club, November 19, 1914.

I assume that all those for whom this paper is intended understand the reasons for diluting cow's milk when used in infant feeding, chiefly on account of the excess of casein as compared with human milk; and I shall assume further that you recognize the necessity of adding some variety of sugar, common salt, and possibly other inorganic salts, or lime water, in proportion to the quantity and character of the diluent, whether it be water, a cereal gruel, or a prepared food. Fairchild's peptogenic milk powder, according to the published analyses of Prof. Chittenden of Yale University, and as proven in the experience of the writer, serves a very useful purpose in "humanizing" cow's milk and may be used alone to supply the deficiencies in "top-milk mixtures" as recommended in the accompanying table. Otherwise, suitable quantities of sugar, salt, and lime-water are essential and may be used as indicated in my paper on the "Theory and Practice of Infant Feeding," published in the *New York Medical Journal*, April 18, 1891. That paper covered, I think, most of the apparently glaring omissions of the present one while this, on the other hand, will serve to bring my published suggestions up to date. Unless we use raw milk we must bear in mind the tendency to rickets and scurvy. The latter may be specifically overcome, however, by giving the child a little orange juice two or three times a week.

For the whole milk required at first an extra pint bottle, instead of a quart, may be obtained daily from the dealer, if economy is to be considered; and, of course, there is a pint or more of skim-milk from the quart bottle which goes to waste, or other use, after removal of the top-milk.

Now, observe how simple the whole problem really is. Starting at the age of one week with five ounces of top-milk and ten ounces of water, we increase the amount of food once a week by adding an extra ounce of top-milk and an extra ounce of water to the daily quantity. At the sixth week we have reached ten ounces and fifteen ounces, respectively, and when the baby is seven weeks old our daily quantity has reached eleven ounces of top-milk and just a pint of water. The sixteen ounces of water, or other diluent, should be understood as including the lime-water used, if any. *After the seventh week the quantity of water remains stationary.* We continue increasing the quantity and strength of the food by going deeper into the bottle each week for en extra ounce of milk. At twelve weeks (or about 3 months) we are taking exactly one pint of top-milk out of the quart bottle. *From now on the quantity of top-milk remains stationary;* and hereafter, until the baby reaches the age of twenty weeks (4½ months), the food allowance is simply increased *once a week* by adding one ounce of *whole* milk to the present daily quantity. In fact approximately the same increase of whole milk is the only change for a much longer period. But, as the chart shows, I generally increase the whole milk a little more rapidly, reaching the total quantity of three pints at the age of six months, representing an increase of eight ounces instead of six ounces in the last six weeks.

Beyond the age of six months I do not care to progress on the present occasion, except to state that for the next few weeks the quantity of food remains the same, the whole milk being increased and the water *reduced* in equal amounts. Thus at seven

CHART FOR TOP-MILK MIXTURES (MABBOTT)

Age	Approximate Quantity for 24 Hours*	Ratio Milk to Water (Proportions)	Practical Equivalents			Number of Feedings*		Intervals Daytime (Longer at Night)
			Top-Milk†	Whole Milk	Water or Other Diluent	At First	And Later	
1 week	1 Pint	1:2	5+ Oz.		10+ Oz.	11	10	2 Hrs.
2 weeks		1/3+2/3	6 "		11 "			
3 "			7 "		12 "			
4 "			8 "		13 "			
5 "			9 "		14 "			
6 weeks or 1½ mos.	1½ Pints	2:3	10 Oz.		15 Oz.	10	9	2½ Hrs.
7 "		2/5+3/5	11 "		16 "			
8 "			12 "		16 "			
9 "			13 "		16 "			
10 "			14 "		16 "			
11 "			15 "		16 "			
12 weeks or 3 mos.	2 Pints	1:1	16 Oz.		16 Oz.	8	7	3 Hrs.
13 "		1/2+1/2	16 "	1 Oz.	16 "			
14 "			16 "	2 "	16 "			
15 "			16 "	3 "	16 "			
16 "			16 "	4 "	16 "			
17 "			16 "	5 "	16 "			
18 "			16 "	6 "	16 "			
19 "			16 "	7 "	16 "			
20 weeks or 4½ mos.	2½ Pints	3:2	16 Oz.	8 Oz.	16 Oz.	7	6	3 Hrs.
21 "		3/5+2/5	16 "	9 "	16 "			
22 "			16 "	10 "	16 "			
23 "			16 "	12 "	16 "			
24 "			16 "	13 "	16 "			
25 "			16 "	11 "	16 "			
26 weeks or 6 mos.	3 Pints	2:1	16 Oz.	16 Oz.	16 Oz.	6		3 Hrs.
		2/3+1/3						

*The whole quantity is prepared at once and divided into the number of bottles indicated.

†We go down into a quart bottle for the quantity of top-milk required each day until we require more than one pint of milk: after that we continue using one pint of top-milk from a quart bottle and a sufficient quantity of whole milk from another bottle, the latter to be well shaken before using.

and a half months the food will consist of one pint of top-milk, a pint and a half of whole milk and half a pint of water; and when we begin to reduce the quantity of water we naturally reduce proportionately the peptogenic powder, or the sugar, salt, etc., which we have added to get the requisite composition. Eventually the top-milk also is replaced by whole milk.

I desire to report the case of a baby, now under my care, which I saw first on Friday, September 11, 1914. The child had been nursed only a few days and artificial feeding had been so unsuccessful that the child, then three months old, weighed only eight and one-half pounds, which was one-half pound less than at birth. On Monday, October 19, the baby weighed eleven and one-half pounds, a gain of three pounds in less than six weeks.* I give the mother or nurse, on each occasion, written directions similar to a prescription for the whole quantity to be prepared at one time and divided into so many bottles.

I must add one more word. Of course we consider a baby's size, weight and digestion, as well as its age. The quantities and proportions are not invariable. Many babies require less than the quantities given. They leave a part of each bottle. Few require more. For such, as a rule, we simply employ a more advanced formula. The weight chart is a constant guide. And the better we comprehend the whole subject of child hygiene and its relations to each individual baby, the better should be our results.

19 Fifth Avenue.

*Note, November 18, 1914: Present weight, 13½ lbs.

THE READINGS OF THE SPHYGMOMANOMETER FROM A CLINICAL STANDPOINT.

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Discussion of the causal factors of blood pressure and the standard of the normal is not the intent of this effort, but rather the presentation of a personal experience in the use of the sphygmomanometer at the bedside, and deductions as to its practical value in diagnosis and treatment.

As blood pressure within the limits of what is generally called the normal standard may occur in association with recognized pathological changes, and likewise beyond the normal, without apparent abnormalities, the readings of the sphygmomanometer at first glance are sometimes confusing. The interpretation of blood pressure readings is in fact often a complex matter. There is too much of a tendency to estimate its significance by a set standard. Thus a recent writer says without qualification: "A blood pressure exceeding 150 in any subject indicates liability to apoplexy, and unless this condition is treated properly the subject is sure to go on to some serious physical complication, such as dangerous hemorrhages, thrombosis, embolism, or apoplexy." I not only dissent from this statement, but I regard it as dangerous and misleading—at least in our present stage of knowledge.

*Read at the meeting of the American Institute of Homeopathy, Atlantic City, June 17, 1914.

It should be borne in mind that blood pressure is not subject to the laws of physics alone; apparently subject to the same, it is only truly so up to a certain point, that point being the vasomotor system. A given temperature record conveys to the observer at once a certain definite idea, even in the absence of any accompanying data; but in the instance of a blood pressure record, its significance is unappreciable without considerable additional detail.

The taking of blood pressure has been, for some time past, part of the daily routine of the writer—mostly in cardiac, nephritic, and a few cerebral cases. Examples of apparent contradictions are as follows: A systolic pressure of 180 in one case which appeared to be a condition of cerebral embolism, with comparatively mild symptoms; while the same pressure in another is unattended with any symptoms whatsoever. A case of arteriosclerosis with decided hypertrophy, dyspnea on exertion, and some edema of the ankles, with a systolic pressure of 200 and a diastolic of 120, aggravated by the administration of sodium nitrate in 2-grain doses thrice daily—a case which certainly apparently called for a vasomotor dilator.

When interpreting the readings of a given blood-pressure record, taking into consideration the diastolic pressure as well as the systolic, together with the pulse pressure, apart from the great primal causal factor and obviously pathological conditions, there are two other factors which are clinically of equal importance, namely, age and the individual characteristics or features of each case. The first is generally well recognized, but perhaps not sufficiently emphasized. A systolic pressure, for instance, of 120, which suits a person of 25, in one of 55 points to myocardial weakness; in fact, pressures below 120 in persons of that age should be regarded as suggesting pathological changes. Most of the cases observed by the writer of persons over 50 with low blood pressure—that is, below 120—have had decided subjective symptoms when such pressures were persistent. Temporary low blood pressure may exist from general lowering of the system from any debilitating cause.

Cases of myocardial degeneration may be conveniently divided into two types—namely, those of hypertension and those of hypotension—the former, more frequently associated with evidences of arteriosclerosis and cardiac fibrosis; the latter, more frequently with fatty degeneration of the heart, and in the latter stages of cardiac degeneration due to arteriosclerosis. While it must be acknowledged that it is not always possible to diagnose the exact form of degenerative change—especially as fatty and fibrous changes of the heart walls may be and often are associated—the knowledge of the blood pressure in such cases is obviously of great practical value. A systolic pressure of 120 and one of 200 or more in persons of middle life, with decided subjective symptoms, it is a platitude to state, require different methods of treatment; and with all due respect to the most skillfully trained finger tips, this differentiation can be obtained with any degree of accuracy only by means of a sphygmanometer.

Permit me to cite a few illustrative cases:

Case I.—A case of cerebral embolism in a lady of 80, presents these features: The patient for some time past had had a systolic pressure of 190, but had not been under the care of the writer for nearly a year. One morning she fell to the floor unconscious. She was immediately placed in bed and was seen by the writer

in half an hour. She was scarcely semi-conscious, but could swallow; no paralysis apparent; pupils, negative. The systolic pressure was 240; diastolic, 135. There had previously been glycosuria at times, and a trace of albumin in the urine. The presence of the high pressure, in the opinion of the writer, enabled the diagnosis of embolism to be made more readily, likewise exclusion of cerebral hemorrhage. The radials were soft and entirely free from any arteriosclerotic changes, but the pulse was somewhat hard and tense. The patient regained consciousness in about six hours, and ultimately recovered, although at times her mind showed evidence of weakness. The blood pressure has continued from 198 systolic and 130 diastolic to 168 systolic and 110 diastolic. Erythrol tetranitrate has been continuously administered to the patient for the past three months, the dose being increased and diminished according to indications. Potassium iodide was not tolerated.

Case II.—A lady of 80 had had for several weeks previous to the writer's visit what was apparently a mild cerebral embolic attack, followed by slight hemiplegia, confined to the left lower extremity. There was an excessive degree of cardiac hypertrophy with mitral insufficiency and accentuation of the aortic second sound; radials hardened; pulse 90; systolic pressure 240; diastolic pressure 135; dyspnea on moving; no edema; urine negative except for slight trace of albumin; mentality good, other than apprehension in regard to condition. Improvement followed the administration of sodium nitrite in 1½ grain doses three times daily. The systolic pressure fell to 185-195, with a corresponding fall in the diastolic pressure.

In such cases as these the utility of the readings of the sphygmanometer is obvious, and it is a matter of practical importance that the blood pressure should be taken at intervals and any increase noted, with a view to the administration of remedial measures, one of the most important of which is the free clearing of the alimentary canal by catharsis and high enemata, as autointoxication will be found associated with many of these cases.

Case III.—Last January a gentleman of 75 years of age fell to the floor and was unable to rise. The writer saw him about twenty minutes later. The patient was fully conscious; pupils negative; mind very slightly dazed, but a few days later became decidedly more so for parts of a day at different intervals. There was slight loss of power on the left side, although motion was not lost. The pulse was 90, temperature 100°. Systolic pressure 180; diastolic 110. Urine, negative. Bronchial pneumonia developed during the course of the next two weeks; temperature 102.5 -103°; prune juice expectoration and involvement of the lower portion of the left lung. The systolic pressure now ranged from 125 to 130, and the diastolic from 80 to 85. On one occasion the systolic pressure rose somewhat suddenly to 160, and the diastolic to 110, with temperature of 100° and pulse 90; there followed another attack of cerebral disturbance. The patient was dazed and did not know where he was. There was no paralysis; pupils negative.

The fact that the cerebral symptoms in this case were accompanied by a rise of the systolic pressure to such a comparatively low point as 160—together with the 180 systolic register in the attack first mentioned, would seem to suggest that the cerebral vessels could not bear a greater amount of pressure. There was no hardening of the radials, but there was marked loss of memory and mental weakness—in fact, the premonitory symptoms of cerebral softening.

Another case which illustrates the necessity of individualization is as follows:

Case IV.—A man of 49, but with the appearance of a much greater age; specific history; heart markedly hypertrophied and arrhythmic; radials hardened and tortuous; kidneys negative; decided but not excessive edema of the ankles; dyspnea on exertion, with some precordial distress. Systolic pressure 200; diastolic pressure 120. It was certainly natural to attempt, in a case of this nature, to lower the blood pressure, and accordingly sodium nitrite, in 2 grain doses, was administered three times a day, with the result of augmenting the patient's discomfort. Digitalis infusion, 1 dram with 1 drop of a 1 per cent. solution of nitroglycerin, was substituted, with pleasing results. A fortnight later the patient said he was very much better, and perfectly comfortable, although the systolic pressure was 198, practically the same as before.

This case of marked arteriosclerosis appears to be one demanding a high blood pressure, which it would have been very inadvisable to lower. The high blood pressure may be dangerous from other standpoints, but it is evident that the heart called for it. One would perhaps have thought that with such objective symptoms the heart was not any too strong and needed relief. It should be remembered that the heart calls for a certain amount of pressure against which to pump. Lessen that pressure too much or too rapidly, the danger is apparent. While it cannot be said that the heart in this case is strong, it is evident that a high pressure was necessary in order for it to maintain the equilibrium of the circulation. The writer has observed this condition before and regards it as teaching that the lowering of a long-maintained high systolic pressure should be attended with caution.

The writer has observed conditions similar to this in other instances, which, however, must be regarded as exceptional.

It is also inadvisable, and sometimes dangerous, to lower suddenly by vasomotor dilators a temporary high blood pressure depending upon functional disturbances. This is illustrated by the following:

Case V.—Three years ago a physician, 55 years of age, in active practice, in good physical condition; heart and kidneys negative; radials soft; previous blood pressure 160 systolic; discovered one morning that his blood pressure was 180 systolic; as he expressed himself, he was feeling "very fit" that morning, excepting for the high blood pressure. There were no subjective symptoms whatever, although there was a decided lithemic tendency. He took, for the first time, a treatment of high frequency, 750 milliamperes for twenty minutes, after which the systolic fell to 150; the diastolic was not taken then. On returning home the sense of prostration and fatigue was so excessive that he was obliged to keep in a reclining posture until late in the afternoon. Subsequent applications of the high frequency were not attended with such fatigue. The treatment was continued for about three weeks and the systolic pressure was brought down at each application, returning to 160 systolic.

A few weeks ago, another physician in active practice, aged 56, told me very solemnly that his systolic pressure was 200 (I am quite sure he had interstitial nephritis in his mind, although he denied worrying about the condition very much). A few days ago he came to consult me. I took the blood pressure and found the systolic to be 158 and the diastolic 105—just what, in my opinion, it ought to be for a man of his years.

Case VI.—A woman of 55, with a mild interstitial nephritis of many years' standing, complains of shortness of breath on exertion. Her general appearance is that of good health. No cardiac murmur appreciable; accentuation of second aortic sounds; systole, feeble; systolic pressure 120, diastolic 98. Hypertrophy difficult to recognize on account of thickness of chest walls; pulse soft and weak; four days after the first observation a blood pressure of 100 systolic and 75 diastolic. Without a blood-pressure instrument, it is the opinion of the writer that it would have been impossible in a case of this nature to have told whether the systolic pressure was 100 or 130 or more. The diagnosis in this case—in addition to the nephritis—is myocardial degeneration, the low systolic pressure be-

ing regarded as strongly corroborative. Obviously, again, the line of treatment was greatly assisted by the knowledge of the blood pressure.

It would not be difficult to continue citing cases of this nature, wherein the information obtained from the readings of the sphymomanometer was a very positive factor in both the diagnosis and treatment, but let these suffice.

There are, on the other hand, conditions in which the blood pressure readings are not so readily interpreted, and sometimes they are apparently contradictory. For example:

Case VII.—A man of forty-six with mitral insufficiency, hypertrophy, apex half an inch to the left of normal, both second sounds accentuated, compensation perfect; history of an alcoholic neuritis of the lower limbs with some atrophy; said that for years it had been his habit to take about twenty-five generous drinks of whiskey and about fifty cigarettes daily. There were no subjective symptoms. Urine showed a trace of albumin. The systolic pressure was 135 and diastolic 110.

It is safe to assume that as this man appeared strong and in good health except for his alcoholic physiognomy, one should expect a high blood pressure, and it is almost certain that if such had been present the habits of the patient would have been regarded as the cause. Question: Was the patient's blood pressure higher at some previous time? That is not known, as the blood pressure records go back only two years from the time of writing.

Case VIII.—A woman of 80—possibly more—has attacks of fainting, with sensation of impending death; some substernal oppression; pulse full and bounding, sometimes as low as 48, sometimes as high as 68, occasionally intermittent; complains at times of numbness and coldness of extremities; heart sounds somewhat muffled, but no murmur discernible; aortic second sound accentuated; systolic pressure has been for the last three years about 140; the last reading was 158 systolic and 105 diastolic. This patient depends very largely upon the use of cardiac remedies in small doses—namely, strophanthus, nitroglycerin, and strychnine.

Observe the so-called normal blood pressure, with decided subjective symptoms, which undoubtedly depend upon arteriosclerosis and myocardial degeneration. Compare this case with those previously mentioned, of the same age, with systolic pressures of 240 and with very decided evidences of arteriosclerosis, one having also myocardial changes. I think that an explanation is a little difficult; probably a greater degree of cardiac hypertrophy may have something to do with the higher blood pressure.

Case IX.—A woman of 69 has had feebly maintained compensation with mitral insufficiency and an exeessive degree of hypertrophy for many years. In the latter part of last March edema of the lower extremities began to appear, owing to failure of the tricuspid valve. Parenchymatous nephritis also developed. The kidneys, however, had shown for some time past more secondary involvement. The blood pressure at this time was 142 to 145 systolic and 105 to 108 diastolic, being about the same as it had been for two years previous. Observe the failure of the tricuspid valve and the kidney complication, in comparison with the blood pressure. At the time of writing, namely, May 21, 1914, the systolic pressure had fallen to 117 systolic, 95 diastolic, with excessive increase of the edema, which now involved the abdominal walls, and increase of dyspnea.

In contrast with this case, a man of 65 with a mild interstitial nephritis of several years standing shows a systolic pressure of 145, and a diastolic of 108, without any subjective circulatory symptoms whatsoever. Thus we have practically the same blood pressure in these two cases, of nearly the same age, but with very different pathological conditions and very different symptoms. This is likewise difficult to explain, and the writer confesses that he is unable to do so satisfactorily, unless the blood pressure in the case of the man be due to a myocardial weakness also, which was suggested by a previous low systolic pressure of 120, at which time the patient complained of shortness of breath on exertion and debility, but the dyspnea disappeared on his regaining his general health.

It is claimed that the differentiation between cerebral hemorrhage and cerebral embolism depends partly on blood pressure—low in the first instance, and high in the second. In the instance of hemorrhage, it is not conceivable that the mere fact of hemorrhage is the cause of a lowered blood pressure. This,however, is explainable as due to shock. It is said that a systolic pressure of over 160 in a pregnant woman is suggestive of nephritic complications. However this may be, the neurotic element, in cases of this nature, should be remembered. The neurotic element, in fact, must always be taken into consideration in blood pressure records. A nervous impression will cause the pressure to rise ten to twenty points. The application of the armature for a minute may also cause a rise of five points.

The writer's conclusions in regard to blood pressure readings, gathered from personal experience, are: (1) To interpret the true signficance of the readings of the sphymomanometer, one must take into consideration the primary factors, viz., the heart, the kidneys, the urine—the latter also apart from organic disease of the kidneys, for example, indicanuria; the condition of the arterial wall, recalling that arteriosclerosis is often present in association with soft radials, and the effects of neuroses. (2) That one reading is not conclusive; that wide variations are frequently observed in persons in apparent health, such cases being dependent upon neuroses and metabolism; that nephritis may be associated with a so-called normal pressure, and transitory high pressures may be observed in vigorous persons in apparent health. Vasomotor dilators should not be employed in such cases, the treatment of which should be confined to the correction of faulty metabolism and autointoxication, and in some instances amelioration of neurotic conditions. (3) High systolic pressures which are persistent must be regarded as evidence of pathological change. Systolic pressures persistently below 120 in persons of middle life in a large proportion of cases must likewise be so considered. (4) It is the opinion of the writer that many statements in regard to blood pressure are of a too positive nature, considering our present knowledge of the subject, also that some are positively incorrect and misleading. Finally, notwithstanding a certain degree of apparent contradiction, the readings of the sphygmomanometer are frequently a positive guide in diagnosis and treatment.

Alcoholic stimulants and tobacco are regarded by many as essential factors in the causation of arteriosclerosis—but are they? In excess, undoubtedly, especially in susceptible individuals. In moderation, not to any great extent. Here, again, one must individualize one's cases. We must bear in mind that total abstainers and non-smokers have

arteriosclerosis. It may perhaps be of interest to observe in this connection that certain of the mummies of Egypt show evidence of arteriosclerosis. The Egyptians, as everyone knows, had no tobacco, tea or coffee; but they did have some very good wine, which the records tell us they often used to excess. They were, says the historian, "too much addicted to the pleasures of the table." In fact, it would seem that the quantity of the food is of as much importance in the causation of arteriosclerosis as the quality.

226 Central Park South.

DELIRIUM GRAVE WITH REPORT OF THREE CASES AND DIFFERENTIAL DIAGNOSIS.

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ASSISTANT SUPERINTENDENT OF THE WESTPORT SANITARIUM, FORMERLY ASSISTANT OF THE STATE PSYCHIATRIC INSTITUTION IN THE CANTON OF LUZERNE, SWITZERLAND.

Delirium grave was recognized as a clinical entity many years ago. In 1845, Bierrede Bostmant described a mental disease whose symptoms and course appeared in the following manner: After a short prodromal stage with headache and gastric disturbances, there suddenly appeared, and generally very violently, a delirium with great disturbance of consciousness, which was at first more of an anxious nature, but afterward became absolutely incoherent with interminable talking. The taking of food was limited; the weight of the body diminished rapidly; the lips were dry; the tongue was coated with fuliginous fur; speech was difficult, jerky, and finally unintelligible; there was a general trembling of the muscles followed by violent motor and raving impulse, and finally there occurred clonic and tonic spasms. At the beginning the pulse was generally accelerated (100-110). The temperature represented a continuous fever, 100°-102°. Toward the exitus letalis the temperature rose to over 105°, and the patient died in wild delirium and general collapse. The duration was from one to three weeks with recovery very rare.

In 1849, Luther V. Bell described this form of the disease in a paper presented at a meeting of the Association of American Asylums. He described it as a new form of disease which resembled some of the advanced stages of mania and fever, and yet was so far different from any described form of disease as to render it probable that it had been overlooked. In 1851, C. H. Nichols addressed a letter to the editor of the *Journal of Insanity* enclosing a short communication from A. V. Williams to himself, in which was given some account of a form of insanity which is denominated typhomania, from the striking typhoid character of the physical symptoms it exhibits. In 1859, Dr. W. H. Rannes in a paper on insane foreigners, mentions this form of disease as frequent among emigrants. He does not give it any definite name, but diagnoses it as a syndrome, intermediate between mania and typhoid fever. Since that time the same syndrome has been reported under the following denominations: Bell's delirium, Bell's mania, acute delirium, typhomania, and delirium grave, and recently Dercum has described it as a specific febrile delirium.

The following are abstracts of three cases treated in the Westport Sanitarium since 1904. It is through the courtesy of the superintendent, Dr. F. D. Ruland, that this material is available for report.

Case I.—F. C. from Westport, Conn., entered the institution on June 7, 1904. American, thirty-seven years of age and had been working hard as principal of schools in the same town. The causes of the disease mentioned by the relatives were overwork and worry. Heredity of nervous or mental diseases was denied. Patient was strictly temperate. Had been complaining of insomnia and headaches for a week before coming to the institution. On the day before entering there was fear, evidently on account of visual hallucinations. Status upon entering: Good physical constitution, tongue coated, temperature 100° F., appetite poor, speech incoherent, thick and garrulous, gait unsteady, thought people mistrusted him, feared he was accused of something he had not done. Pupils reacted to light and accommodation and narrowed. While in the institution patient shouted constantly. There was a peculiar mixture of religious ideas and praying with profanity. He was delirious and violent and was restrained in bed all the time. The whole body was either tense or in constant motion, and he was boring his head into the pillow. Refused all food. Premonition of death. Rapid loss of flesh and strength. Rise in temperature every afternoon until it reached 105°F. On the third or fourth day patient showed periods of lucidity for several hours, during which the disturbance of consciousness almost disappeared. The patient recognized and responded better to his surroundings, and the delirium was considerably reduced. Apparent lucid periods were followed by an exacerbation of the delirium and excitement. Toward the end the pupils were dilated. Died in sopor on June 23, 1904. Albumin was constantly found in his urine.

Case II.—H. S., a physical trainer, from Brooklyn, N. Y., entered the institution on May 29, 1910. Heredity of nervous or mental diseases and alcoholic excess was denied. Patient was a powerful muscular man forty years of age, and had been troubled by business and family matters for a long time before he came to the institution. Complained of headaches and general malaise for two weeks before admission. The patient arrived at the institution in the early morning very much excited, did not want to walk, trying all the time to sit down, was noisy, had had visual hallucinations, and on account of fear was struggling. Albumin in the urine. Transitory short elation alternated with more prolonged depressive phase, laughing and shouting. May 30: Seemed more rational and talked with ease in the morning, but about 4 P.M. became disturbed and was placed in a restraining sheet. Noisy and restless, boring his head into the pillow and grating his teeth. Shouting a mixture of vulgarity and religious ideas, talking of death, fear of being burned and tortured, saying: "Kill me." "Let me die." Great exhaustion. The temperature was irregular, between 100° and 102° F. June 2 the temperature was 106° F. After a rectal injection of saline solution the temperature was reduced to 102° F. Lateral nystagmus. June 5: Temperature subnormal, exhausted but took nourishment well. Died on June 6 in profound sopor.

Case III.—G. D. J., a colored man, 53 years of age, entered the institution about midnight June 20, 1914. No mental or nervous diseases in the family. Was a strong muscular fellow, but had always been nervous and easily excited. On account of his business he had not slept more than two hours a night for several years. Was very energetic and quite prosperous. He often complained of being sick and of having pain in the side and stomach. Several years ago he had "eye trouble," but the consulted physician found nothing wrong with him. Had been worried much by family troubles. Had had no alcoholic excesses. Attended to his business until June 19 (the onset of the active period of the disease) but did not feel well the last week, could not sleep or eat much, and had headache and constipation. On the morning of June 19 he became suddenly excited, running in the streets, expressing ideas of persecution, hallucination, seeing snakes, dogs and rats, and did not eat well or sleep. When admitted at midnight June 20, the patient was in a retarded semiconscious condition, complained of headache, was relevant but rambling in speech, and showed some insight into his condition. He signed the voluntary agreement, June 21. During the rest of the night patient did not sleep and refused food. Showed slight transitory elation alternating with depression, and purposeless, sometimes streotyped movements; he was restless, constantly trying to sit up or lie down. The tongue was coated but not dry, the pulse was 96-100; there was no tremor, the gait was unsteady; the patient soiled and wet the bed. When

he was offered food he called it poison. He manifested verbigeration or the repetition of sentences such as "I have reached the limit of the world." In the night he tried to put his head through the window and cut his forehead. He talked to himself and carphology was present.

June 22. Slept a few hours, delirious, talked to himself, cried, repeating, "Do not torture me," "Give me an easy death, O God." Refused food. Passed water when the urinal was offered. Pulse 102, of high tension. Morning temperature 101.8° F. Blood pressure 210 R.R. Pupils a little narrowed and reaction sluggish. Perspiration. In the afternoon the depressed phase was replaced by a noisy, resistive and excited condition, the patient using profane language and repeating words and sentences. June 23: Temperature in the morning 101° F., pulse 96, high tension. Shouting "I am going to die"; "I am crazy"; "I want to die as a Roman Catholic." Visual hallucinations and fear. Hypersensibility of the skin. The diagnosis was established on account of the acute onset, the extreme excitement, the peculiar psychomotor activity and the mental attitude, accompanied by fever. Solivetty's treatment was established (hypodermic alministration of ergotin Bonjean). June 24: Temperature in the morning 101.2° F.; pulse 80-84, high tension, considerable perspiration; less delirium and responded to some questions. Restless, boring his head into the pillow, pupils of medium size, respiration irregular, spasmodic (a few shallow followed by a few deep respirations). Passed water when the urinal was offered. At times took liquid food. For a few hours quiet and not delirious. Grimacing and complaining of headaches. Blood pressure, 225 R.R. (Ergotin Bonjean 3 grains four times a day.) Evening temperature 100° F. Consciousness clearer with more insight. June 25: Restless during the night, screaming. In the morning quiet and responded to some questions relevantly. Temperature 100° F., pulse 84. Evacuation after an irrigation. Tongue coated but not dry. Took sufficient liquid food. Toward evening again noisy, delirious and shouting. Temperature 100.8° F. Passed much water. Refused food, spitting it out. (Ergotin 3 grains four times a day.) June 26: Shouting during the night, perspiring. Morning temperature 100.8° F., pulse 84, high tension. Disconnected sentences and mixture of words. Evening temperature 100.4° F. Refused food. (Enteroclysm of salt solution.) (Ergotin 3 grains four times a day.) June 27: Sleepless night, resistive. Morning temperature 102° F., pulse 116. Fed by stomach tube. Delirious, muttering, laid with eyes closed; recognized the physician, repeated, "Oh, I am dead"; "Kill me." Expression of fear. Evening temperature 102° F. Disconnected thoughts, responded to surroundings, hyperesthesia. (Ergotin 3 grains four times a day.) June 28: Morning temperature 101° F.; pulse 90, high tension. Refused food (fed by stomach tube). Delirious, talking to himself, carphology, shouting, "I'll cut my throat," calling the attendants "murder," "thief," evidently in response to visual hallucinations. June 29: Same fear, pulse 84, tension not so high, respiration 30 regular. Took food by the mouth. Superficial bed sores and large vesicles or bullæ on the internal surface of the thigh. Temperature morning and evening 100.8° F. Somnolent all day. June 30: Morning temperature 99.2° F. Profound exhaustion, pulse 78, soft, regular. Responded slowly to questions and took food by the mouth. Blood pressure 180 R.R., respiration 24, regular. In the evening singultus, vomiting, laid helpless and motionless, took liquid food when urged. Respiration 30, pulse 90, not well filled. (Hypodermically caffein sodium benzoate, 2 grains.) Evening temperature 100.4° F. Lateral nystagmus. July 1: Morning temperature 99.2° F. Great exhaustion and emaciation, pulse soft. Evening temperature 100° F. Responded slowly to questions. Constipation. No results from cathartics and did not retain any water introduced into the bowels. Passed water involuntarily. Would not swallow food introduced into the mouth. July 2: Morning temperature 100° F. and more delirious. Toward evening rather better; pulse 90, soft; took food by the mouth in small quantities. Perspiration. July 3: Profound sopor. Did not respond to surroundings. Pupils dilated; respiration 60; pulse 100, irregular, slight perspiration. Temperature 100° F. Died at 9 P.M.

Uranalysis in the third case.—June 22: Specific gravity 1025. Reaction acid, high-colored, albumin 3.5 per thousand, a large amount of granular casts, renal epithelium and a few blood cells. June 23: Specific gravity 1020. Light color, albumin 0.5 per thousand. Microscopic picture the same as on June 22. June 24: Specific gravity 1016. Reaction acid, traces of albumin, a large amount of granular casts, renal cells, a few blood cells and a few crystals of triple phosphate. June 25: Traces of albumin. June 30: Specific gravity 1016. Neutral reaction, light colored, traces of albumin, a few granular casts, no epithelial cells, but a large amount of triple phosphate. July 2: Traces of albumin. Microscopic picture the same as on June 30. The microscopic blood picture was normal.

Our three cases occurred within a period of ten years (approximate admissions during this time about 1,000), all happened to be in the summer time between May 29 and June 21; all were males, one colored, thirty-seven, forty-two, and fifty-three years of age, respectively. In all cases worry and mental overstrain were in the previous history. Heredity of nervous or mental diseases could not be established, and alcoholic excesses were emphatically denied. Neuropathic features were established in the personal history of the third case. The striking feaures of the course of the disease were as follows: Prodromi for a week or two with headaches, insomnia and general malaise. The active period of the disease came on suddenly with restlessness, deep disturbance of consciousness, ideas of persecution, fear with terrifying visual hallucinations and sleeplessness. During the early period of the disease the patients showed short transitory elation alternated with the prevailing depressed phase. Peculiar restlessness and struggling on account of the furious deliria, raving, shouting, trying to escape, or throwing themselves against the window, were prominent in the first part of the disease. There was a mixture of religious ideas with profanity. Premonition of death with the fear of being tortured or burned was prominent in all cases when the disease was well developed or toward the end. Toward the end the symptoms of irritation in the subcortical centers, as, for instance, grating of the teeth, grimacing and lateral nystagmus became manifest.

The apparent lucidity, during which the disturbances of consciousness and the delirium almost disappeared and the motor signs of irritation subsided, lasted usually a few hours and occurred when the disease was well developed. These lucid periods were always followed by an exacerbation of the excitement and delirium. The temperature was irregular, 100-102°, reaching in the first two cases 105-106°, and persisting until shortly before death, when it fell rapidly. Rapid exhaustion was marked in all cases. Toward the end of the disease the disturbance of consciousness was replaced by a profound sopor. The pupils reacted upon light and accommodation, were of normal size or a little narrowed constantly during the disease. Toward the end the pupils dilated. In the third case perspiration and high blood pressure were prominent during the active period of the disease. Toward the end the blood pressure was reduced to 180, evidently on account of the great exhaustion. In all our cases albumin was a constant symptom. In the third case I found in the urine the microscopic picture of an acute parenchymatous nephritis. The amount of albumin and the number of granular casts was gradually reduced to traces of albumin and a few casts. Solivetty's treatment, which was established in the third case, did not show any results.

After the course and termination delirium grave presents a certain syndrome, which should be strictly differentiated from the following diseases: Deli-

rium tremens; any other toxic delirium; febrile deliria which occur in typhoid, typhus, pneumonia and erysipelas, malaria, and meningitis; acute uremic delirium or acute exacerbations of chronic uremic condition, and acute mania. The diagnosis is probably often overlooked on account of the resemblance of the excitement and deliria, which occurs in the above diseases. It would be of interest to the general practitioner to have a review of the differential diagnostic points of these diseases.

Alcoholic delirium might, because of its intensity, suggest delirium grave, especially when it is accompanied by fever. The alcoholic history and the tremor of the lips, tongue, and the limbs will be sufficient at the beginning of the disease to distinguish it from delirium grave. When the disease is well developed, on the fifth or sixth day, the rapid and profound exhaustion, the characteristic mental attitude, the hypersensibility or other symptoms of cerebrospinal irritation with boring of the head into the pillow will give enough reason to exclude delirium tremens. In other toxic deliria the temperature is rarely pronounced, the delirium is much less pronounced.

The delirium in acute infectious diseases, as, for instance, in typhoid, typhus, erysipelas, scarlet fever and pneumonia occurs, for the most part, at the height of the disease-process and during the period of subsidence, and can be easily distinguished by the physical signs, the symptoms of invasion, and the course of the disease.

It is not so easy to distinguish the rare form of delirium which occurs in malaria, the so-called intermittent insanity, lasting hours or days with perfect intermission. This delirium is very similar to that in delirium grave and the impulse to suicide or homicide are of the type that we meet in the delirious state of the excitement of epileptics. The presence in the blood of plasmodii and the history of previous malarial paroxysms may exclude delirium grave.

In spontaneous forms of meningitis of the convexity, the peracute beginning, the frequency of initial chills, the early occurrence of sopor, stiffness of neck and less marked remissions will distinguish it from delirium grave; the delirium and restlessness in meningitis are less marked. There occur also convulsions more often than in delirium grave. Local or general palsies occur in meningitis; in delirium grave they have never been reported.

In acute mania it is important to distinguish the following differential points: (1) Appetite and digestion are normal or increased, while both are absent in delirium grave. (2) Mania rarely runs a course of less than two months, does not usually develop by a sudden outbreak and ends with a considerable period of convalescence, melancholia or dementia. Delirium grave lasts from one to three weeks. (3) Mania is not usually fatal and the strength remains throughout the course of the disease, while delirium grave is usually fatal and the strength fails almost from the first. (4) In mania all impressions seem to be exceedingly fleeting and indistinct, and the mental condition is not attended with imperative concepts. In delirium grave the great confusion is not dependent upon flight of ideas, and the early symptoms of motor irritation do not belong merely to the irritation of the cortical areas, but are symptoms of direct irritation and implication of the subcortical centers. (5) The remarkable alteration of lucidity in delirium grave with the profound implication of the organism are not observed in mania. (6) Fever and albuminuria, as a rule, do not occur in mania.

In uremic conditions the delirium may occur either during the acute uremia or during an exacerbation of the chronic uremia. In both conditions of uremia coma may develop at the onset and in these cases there will be no place for pronounced delirium or any excitement. If coma does not develop at once, muttering delirium with restlessness and sometimes suicidal tendencies may resemble those of delirium grave, but the dry skin and the urinous odor of an uremic, the stertorous breathing, the dry tongue will distinguish it from delirium grave, in which these symptoms represent the reverse; the skin is wet from the beginning; the respiration is usually regular; the tongue is moist; and there is no urinous odor. The perspiration in uremic conditions occurs only toward the end. Convulsions may occur in uremic conditions from the beginning of the disease, while in delirium grave this is possible only toward the end. The characteristic lucid periods of delirium grave are not observed in uremic conditions.

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CYST OF THE CEREBELLO-PONTINE ANGLE; OPERATION, WITH RELIEF OF SYMPTOMS.*

BY C. L. DANA, M.D.,

AND

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CASE HISTORY BY DR. DANA.

HARRY E., aged thirty-four, married, three children, sewing-machine operator, family history good.

He denies alcoholism and any venereal disease; no history of any serious injuries or serious illnesses before the present one.

Patient states that he has been ill about a year, but severely so for about six months. During this time he has had very bad headaches, worse at night; in the morning he has had attacks of vomiting which were violent. The headaches were frontal, later occipital, and more on the right side. Recently, also he has had attacks of dizziness and forced movements which threw him to the right. These forced movements of late come on nearly every day. He has had a transient diplopia. He has also developed tinnitus in the right ear and some deafness in that ear. He had to give up work three weeks ago and came to my office on October 3.

Examination.—Mental condition rather sluggish; speech normal; his gait is unsteady with a tendency to fall to the right; he cannot stand with the eyes closed and the feet together; he carries his head inclined to the left; the finger-nose test is uncertain and he shows dysmetria; the pointing test is also imperfect. Adiadochokinesis in right arm; some cerebellar catalepsy.

Cranial Nerves.—(1) Olfactory normal; (2) vision defective; R. 20/40; L. 20/30; distinct papilledema of both eyes + 2.50; (3) lateral nystagmus, to the right more than to the left; otherwise ocular movements nor-

*Read at a meeting of the Practitioners' Society, November 6, 1914.

mal; (4) pupils are equal and react to light and sluggishly to convergence; (5) slight anesthesia of the fifth nerve on the right side with loss of the conjunctival reflex; some weakness of the right motor branch; (6) no paralysis of the third, fourth, or sixth nerves; (7) slight weakness of the right seventh; (8) bone deafness complete in the right ear; left normal; (9 and 10) some difficulty in swallowing.

The knee-jerks and ankle-jerks are present; the right greater than the left. Babinski negative on both sides; no plantar reflex at all on the right; abdominal reflexes lost on the right side; positive on the left; cremasteric reflex slight on both sides. There is no cutaneous or deep anesthesia, except as above noted.

He was sent to the Neurological Institute and was under observation there for several days. There he was examined by Dr. Ward A. Holden, who found the condition of the eyes as already noted.

Dr. Deneh made an examination of the ears and found nystagmus present to heat and cold in the right ear, but diminished in amount; with turning-test, erect posture, horizontal nystagmus seventeen seconds rotation to right; horizontal nystagmus seventeen seconds rotation to left. His conclusion was that the right labyrinth was inactive and that there was a neoplasm below the tentorium on the right side involving the auditory nerve.

Urine examination, negative. Blood-count, normal, no leucocytosis. Serum-Wassermann, negative.

Summary.—A man aged thirty-four, previously well, begins to suffer from severe headaches with attacks of violent vomiting. There gradually develop attacks of vertigo and forced movements to the right; tinnitus and deafness in the right ear and unsteadiness of gait with tendency to fall to the right; clumsiness and asynergia of the right hand; progressively diminishing vision; double optic neuritis; nystagmus more to the right than the left; slight paralysis of the right seventh and slight anesthesia of the right fifth; bone deafness in the right ear with evidence of involvement of the auditory nerve.

He was operated on by Dr. Elsberg on October 15. Examination on November 4 shows an improvement in the optic neuritis; improvement in gait and forced movements; absence of headache and vomiting and improvement in the condition of the cranial nerves.

SURGICAL NOTES BY DR. ELSBERG.

On October 17, 1914, the first stage of a suboccipital craniotomy was done, the bone being removed over both cerebellar hemispheres into the foramen magnum and later into both mastoid regions. Recovery from the operation was uneventful.

On October 25, under ether anesthesia, the wound was reopened and the dura widely incised. There was marked bulging of the right cerebellar hemisphere and only moderate bulging of the left. The posterior cistern contained only a small amount of fluid. The cerebellum was dislocated to the left exposing the right cerebello-pontine angle. The facial and auditory nerves were seen entering the internal auditory meatus. They were small and thin, otherwise normal. In the cerebello-pontine angle and bulging outward and backward toward the nerves was a large multilocular cystic mass with thin walls. When the cyst wall was punctured about 50 c.c. of clear yellow fluid escaped. The cyst wall then collapsed. Pressure upon the right cerebellar hemisphere was much diminished so that the hemisphere sank back into the posterior fossa of that side. The wall of the cyst was so thin that its walls could not be extirpated. Nothing abnormal was found in any other part of the posterior fossa. The muscles, fascia, and skin were closed in the usual manner.

Convalescence from the operation was uneventful. The wound healed by primary union and the patient was up and around ten days after the operation. From the time of the operation the improvement of the patient's symptoms were continual. The headache at once disappeared and did not return. Four weeks after the operation the attacks and symptoms were no longer present, the nystagmus was hardly noticeable. The improvement from that time has been continuous and was only interrupted by a collection of cerebrospinal fluid under the skin, which was removed by aspiration.

While the diagnosis of a localized cyst, a collection of fluid due to an old subarachnoid inflammation, was not absolutely certain, it is very probable that we had to deal with a case of the kind described by Oppenheim and Borchardt in 1910 (*Berliner klinische Wochenschrift*). The condition found by these authors was very similar to that observed in our case, and their patients also improved steadily up to complete recovery. The appearance of the cyst was totally unlike the ordinary dilated lateral cistern which is often observed in operations in the cerebello-pontine angle, being much larger, multilocular, and containing fluid of an abnormal color.

A NEW METHOD FOR THE CONTROL OF POST-ANESTHETIC NAUSEA.

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THE dread of post-anesthetic nausea and vomiting is in all probability secondary only to the fear of the anesthetic itself.

Having been convinced that the prime factor in this nausea and vomiting is the smell of the anesthetic I have, after considerable experimenting, succeeded in controlling the nausea and vomiting by substituting some pleasant odor for the offensive smell. This I have accomplished by the following simple method:

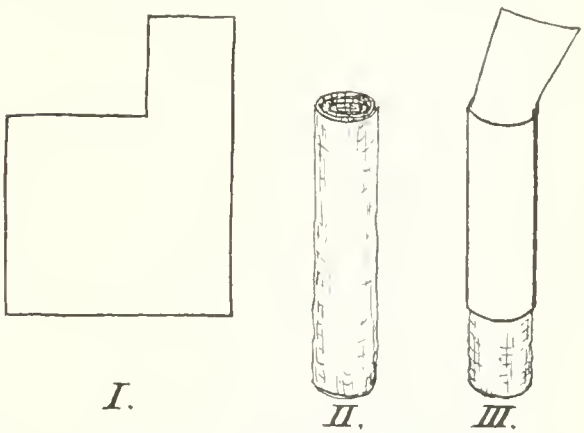

FIG. 1.—Showing the steps in making the gauze cylinder.

A piece of adhesive plaster is cut to the shape shown in Fig. 1, I. Then a piece of gauze is made into a roll of eight or ten thicknesses, about two inches long and one-half inch wide, as shown in II. Now the adhesive plaster is folded over the gauze roll, leaving a small end of plaster free to fasten to the nose, as shown in III. This appliance is fastened to the nose so that the free end of the gauze extends a short distance beyond its tip of the nose (see Fig. 2). On the end projecting beyond the nose is dropped a little perfume. A mustache may be utilized instead of the gauze; but care must be used in dropping the perfume, otherwise it may run into the mouth or nose. This perfume should be applied immediately after the anesthetic is withdrawn, the head being then elevated and turned to one side.

I have tested this method in many cases, where previous anesthesias had produced very troublesome nausea and vomiting, with perfect success.

I do not claim that the method will always produce the desired result; for there are cases which will not yield, in spite of the efforts of the most careful anesthetist. But I do claim that in a large

majority of cases nausea and vomiting will be greatly reduced if not entirely prevented.

In the selection of the perfume is is advisable to consult the patient so as to know which to avoid as well as to know which to select.

Fig. 2.—The gauze cylinder attached.

In my practice I have been led to give preference to the oil of the bitter orange peel. One must be sure of a fresh preparation.

I am well aware that the use of perfume has been recommended before, and with the induction of the anesthetic in order to overcome the offensive odor, but so far as I know no one has made use of perfume *after* the anesthetic, by a similar method, to control nausea and vomiting.

1925 Seventh Avenue.

WHY FUMIGATION FAILS.

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In 1895 almost every city in the United States relied on sulphur dioxide for disinfecting purposes. It was known to have no penetrating power, yet health officers used it because nothing better was available. This, therefore, was just the time for "something new" to be introduced, and accordingly, formaldehyde gas was brought to the attention of sanitarians. Being more penetrating than sulphur dioxide, it became popular very quickly, and today it is employed more frequently than any other agent for fumigation.

Let us, for a moment, review the present situation. Formaldehyde, which was introduced at the psychological moment, became the favorite in a short time, and was adopted without the usual careful study. Even now we use a control test for disinfection, which test is not absolutely reliable, and which is the chief cause for the unfounded faith in formaldehyde. This control test is conducted in the following manner: after the room has been properly sealed, a white thread about one or two inches in length and infected with typhoid bacilli or some other favorite organism, is exposed to the action of formaldehyde. This thread remains in the room until fumigation is completed, and is then placed in a sterile envelope and taken to the laboratory for examination. The thread is placed in sterile bouillon and incubated for twenty-four to forty-eight hours. If there is no growth, it is inferred that the room has been properly disinfected. This deduction is not correct, however, and herein lies the fallacy of fumigation. The thread when it is placed in the bouillon contains sufficient formaldehyde to prevent the growth of organisms, and a negative result does not mean that the germs are dead. If instead of placing the entire thread in the culture media, we first cut the thread in half, and place one half in the culture media, and heat the other half for a few hours to drive off the formaldehyde, we frequently find that the tube containing the heated portion of thread shows an active growth of organisms, whereas the result is negative with the thread treated in the usual manner. This means that when the sick-room is aired and heated, the germs which the formaldehyde rendered inactive, again begin to multiply and become a menace.

This fact also explains why some men are getting just as good results without so-called disinfection as with it. As a matter of fact, they are dealing with the same condition in each case. A well known health official shows by statistics that there were as many cases of reinfection after a room was apparently disinfected, as when no attempt was made to disinfect. Getting the same result in both cases, however, does not prove that proper disinfection is useless, but substantiates the assertion that the room was not disinfected in either instance.

It is essential, therefore, that we thoroughly investigate the action of formaldehyde fumigation, and that we hesitate before condemning disinfection itself, because of false beliefs based upon unreliable control tests.

396 Franklin Avenue.

Medicolegal Notes.

Practising without Authority—Sufficiency of Information.—Texas Penal Code, 1911, Art. 750, provides that it shall be unlawful for any one to practise medicine who has not registered in the district clerk's office of the county in which he resides his authority for so practising, together with his age, postoffice address, place of birth, and school of practice to which he professes to belong, subscribed and verified by oath. An information for practising without complying therewith was held to be fatally defective because it failed to allege the defendant's residence and that he had not registered his authority or license in the district clerk's office of the county of his residence, though it alleged that he was not licensed and authorized under the laws of the State to practise medicine, was not practising medicine under the provisions of the laws of the State, and was not a physician under a diploma of a reputable and legal college of medicine.—Young v. State, Texas Criminal Appeals, 167 S. W. 1112.

Hypothetical Questions—Cause of Pain at a Particular Place.—A workman fell into a pit about 18 inches deep on his employer's premises. An expert witness for the plaintiff was asked what in his opinion of the examination of the plaintiff caused the pain at the point of fracture of the tenth rib. This question was allowed over objection by the defendant, and he answered that he thought the pain and tenderness were caused by adhesions below the rib on the inside of the chest bone, and that he had been unable to discover any disease of the spinal cord. He was also asked to what he attributed the pain that was evidenced at the point of fracture. He answered, over objection, that he attributed it either to the old inflammation of the pleura, and to the involvement of the intercostal nerve at that point, or to the bone formation or the adhesions and old scar tissue formed from the pleurisy in the pleura. It was held that the witness was properly permitted to give his opinion, from his examination, as to the cause of pain at a particular place.—Bird vs. Hart-Parr Co., Iowa Supreme Court, 146 N. W. 74.

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New York, December 19, 1914.

AN APPEAL FOR BELGIAN PHYSICIANS.

IN a talk before the Green Room Club the other evening, Mr. Irvin Cobb, the well known writer who was a war correspondent with the German Army in Belgium, said that the desolation and misery of the people of that blood-stained and ruined country simply beggared description. "Think of a people," he said, "7,000,000 strong, where everything was gay with laughter at the outbreak of the war. Then picture this people reduced in four months of fighting from 7,000,000 to 3,000,000, and of these 3,000,000 picture 1,000,000 as dependent upon the charity of the United States of America to-night for their supper. Then you have a faint idea of the war and Belgium." A physician of this city was at Maastricht shortly before the fall of Antwerp and was engaged with some Dutch medical men in giving aid to the hordes of refugees fleeing from their ruined homes. In one day he and his companions attended three hundred Belgian women of all classes and degrees who had miscarried as a consequence of the fatigue and exposure of their wretched flight. But words fail in describing the utter desolation of a country in which over eighty once thriving and happy cities, towns, and villages are now masses of blackened and stinking ruins, whose inhabitants have fled to friendly Holland, England, and France. The creature necessities of the other Belgians, those who still perhaps have a roof over their heads but whose days and nights are passed shivering and hungry, are being partially supplied by the charitable of this country and it is hoped that enough may yet be sent them to cover their backs and give them food to carry them through the hard winter or until the end of the war restores to them the opportunity to work for themselves.

But there is a special group of helpless Belgians whose plight must appeal with peculiar emphasis to the medical profession of this country: these are the men whose duty it is and whose joy it would be to minister to the sick among their own people, but who are powerless to do so, having lost not only their personal belongings, and often their houses, but also the tools of their calling. Professor Jacobs of the University of Brussels, in an appeal for the physicians and pharmacists of Belgium, tells of the doctors of that country who have remained at their posts in the devastated localities, some of whom are carrying on their profession in the remains of partly destroyed buildings, while others have to improvise as best they may any kind of shelter for their Samaritan work. "Need I describe," he writes, "the manner in which they sustain themselves, and how they manage to nourish their wives and children? I have witnessed such misery amongst them! Some have had to work as navvies in order to have a few pence in their pockets; others have told me that they had not seen bread for a fortnight, but had lived exclusively on potatoes. Others had a meager bunch of straw laid on the bare ground as a bedstead; the only pair of boots owned by one of them was falling to pieces in tatters. Men I have seen were dressed in torn garments and their children were in rags. One of my colleagues had to live on wayside herbs for three days and three nights, and his wife shared his fate! A professor of a university, bereft of everything, was, when I saw him, in dire want of a bed, and another of equal academic standard was wandering haggard over the countryside, searching in vain for a beloved family. And some of our ranks have been taken as hostages, others have been shot, and their widows and orphans have been left deprived of everything." Of the 4,800 physicians in Belgium before the invasion, at least 1,000 are now absolutely poverty-stricken, and 2,000 more are suffering cruelly. "Consider," says Dr. Jacobs, "the immense suffering that our medical brethren have gone through and are still going through. Their pathetic and lamentable distress should unite all in the desire to relieve it. These practitioners have given a lesson to the world of unfaltering energy, but now their breaking courage will have to be kept up. In this emergency I call on the medical profession to rally to our help. It will be for us a great debt of honor and of eternal gratitude."

This cry from the land of Depage, Thiriar, Bordet, Denys, Van Ermengem, Van Gehuchten, Van Duys, Hertoghe, Laurent, Schiffers, and scores of others known throughout the medical world must appeal to every practitioner, no matter on which side his sympathies are in this fearful war. To systematize the relief measures and to assure those willing to give that their money will be spent to the best advantage, a committee (the composition of which is given in the news columns) has been formed to solicit contributions and to purchase medical supplies, instruments, and surgical dressings for the Belgian physicians, as well as food and clothing for their wives and children, which will be forwarded free of all charges by the Belgian Relief Commission in New York City. We would urge our readers to contribute of their means to this cause, for surely there was never a more worthy one. By giving generously and promptly not only will they be relieving their confrères in thir hour of dire need, but they will also be aiding the sick by restoring to the doctors of Belgium the arms which they need in the combat against disease and which they have lost with their books, their houses, and their savings of years. Contributions may be sent directly to the treasurer of the committee, Dr. Frank F. Simpson, 7048 Jenkins Arcade Building, Pittsburgh, Pa., or to the Belgian Physicians' Relief Fund in care of the editors of any of the following journals: *Journal of the American*

Medical Association, Boston Medical and Surgical Journal, Surgery, Gynecology, and Obstetrics, or the MEDICAL RECORD.

THE NERVOUS SYSTEM AND CUTANEOUS PIGMENTATION.

MORE than ten years ago it was discovered that one of the important sources of the coloring matter of the skin is an end-product of protein disintegration in the intestine, namely tyrosine. In fact, it was shown that all the colors of the butterfly's wing are similarly derived from decomposition products in the bowel. This wizardry of biological chemistry has its counterpart in the production of aniline dyes from coal tar. The pigment cells of the skin are subject to many influences, not only chemical, but also thermic, actinic and mechanical; and are developed to a higher degree of complexity in the lower orders of life, such as the fishes and amphibia. The fact that the latter can in many instances adapt their cutaneous coloration to that of the environment indicates a close relationship between the nervous system and the pigmentary apparatus of the integument. That such a relationship, though less pronounced, exists in human beings is indicated in the instances of changes in skin coloring arising in the course of nervous diseases, and in the conspicuous examples of graying of the hair resulting from fright or intense mental strain.

This subject forms the basis of an interesting study by Fritz Nehl (*Zeitschrift für klinisehe Medizin*, Vol. 81, Nos. 1 and 2). He points out that the instances of so-called sudden graying of the hair as the result of anxiety must be regarded critically. In these cases, according to Landais, there seems to occur, not a disappearance of pigment, but an accumulation of innumerable minute bubbles of air in the hair. The premature graying of the hair associated with prolonged grief and worry is perhaps to be explained on the basis of a disturbance in the general physical condition of the individual. In this instance there are associated with the graying of the hair a general emaciation, a reduction in the hemoglobin-content in the blood, and a loss of tonus in the skin and in the body musculature. There are however instances of the direct effect of changes in the nervous system upon the cutaneous pigmentation. Thus, canities is frequently observed in the territory supplied by a particular nerve. The neural causation is especially manifest if local neuralgic pains are present, as in idiopathic vitiligo, and in the case of the pigmentary atrophic spots of leprosy in which there is a reduction in sensibility in the affected cutaneous areas.

The pigmentary anomalies of segmental pigmented nevi and of congenital segmental albinism are attributed to disturbances in the development of the cutaneous cells rather than to any neurological factor. The question whether the pigmentation of Addison's disease has anything to do with the nervous system has not yet been solved. Undoubtedly, however, the suprarenals with their innervation by the vegetative nervous system have some influence upon the cutaneous pigmentation. That the potent factor is the vegetative nervous system is also indicated in the instances of pigmentation occurring in exophthalmic goiter, diseases of the ovaries, and pellagra, in all of which the autonomic nervous system is involved.

The pigmentation observed in scleroderma and facial hemiatrophy, and frequently confined to the areas of distribution of particular nerves, suggests that the sympathetic fibers in the peripheral nerves are the ones responsible for the pigmentary changes. At any rate, in these conditions there are neither motor nor sensory disturbances. Moreover, it has been shown that sections of sympathetic nerve fibers may give rise to a disappearance of pigment from the skin, as in the cases of unilateral graying of the hair following lesions of the cervical sympathetic, and of heterochromia of the iris occurring after resection of the upper cervical ganglion. It is quite probable, therefore, that prolonged grief and worry may through the agency of the autonomic nervous system give rise to premature graying of the hair.

THE HEART IN DIPHTHERIA.

AN important clinical and pathological study of the irregularities of the heart occurring in certain cases of diphtheria was made by W. E. Hume and S. J. Clegg (*Quarterly Journal of Medicine*, October, 1914). The material comprised 40 cases presenting cardiac irregularities among 573 cases of diphtheria that were admitted to the Hospital for Infectious Diseases of Newcastle-on-Tyne. Of the 40 cases showing irregularities, twenty-two presented the characteristics of a sinus arrhythmia and were associated with normal cardiac signs and symptoms. The remaining eighteen cases manifested many different types of heart irregularity, which are divided into three distinct groups.

In Group I there are included those patients who were very ill from the onset of the disease, in whom there were gross and varying irregularities of cardiac rhythm, with an identical pathological picture. In these patients the membrane was extensive and the toxemia was severe. Prostration was marked, vomiting occurred frequently, and death took place before the fifteenth day of the disease. Dilatation of the heart was obvious before the sixth day and the polygraph revealed a great variety of irregularities. Premature contractions arising in the auricles or ventricles usually preceded a grosser type of arrhythmia. The rhythm of the heart frequently changed from day to day. Autopsy showed a fatty degeneration of the heart muscle, chiefly of the ventricular wall, with patches of interstitial myocarditis, and dilatation and engorgement of the smallest capillaries. In the sinoauricular node there were an increased vascularity and actual hemorrhages. There were no gross histological changes in the dilated capillaries of the auriculoventricular node, nor was there any abnormality in the auriculoventricular bundle or in its two main branches.

The cases belonging to Group II were characterized by the marked toxemia and the extensive septic membrane in the throat. The heart irregularities included auricular and ventricular extra-systoles and a reversal of the normal beat. Pathological

examination of the heart in one of these cases showed a complete absence of the noteworthy feature of the fatal cases of Group I, namely, the increase of fat in the heart muscle cells. The only pathological feature, apart from the increased vascularity, in this case, was the presence of scattered patches of interstitial myocarditis in the ventricular muscle.

Group III included the cases in which there was no evidence of toxemia and in which the throat condition was not severe. Irregularities of the heart were manifest, but there were detected no abnormalities in the heart itself.

In analyzing the results of their study, Hume and Clegg find that it is impossible to correlate the pathological lesions with the individual instances of arrhythmia of the heart. Irritative and destructive processes take place simultaneously and result in excitation or depression of the various functions of the heart muscle. The types of arrhythmia vary from day to day, a result depending upon the varying and progressive pathological changes in the heart muscle and its nerves. The important lesson brought home by the study of this subject is that any form of cardiac arrhythmia (excepting sinus arrhythmia) in diphtheria represents a pathological process in the heart muscle, however mild the illness may otherwise appear to be. The need in these cases of keeping the patient in a recumbent position cannot be too strongly emphasized.

An Experiment in Disinfection

The New York City Health Commissioner, Dr. Goldwater, has ordered the discontinuance of the practice of fumigation as a measure of terminal disinfection following the occurrence of a case of infectious disease. The order will effect all the boroughs except Brooklyn, fumigation being continued in the latter as a control to determine the efficiency or uselessness of the practice. An exception will be made in all the boroughs in the case of smallpox. The sale of fomites as a harborer of pathogenic bacteria has been seriously questioned in recent years by many sanitorians, notably Dr. Doty, former health officer of the Port of New York. Writing in the Medical Record on October 17, 1914, Dr. Doty expressed the opinion that it is entirely justifiable to abandon terminal or room disinfection in the care of diphtheria, measles, and scarlet fever, the destruction of the discharges and constant cleanliness throughout the course of the disease being the proper course. But even if terminal disinfection is called for, the value of fumigation as a means to that end is very doubtful, for, as Dr. Pabst states elsewhere in this issue, the tests relied upon to determine the thoroughness of the measure are fallacious, and that the formaldehyde vapor often fails to kill the germ actually present, although the control test would appear to indicate that it had. The experiment has already been under way in three boroughs since the first of November, and it is noted that so far not a single complaint has reached the department regarding the discontinuance of fumigation, nor has there been any evidence of increased prevalence of infection in the three boroughs where fumigation was discontinued.

The Cause-nexus and Cumulation in Disease-causation.

The belief that diseased states originate in the main through synchronous or contributory operations of individual causal elements must gain ground in the future of pathology; at least in its application to all chronic, insidious maladies. This view may best be illustrated through a case reported by Reich in a meeting of the Tübingen University Clinic at Reserve Hospital II last October (*Münchener medizinische Wochenschrift*, November 3). A soldier sustained a mild frostbite of the first and second toes. He had been in perfect health at the time, and on account of a rainy spell had had to remain in the trenches for 36 hours with his feet under water. The temperature was never anywhere near 0°C. Out of the trenches he had to march 8 kilos. back to quarters, where on account of pains in the feet he was pronounced unfit for marching. During the next five days he complained of insensibility of the great toes and paresthesiæ in the same. The skin of these toes was smooth and shiny. The condition was not attributed directly to actual lowering of temperature beyond a given point, but to circulatory disturbances which resulted secondarily in the continued action of cold or otherwise stated cold and vascular anomalies were jointly produced by different factors. In any case the patient recovered under simple withdrawal of the causes.

The "American Medicine" Relief Committee.

Referring to the call for aid to the Belgian physicians made in another column, we wish to say that to Dr. H. Edwin Lewis, editor of *American Medicine*, is due the honor of having been the first to appeal for the relief of our suffering confrères. This he did over a month ago and in the issue of his journal for November acknowledgment is made of the receipt of a goodly sum. The originators of this new movement were, however, in ignorance of the existence of the *American Medicine* committee, and when they were informed regarding it an organization had already been effected and the cooperation of many prominent men in the profession had been secured. It was decided, therefore, wisely we think, to go ahead with the work, for there is enough to do for both committees and, the aims being identical, there can be no possibility of interference. If any of our readers prefer to give to the other committee we beg them to do so; it matters not through whom relief to our Belgian colleagues comes, so long as it does come.

The Fatigue Toxin and Immunity.

Ranke was the first to show that the aqueous extract of a fatigued frog's muscle when made to perfuse the muscle of another frog evokes in this muscle all the phenomena of fatigue. Weichardt isolated the so-called fatigue-toxin, ponogen, or kinotoxin, and reported later the production of a fatigue antitoxin capable of neutralizing the physical evidences of fatigue. Many investigators have studied the relation between fatigue and disease. In 1909 Scalfati reported that the fatigued organism provides a favorable culture medium for the typhoid bacillus, and one year later De Sandro demonstrated in fatigued animals a diminution in the phagocytic and chemotactic powers of the blood cells.

Vincenzo Palmulli (*Riforma Medica*, October 31, 1914) details the important results of his experiments showing the rôle played by the fatigue toxin in the processes of immunity. He found that in dogs the intravenous injection of this substance causes a reduction in the immune power of their blood serum. The reduction consists in a lowering in the agglutinating, bacteriolytic, phagocytic, and opsonic powers of the blood. It would appear, therefore, as if during fatigue there is an inhibition in the production of agglutinins, opsonins, bacteriolysins, etc. This fact fits in closely with the observations made by Marfan, Jaccaud and others, that physical fatigue predisposes to bacterial infection.

News of the Week.

The Belgian Physicians' Relief Committee.—The committee appointed to solicit contributions for the relief of the Belgian medical men, to which reference is made in the editorial columns, is constituted as follows: Victor C. Vaughan, president of the American Medical Association; William L. Rodman, president-elect of the American Medical Association; J. M. T. Finney, president of the American College of Surgeons; John B. Murphy, president of the Clinical Congress of Surgeons of North America; J. Riddle Goffe, president of the Seventh International Congress of Gynecology and Obstetrics; Charles H. Mayo of Rochester, Minn.; Howard Canning Taylor of New York; Frank F. Simpson of Pittsburgh, treasurer; George H. Simmons, editor of the *Journal of the American Medical Association;* E. W. Taylor, editor of the *Boston Medical and Surgical Journal;* Franklin H. Martin, editor of *Surgery, Gynecology, and Obstetrics;* Thomas L. Stedman, editor of the MEDICAL RECORD. The first meeting of the committee took place in New York on Monday of this week and arrangements were made with the Belgian Relief Commission for free transportation of boxes of medical supplies, food, and clothing purchased by the committee.

Massachusetts Health Council.—Governor Walsh of Massachusetts has appointed the following members of the State Health Council: Prof. George Chandler Whipple, professor of sanitary engineering at Harvard; Dr. Milton J. Rosenau of Harvard, Prof. W. T. Sedgwick of the Massachusetts Institute of Technology, Dr. David Linn Edsall of Milton, Dr. William J. Gallivan of Boston and Dr. Joseph E. Lamoreux of Lowell.

Strike of Hospital Internes.—Twelve members of the house staff of the Kansas City General Hospital recently quit the hospital because the health board had refused to grant a petition by the internes asking for better food and properly heated living quarters. The board denied that any cause for complaint in these respects existed and directed the superintendent to supply the place of any of the house staff who failed to report for duty.

Cholera in Germany and Austria.—Reports from Rotterdam state that thirty-six cases of cholera were reported in Germany by the Berlin Board of Health in November. The same reports say that the disease is spreading rapidly in Austria, especially in Galicia. In the first week of November 844 cases were reported, with 331 deaths in the same period. Ninety of the deaths occurred in Vienna. In the same week 532 cases were reported in Hungary.

Charitable Bequests.—By the will of the late Caroline J. Cammerer, of Philadelphia, the sum of $5,000 is bequeathed "to a worthy hospital in Philadelphia for the endowment of a bed for persons suffering from cancer."

By the will of the late Agnes Nash of Camden, N. J., the sum of $500 is bequeathed to Cooper Hospital.

Journal Consolidation.—The *Dietetic and Hygienic Gazette*, which is just completing the thirtieth year of its existence, has been purchased by The Critic and Guide Company. Beginning with January, 1915, it will be consolidated with the *Critic and Guide*, and the combined journals will be under the editorship of Dr. William J. Robinson.

The Cartwright Prize.—This biennial prize of $500, established by the Alumni Association of the College of Physicians and Surgeons of New York, will be awarded at the Commencement, 1915, for the best essay on a medical, surgical or some kindred subject, provided any of those offered in competition is deemed of sufficient merit. The prize is open to universal competition. The successful competitor must deposit a printed copy of his essay with the manager of the association before securing the money. Essays must be sent to Dr. H. E. Hale, 770 West End Avenue, New York City, on or before April 1, 1915.

Medical Society Elections.—The American Public Health Association, which was in session in Jacksonville, Fla., November 30-December 4, has elected the following officers: *President*, Prof. William T. Sedgwick, of the Massachusetts Institute of Technology; *First Vice-President*, Dr. C. J. Hastings, health officer of Toronto, Canada; *Second Vice-President*, Dr. Juan Guiteras, Havana, Cuba; *Third Vice-President*, Dr. C. E. Terry, health officer, Jacksonville; *Secretary*, Dr. S. M. Gunn, New York; *Treasurer*, Dr. Lee K. Frankel, New York; new members of executive committee, Dr. J. F. Anderson, of the United States Public Health Service; Dr. J. H. Landis, health officer of Cincinnati and Alfredo Dominguez, port officer of Havana. Dr. Eduardo Licéaga of Mexico City was elected an honorary member of the association.

The Eighth District (N. C.) Medical Society, at its semi-annual meeting, held in Winston-Salem on December 2, elected Dr. Joseph W. Ring of Elkin president, and Dr. W. M. Jones of Greensboro secretary.

The Macon, Ga., Medical Society, at its annual meeting on December 1, elected the following officers: *President*, Dr. C. H. Richardson; *Vice-President*, Dr. Harry Moses; *Secretary and Treasurer*, Dr. M. D. Council; *Censor*, Dr. B. S. Gostin; *Delegates to the State Society*, Drs. G. T. Miller and H. M. McHatton; *Alternates*, Drs. W. D. Henford and Heming Winship.

The Muskegon-Oceana (Mich.) Medical Society, at its annual meeting on December 4, elected the following officers: *President*, Dr. F. W. Garber; *Vice-President*, Dr. B. S. Black; *Secretary*, Dr. J. T. Cramer; *Treasurer*, Dr. Lucy Eames; *Delegate to the State Convention*, Dr. F. A. Chapman; *Alternate*, Dr. Frank B. Marshall.

The Lauderdale County (Ala.) Medical Association, at its meeting on December 2, elected the following officers: *President*, Dr. E. B. Hardin; *Vice-President*, Dr. W. B. Turner; *Secretary and Treasurer*, Dr. W. J. Kernachan.

The Buchanan County (Mo.) Medical Society elected the following officers at the annual meeting on December 2: *President*, Dr. J. T. Owens; *First*

Vice-President, Dr. A. R. Timerman; *Second Vice-President*, Dr. W. J. McGill; *Secretary*, Dr. W. F. Goetz; *Treasurer*, Dr J. M. Bell.

The Shamokin (Pa.) Medical Society, at its meeting on December 3, elected the following officers: *President*, Dr. Fred P. Staek; *Vice-President*, Dr. Harry Simmonds; *Secretary*, Dr. L. E. Schock; *Treasurer*, Dr. M. J. Flanagan.

The Oil City (Pa.) Medical Club, at its monthly meeting on December 3, elected the following officers: *President*, Andrew W. Goodwin; *Vice-President*, H. H. Lamb; *Secretary and Treasurer*, S. W. Sellew.

The Dallas County (Ala.) Medical Society, at its meeting on December 3, elected Dr. T. G. Howard president and Dr. G. C. Feulner vice-president.

The Marion (Ohio) Medical Society, at its meeting on December 2, elected the following officers: *President*, Dr. J. W. McMurray; *Vice-President*, Dr S. B. Mattox; *Secretary and Treasurer*, Dr. E. O. Richardson; *Delegate to the State Society*, Dr. A. Rhu.

Personal.—Dr. Thomas H. Fenton has been elected president of the Philadelphia Art Club.

Dr. W. S. Bainbridge of this city, a member of the Reserve Medical Corps, U. S. Navy, delivered a lecture on chronic intestinal stasis at the U. S. Naval Medical School last week.

Dr. George W. Crile, it is announced, is about to sail for France to join the staff of the American Ambulance in Paris to institute the practice of anoci-association in the hospital.

New York City Death Rate.—The deaths reported in this city for the week ending December 5 were 1,385, as compared with 1,372 in the same week last year. If the increase of population is taken into consideration, however, there was a relative decrease in mortality of forty-one deaths, equivalent to a lowering in the death rate of .38 of a point. The death rate for 1914 up to date is 13.44 per thousand, a decrease of .32 of a point as compared with last year's rate. If this decrease is maintained during the three remaining weeks of the year there will be a decrease of 1,786 in the twelve months.

Deaths of Foreign Medical Men.—Dr. Angelo Celli died recently after a long illness. He was born in Cagli, Pesaro, in 1857. In 1886 he was appointed professor of hygiene in the University of Palermo, where he established an antirabic institute, one of the first in Italy. He was later called to Rome as assistant and then full professor of hygiene, succeeding his former instructor, Tommasi-Crudeli. He was widely known through his studies of malaria, which he carried out with Marchiafara and Guamieri; he was the author of several works on "Malaria" and was a founder of the Società degli Studii per la Malaria.

Dr. Charles Perier, a distinguished surgeon of Paris, died on Sunday of this week at the age of 78 years. He was born in Paris and was graduated in medicine from the Paris Faculty in 1864. From 1866 to 1875 he was associate professor of surgery at the University of Paris, and was surgeon to the hospitals from 1872 to 1898. In 1903 he was president of the French Surgical Congress. He was president of the Academy of Medicine of Paris at the time of his death.

Obituary Notes.—Dr. Baldwin Gardiner Cooke of New York, a graduate of the College of Physicians and Surgeons, New York, in 1879, and for many years a medical and sanitary inspector of the New York City Department of Health, died at his home on December 7, aged 59 years.

Dr. James Harper Ramsey of West Bridgewater, Pa., a graduate of the Cleveland, O., University of Medicine and Surgery in 1871, a veteran of the Civil War, and formerly president of the county board of health, died at his home on November 25, aged 80 years.

Dr. William Henry Baldinger of Galveston, Tex., a graduate of the Jefferson Medical College, Philadelphia, in 1885, and a member of the State Medical Association of Texas and the Galveston County Medical Society, died at his home on November 16, aged 55 years.

Dr. William Sherborne Dougherty died at Philadelphia on November 23 at the age of 45 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1894, subsequently becoming resident physician in the German Hospital of Philadelphia. Later he spent two years in post-graduate study abroad and on his return he became Instructor in Physical Diagnosis in the University and Chief of the Medical Clinic at the German Hospital. At a later date he became Assistant Physician to the Methodist Hospital and Physician to the Society for the Prevention of Cruelty to Children. He was a member of the Philadelphia County Medical Society, of the Philadelphia Pediatric Society, of the Pathological Society of Philadelphia, of the Medical Association of the State of Pennsylvania, and a Fellow of the College of Physicians of Philadelphia and of the American Medical Association.

Dr. Charles Henry Reed died at Philadelphia on November 23 at the age of 62 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1878. He was a Fellow of the College of Physicians of Philadelphia.

Dr. William P. Melcher died at Mt. Holly, N. J., on November 30, at the age of 65 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1876. He was a member of the Burlington County Medical Society and of the New Jersey State Medical Society and a Fellow of the American Medical Association.

Dr. James A. Wamsley died at Philadelphia on December 4 as the result of complications following operation for appendicitis. He was graduated from Jefferson Medical College in the class of 1878. He was for twelve years city physician at Gloucester, N. J.

Dr. Frederick W. Koiler died at Philadelphia on November 27 at the age of 44 years. He was graduated from Jefferson Medical College in the class of 1892.

Dr. Albert Charles Peale, geologist and mineralogist, and for more than thirty years connected with the Smithsonian Institution at Washington, D. C., formerly of Philadelphia, died of apoplexy at the German Hospital, Philadelphia, on December 5. He was graduated from the medical department of the University of Pennsylvania in the class of 1870.

Dr. James R. Seymour of Raymond, Ill., a graduate of the Electric Medical College, Cincinnati, O., in 1883, died at his home after a brief illness on November 28, aged 55 years.

Dr. John W. Morgan of Coushatta, La., a graduate of the Medical College of the State of South Carolina, Charleston, in 1857, and for twenty-five years in practice at Minden, La., died at his home

after a short illness on November 29, aged 84 years.

Dr. ADELINE WILKINS WILDES of Boston, Mass., a graduate of the Boston University School of Medicine in 1881, died at her home in Roxbury after a long illness on December 6.

Dr. GEORGE DEXTER BULLOCK of Weymouth, Mass., a graduate of the Jefferson Medical College, Philadelphia, in 1886, and a member of the American Medical Association, the Massachusetts Medical Society, and the Norfolk District Medical Society, died at his home on December 6, aged 55 years.

Dr. JOHN T. HUBEL of Detroit, Mich., a graduate of the Detroit College of Medicine and Surgery in 1899, died at his home from pneumonia after a short illness on November 29, aged 37 years.

Dr. ALBERT ELLIOTT WRIGHT of Ecorse, Mich., died at his home on November 28, aged 70 years.

Dr. DARWIN A. STEWART of Winona, Minn., a graduate of the College of Physicians and Surgeons, New York, in 1869, a member of the Minnesota State Medical Association and the Winona County Medical Society, and formerly mayor of Winona, died in St. Barnabas Hospital, Minneapolis, on December 1, aged 69 years.

Dr. THOMAS J. COLE of Van Wert, O., and formerly of Mansfield, a graduate of the Electric Medical College, Cincinnati, O., in 1875, died at his home from paralysis on November 30, aged 60 years.

Dr. JOHN W. RUTH died at Lancaster, Pa., on December 9 in the sequence of a surgical operation at the age of 32 years. He was graduated from Hahnemann Medical College and Hospital of Philadelphia in the class of 1905, and he served for a year as interne on Blackwell's Island, New York.

Dr. JOHN WIEBLY BEALOR died at Shamokin, Pa., on December 11 at the age of 60 years. He was graduated from Washington University Medical School of Baltimore, Md., in the class of 1876.

Correspondence.

AMERICAN AMBULANCE WORK IN FRANCE.

[We are permitted to publish the following extract from a letter received by a physician of this city from a member of the Whitney flying hospital staff in France.]

DEAR PROFESSOR:

Paris is like a different city from the one we have known before—and it is both sad and gratifying to see the change. On all sides one sees flags flying, French, English, Belgian, and Russian; but the fluttering bunting seems only to accentuate the mournful air of the whole place. One is struck by the numbers of people in mourning and by the absence of the motor busses that used to crowd the streets. Many of the shops have their shutters permanently in position, with the inscription "Fermé jusqu'à la fin de la guerre" or "Fermé à cause de mobilization," and others, if the name on the sign is at all suggestive of a German origin, have large placards stating "Maison Française." All offices and places of business are closed from 12 to 2 owing to the reduction in forces which does not leave enough employees to run the place during the lunch hours. At night the streets are pretty dark, for only a portion of the lights are going and, though the boulevards are not empty, there is nothing like the usual gay crowd to be seen. What is pleasing is that on all sides there is evidence that the people realize they are facing a serious crisis and that the real underlying sobriety and earnestness of character they possess has come to the surface. All of the theaters are closed, the cafés close at 8.30 and the restaurants at 9.30, so that after that hour there are absolutely no gathering places for the people, and everyone goes soberly home. Their idea is that while the soldiers are suffering all manner of hardships at the front it would be wrong for those remaining at home to be indulging in any form of enjoyment. The big hotels are empty, either entirely closed or with only a few rooms open, as is the case here where we doctors are staying, and there is here a flat war rate of 5 francs a day per person in all the rooms. Some of the fashionable places like the Elysée Palace and Claridge's have already been converted into hospitals, and the other big hotels are in readiness to be used for this purpose.

We have found the hospital situation here full of surprises. First of all, the American Ambulance Hospital is on a scale of elaborateness and perfection of equipment which we none of us expected. It is at Neuilly, outside of the gates, in a school building called the Lycée Pasteur which was not quite completed when the war began. It was, therefore, possible to adapt it most advantageously to hospital purposes, and as far as efficiency goes it seems more like a permanent institution than one established in an emergency. There are about 450 beds, though at present there are only about 350 patients, and the equipment is in every way adequate for their care. Dr. Du Bouchet, who is the medical director, seems an excellent executive, and of course, Dr. Blake's work is just as fine as one would expect. The administrative side of the institution is managed by a committee of about ten Americans, most of them prominent business men here, and they do it beautifully. In addition to the trained nurses and orderlies there is a huge crowd of volunteer Red Cross workers, most of them belonging to the leisure class here, both men and women, and many of them not Americans. These are fine in their willingness to work, and they perform the most menial tasks with the greatest cheerfulness. One Russian count who is doing orderly's work has the bullets and fragments of shell removed from the patients mounted in gold and then returned to their owners as souvenirs! The injuries are perfectly frightful, and of course the wounds are always badly infected. There is so much delay before the men reach here that they are generally in an awful state when they arrive. Yet the mortality is not so great as one would expect, about 55 deaths out of the first 700 cases. There is a fair amount of gangrene and gas-bacillus infection, especially in wounds of the lower trunk and lower extremities, due, I suppose, to infection with intestinal bacteria carried into the wounds from the clothing. The kitchen of the hospital is a perfect marvel. It is run by the former manager of the Hotel Frascati at Havre, who is giving his services and who has had most of the pots and pans loaned by the big local hotels. Staff and patients eat the same food, yet it costs only about 1 franc 10 centimes a head daily—and it is excellent! Every body is autopsied, and I have seen some extraordinary cases—bullets in the pericardium, half the face blown off, the whole perineum and inside of the thighs torn away, a man with over a hundred wounds, etc.

Another surprise that we had was when we learned of the plans for our work. When we ar-

rived it was intended to send us at once up into Belgium, and various places were considered for the purpose, but on investigation it was found that these were either already in the possession of the Germans, or else in country that had been so completely devastated as to make it quite out of the question for a hospital to exist. After some time had been lost in this way, Mr. Bacon and some members of the committee went to Bordeaux to see the officials of the War Department, and they gave us as a site the old monastery of Juilly, which is on the road to Soissons, and this, I think, will be a splendid place, for it appears that the Germans are concentrating their attacks there, and refugees from that region are beginning to reach Paris. In the meantime we have been as busy as possible buying equipment, for we have been ordered to make ready for a 200-bed unit, and with business in the present disorganized condition here it means an infinite amount of running around. There is going to be some delay before we can start in, for the place is most primitive and some necessary plumbing and some heating appliances will have to be installed. Martin is perfectly fine, and we are very fortunate to have him as our chief.

Mr. G. W. Carr James Morgan, of Harjes and Company is the chairman of an organization for the distribution of clothing, etc., to the destitute, and would be glad to receive any stockings, mufflers, etc., that are sent to him.

KARL M. VOGEL.

PARIS, November 25, 1914.

Progress of Medical Science.

Boston Medical and Surgical Journal.

December 3, 1914.

1. Medical Problems in Education. The Responsibility of the Medical Profession. T. F. Harrington.
2. The Duty of the State to the Psychopathic Hospital. W. Channing.
3. Progress of the Psychopathic Hospital on the Prophylactic Side of Mental Hygiene. E. E. Southard.
4. The After-Care Program and Results of the Psychopathic Hospital, Boston, 1913-14. A. Warren Stearns.
5. Further Notes on the Economic Side of Psychopathic Social Service. Mary C. Jarrett.
6. High-Grade Defectives at the Psychopathic Hospital During 1913. T. H. Haines.
7. Genetic Factors in 100 Cases of Psychoneurosis. D. Gregg.
8. The Point Scale. A New Method for Measuring Mental Capacity. R. M. Yerkes and J. W. Bridges.

3. The Psychopathic Hospital and Mental Prophylaxis.—E. E. Southard states that mental prophylaxis should include the proper temporary care of persons suffering from mental derangement under the conditions of general hospital and private practice; the stimulation of voluntary admissions to existing and future hospitals for the insane; the establishment of psychopathic hospitals in proper centers, having proper medical and social arrangements for the highest forms of intramural and extramural individual and community service. The author ventures the hope that the term "psychopathic" will be extended to include both the legally insane and the great variety of other mental cases including psychoneurotics, mentally deficients, and criminalistic and possibly other types of mental disorder; and that the term "insane" will be discarded by physicians, except under court conditions. The term "insane" is rightfully considered a legal and not a medical term. One of the greatest features of a mental hygiene propaganda will be to convince the world of this fact.

8. The Point Scale for Measuring Mental Capacity.—R. M. Yerkes and J. W. Bridges have designed the point scale to take the place of the Binet method as a more definite and accurate index of the mental capacity of individuals. The mental capacity is measured in terms of units. A total score of 50 points gained by an individual indicates that he has achieved just one-half of the possible number of credits in the scale. His mental capacity, as compared with other individuals of the same or of different age, of the same or of the other sex, of the same or of another race, of like or of contrasted social status and educational opportunities, may be determined and definitely stated in terms of norms established for use in connection with the point scale. The application of the scale itself to an individual yields merely a certain total of points which is entirely meaningless to the inexperienced examiner, except in the light of norms. In this respect, the authors' point scale differs radically from the Binet measuring scale of intelligence, for the latter is self-contained and complete in itself, demanding no norms nor any other sort of accumulation of information as the basis for its intelligent use, nor indeed for the interpretation of its results.

New York Medical Journal.

December 5, 1914.

1. Tonsillotomy versus Tonsillectomy. T. R. French.
2. Unusually Large Ureteral Calculi. L. Buerger.
3. Backache. C. Ogilvy.
4. Fracture of the Clavicle. W. E. Hartshorn.
5. The Intravenous Treatment of Arthritic Processes. A. Comstock.
6. Local Anesthesia in Hernia Operations. Carlisle P. Knight.
7. Urinary Findings in Various Pathological Conditions of the Alimentary Canal. S. R. Klein.
8. Intracranial Diseases from the Ear. A. Barden.
9. The Technique of Vaccination. Burke Diefendorf.

1. Tonsillotomy versus Tonsillectomy.—T. R. French concludes that differential diagnosis should be made to determine, if possible, whether the tonsils are the probable sources of infection or are free from disease. The indications of the clinical history and outward appearances of the glands are often sufficient for this purpose. Because of the possible existence of a tonsillar function, also because of the subsequent pharyngeal deformity and the consequent alteration of the quality of the voice occasioned by tonsillectomy, it is desirable to leave the capsules in the tonsillar fossæ whenever possible. While all extensively diseased tonsils should be enucleated, it is probably safe to say that at least 80 per cent. of enlarged tonsils do not contain foci of infection and, therefore, do not need to be completely removed, and, indeed, unless obstructive to voice or respiration, do not need to be removed at all. In cases in which there is a doubt of the character of the interior of the tonsils, but which are brought to operation for the removal of irritating or obstructive adenoid growths, a fairly accurate knowledge of the condition of the crypts or of the presence of pus sacs or pockets can be obtained by removing, at the beginning of the operation, a substantial portion of one tonsil and submitting it at once, in a brilliantly illuminated field, to examination under a finely ground loupe with a magnification of from five to ten diameters. If the tonsil from which the section has been taken is found to be apparently free from disease, and the clinical history is without significance, the remainder of the gland should be removed by complete tonsillotomy—that is, down to the capsule. The opposite tonsil, if not obstructive, may then with propriety be left alone, but if obstructive, it also should be removed by complete tonsillotomy. If the exploratory section, however, shows that one tonsil is diseased, then both tonsils should be enucleated. The base left after a considerable part has been removed for examination, can be as readily enucleated as if a part had not been removed.

3. Backache.—C. Ogilvy points out that the exact

cause of backache should be sought for and definitely determined. A thorough examination is too seldom made. The cause is very often found to be a postural deformity with a resulting muscle strain. The cause of the postural deformity is very frequently weak feet. A sacroiliac joint strain, with or without muscle strain, is responsible for a number of cases. When retrodisplacement of the uterus is suspected, a bimanual examination will immediately settle the diagnosis. The diagnosis of muscular rheumatism should seldom be made, as by so doing one is simply evading the question. When myalgia is present, an infectious origin should be sought for. Spinal disease, such as Pott's disease, presents such a different picture, that it should not be confounded with any of the conditions enumerated. The diagnosis of osteoarthritis is made clear by the age of the patient and the history of the case and can in every instance be corroborated by the *x*-ray. More careful attention should be given to all patients complaining of backache to seek for and to remove its cause, not only for the relief of pain complained of, but also to prevent the complication of the undermining of both the general and nervous systems which may directly follow.

Journal of the American Medical Association.

December 5, 1914.

1. The Use of Boiled Milk in Infant-Feeding. R. H. Dennett.
2. Fragilitas Ossium. M. Ostheimer.
3. Preventive Otolaryngology. B. R. Shurly.
4. Acute Insular Sclerosis and Its Concomitant Visual Disturbances. F. Kennedy.
5. Differential Diagnosis of Nephrolithiasis and Renal Tuberculosis by Roentgenography. M. Krotoszyner.
6. The Operative Treatment of Tumors of the Testicle, with Report of Thirty Cases Treated by Orchidectomy. F. Hinman.
7. Diverticula of the Urinary Bladder with Report of Cases. W. E. Lower.
8. Acute Parenchymatous Glossitis. V. Loeb.
9. A Study of the Bacteriology of Alveolar Abscess and Infected Root Canals. T. L. Gilmer and A. M. Moody.
10. Mouth Infection as a Source of Systemic Disease. F. Billings.
11. Month Infection as a Source of Systemic Disease. C. H. Mayo.
12. Mouth Infection as a Source of Systemic Disease. E. C. Rosenow.
13. Peridental Infection as a Causative Factor in Nervous Diseases. C. B. Craig.
14. Some Important Phases of Railway Sanitation. A. E. Campbell.
15. Local Anesthesia in the Prevention of After-Pain and Shock. A. E. Hertzler.
16. Discovery of Bacterium Tularense in Wild Rabbits and the Danger of Its Transfer to Man. Preliminary Note. W. B. Wherry and B. H. Lamb.

1. Boiled Milk in Infant Feeding.—By R. H. Dennet. (See MEDICAL RECORD, July 4, 1914, page 40.)

2. Fragilitas Ossium.—By M. Ostheimer. (See MEDICAL RECORD, July 4, 1914, page 43.)

6. Tumors of the Testicle.—F. Hinman concludes that orchidectomy will cure from 15 to 20 per cent. of teratoma testis. Obviously a cure is possible only when the testicle is removed before the onset of glandular or other metastases. A cure cannot be assured until nine years after operation, although the danger of recurrence after four years is very small (only three cases reported) and progressively diminishes. Cancer of the testicle metastasizes in practically every case first and primarily to a limited zone of lumbar lymphnodes which lie on the aorta for the left testicle and on the vena cava for the right, between the bifurcation of these vessels and the renal pedicle. Communication between these two groups and to deeper or more distant glands occurs only secondarily. Involvement of these primary lymphnodes may occur early or late, and the preoperative duration of the tumor in the testicle, its rapidity of growth or its size give no definite clinical indication of the onset or extent of such metastases, but the probabilities increase the longer the duration and the more rapid the growth. Pathological differentiation of tumors of the testes into embryonal carcinomas and mixed-cell types is more or less arbitrary as both are teratomatous in origin; but the former appears to be definitely less likely to metastasize, although more rapid in its growth. There are fewer cures among the cases of teratoma, although these give the longest duration before death. The primary lymphnodes are a very imperfect guard against secondary invasion, and metastases to other gland areas by way of efferent lymph-channels or by blood-vessels to thoracic or abdominal organs may occur early. Surgical treatment is of no avail after these secondary metastases have occurred. The only hope, therefore, in a radical operation is the removal of the testicle with its primary lymph area before the disease has spread beyond this zone. The experience of various surgeons in a total of forty-six cases has demonstrated in suitable cases the feasibility and technical ease of the radical operation with a combined surgical mortality in all cases of only 11 per cent. Radical operation should never be undertaken when lumbar metastases are recognizable clinically.

10. Mouth Infection and Systemic Disease.—F. Billings points out that secondary, alveolar focal infection may be the dominant factor in the production of systemic disease, of which malignant endocarditis, chronic arthritis, and myositis are examples. The dominant organisms belong to the streptococcus and pneumococcus group. In addition, the staphylococcic fusiform bacillus, the *Bacillus aerogenes capsulatus* and saprophytic organisms are found. But the streptococcic group are apparently the important ones. In five patients suffering from Hodgkins disease, alveolar abscess culture has revealed the diphtheroid bacillus of that infection. Systemic actinomycosis may arise from alveolar infection, due to the ray fungus. These disorders, due to a focus of infection, are probably always carried by the blood. The infected tissues of experimentally inoculated animals and the infected muscles, joint tissues, lymphnodes, etc., yield special bacteria and histologically there is found embolism of the small and terminal blood vessels. Local hemorrhage and endoarterial proliferation are seen, interstitial growth, cartilaginous, osseous, vegetative and other morbid anatomical changes, according to the character of the tissues infected. Part or complete ischemia of the tissues, due to the embolism, is an important factor, as has been experimentally shown. Tissue and exudates of foci should be carefully examined, vaccines of the bacteria may be made for subsequent use. After the removal of the focus, the body defenses should be improved, which may involve a long and tedious period in some cases. Mental and physical rest, wholesome food, pure air, pleasant surroundings, and, in some cases, restoratives are necessary. Pain must be palliated by simple drugs or salicylates, and after a time passive exercise and graduated active exercise may be added. Autogenous vaccines may be used in some cases, especially in the later stages of chronic arthritis.

The Lancet.

November 28, 1914.

1. The Patient and the Disease. Sir Dyce Duckworth.
2. Observations on Myeloid Sarcoma, with an Analysis of 50 Cases. M. J. Stewart.
3. Heart-block in Acute Rheumatic Carditis. A. E. Naish, A. M. Kennedy.
4. On the Localization of Bullets and Shrapnel. W. Overend.

1. The Patient and the Disease.—Sir Dyce Duckworth notes that apart from morbid symptoms there is a personal factor in every patient. A disease may be well-borne or ill-borne. Family history and inborn tendencies may be important factors. The degree of recuperative power varies much in different families, likewise the measure of inherent vitality. A tendency

to slow repair and a general vulnerability may be readily observed in all persons of a strumous habit of body. In patients of the arthritic type there is a large measure of resisting power with much vitality. The tolerance for certain drugs is found to vary largely in different patients. Apart from pure idiosyncrasies the beneficial effects of mercury in the dark-skinned, bilious, and arthritic subjects, and its less satisfactory action in the fair and strumous ones have been frequently observed.

2. **Myeloid Sarcoma.**—M. J. Stewart concludes that myeloid sarcoma is locally malignant only and does not undergo dissemination. It is to be clearly distinguished, both clinically and pathologically, from malignant giant-cell sarcoma, in which death with visceral dissemination is the rule, even after the most radical operative treatment. The histological diagnosis is based on the morphological characters of the giant cells, especially as regards their nuclei. In myeloid sarcoma the latter are numerous, uniform, small, and without mitoses; in malignant giant-cell sarcoma they are few, sometimes single, irregular, and often very large, while mitotic figures are frequent. After investigating a comparatively large series of cases, and from a study of the literature, the author advances a strong plea for the conservative treatment of myeloid sarcoma; and advocates thorough curettage as the operation of choice in the first instance in suitable cases; failing this, a local resection of the growth. Amputation should be the last resort, and only after the failure of less radical measures. An accurate histological investigation of the tumor is in all cases essential.

British Medical Journal.

November 28, 1914.

1. The War and Typhoid Fever. Sir William Osler.
2. A Report on Gas Gangrene. Sir Anthony A. Bowlby and S. Rowland.
3. Injuries to the Bowel from Shell and Bullet Wounds. P. Lockhart Mummery.
4. Leeches. By A. E. Shipley.

1. **The War and Typhoid Fever.**—Sir William Osler alludes to the fact that typhoid fever is nowhere prevalent in the English camps. He believes that isolated cases should be scrutinized with the utmost care. "Watch the common ailments" should be the motto of the camp surgeons. The following measures are indicated: Every recruit should be asked whether he has had typhoid fever, or if during the previous twelve months he has lived in a house with a case of fever. An affirmative answer should mark the man for laboratory study. There should be a realization of the extremely protean character of typhoid fever, so that mild cases of enteritis, obscure forms of bronchitis and pneumonia, and mild cases of fever should be watched with care. Every typhoid patient should be regarded as a focus of infection, and should be suspect as long as the bacilli are present in the discharges. The cases should not be treated in the general wards with other cases. Measures should be taken in the larger camps and in the garrison towns to segregate the cases. No typhoid patient should receive a clean bill of health until he has been shown by bacteriological examination to be harmless. Ample provision should be made for the careful bacteriological examination of all suspected cases.

2. **Gas Gangrene.**—Sir Anthony A. Bowlby and S. Rowland have made a study of the spreading gangrene which has occurred among the wounded of all the armies now in France. A bacillus has been isolated from a typical case, and the conclusion is reached that this microorganism is probably the specific organism of malignant edema. The gangrene always occurs in connection with wounds of the extremities, and to a greater extent in serious than in slight wounds. The onset is characterized by swelling of the injured part, and the gangrene seems especially liable to occur in connection with that swelling of a limb which is due to extravasation of blood in the subcutaneous tissues and intermuscular planes. Interference with the circulation either by extravasation of blood or by tight bandages has a marked influence. In the early stages the patient complains of severe pain which is perhaps due to tension, the result of the swelling, but in the later stages the affected area becomes completely numbed and insensitive. The edges of the wound are generally ragged and sloughy, and a considerable quantity of blood-stained serum constantly exudes and soaks the dressings. This discharge emits a characteristic and most offensive odor which is so marked as to be almost diagnostic. The skin, if not previously discolored by extravasated blood, assumes a dark purplish or slate-colored hue. In the vicinity of the wound it changes subsequently to a more green color. The swelling extends coincidently with the change of color, and a few hours later the skin becomes nearly black, and finally forms a black, leathery slough. Beyond the area of discoloration the limb is swollen with gas and fluid exudation, and an emphysematous crackling can be elicited on pressure with the hand. This may spread to a distance of as much as a foot above and below the actually gangrenous area, and so rapid is the extension of the gangrene that the authors have seen the whole of the lower extremity completely mortified before the end of the third day after the infliction of the wound.

Berliner klinische Wochenschrift.

October 26, 1914.

Congenital Dropsy.—Wienskowitz concludes his serial article on this subject as follows: Congenital dropsy with fetal anemia, as described originally by Schride—a case of which the author describes of the relapsing type—is evidently the result of a toxic influence upon the fetal blood formation, in all probability derived from the mother. The nature of this toxic substance is quite unknown and probably also complex in nature. Whether or not nephritis or pregnancy nephritis plays a rôle here cannot be denied outright, but this is not very probable. The author's case shows that the toxic substance can be associated with severe anemia on the part of the mother. Nevertheless the maternal anemia is not specific for the fetus. The idea that all kinds of noxious influences can bring about anemia and dropsy in the newly born is borne out by interesting old finds. Thus Dareste succeeded in producing anemia and dropsy in a fowl embryo, using the most varied noxæ—high or low temperature, covering the egg with varnish, causing the poles of the egg to turn about, etc. Various malformations were thereby produced but in many cases general anasarea was also present.

The Arrow as a Weapon in Aerial Warfare.—Coenen describes certain arrows or darts dropped by French aviators upon the German troops. Gravity is the only force necessary, the point of the projectile being the heavier end. The dart is about the size and shape of a pointed lead pencil. The lower third is pointed and solid, while the upper two thirds are so constructed that a cross section shows a cross instead of a circle, thereby securing lightness. The velocity of the projectile naturally increases with the distance in accordance with the laws of gravity. The device is ingenious but its value in war is thus far problematical. In the case of troops in bivouac considerable damage could

be done. For an aeroplane to carry them in immense numbers and then discharge them rapidly would interfere with the ballasting of the air craft. On a recent night a number of these missiles were discharged upon a company of pioneers none of whom was injured. Thuds were heard as the arrows struck the earth, with an occasional hissing sound as the air was parted. In the morning 50 of the missiles were picked up. Two thirds stuck in the earth, slightly bent. Should opportunities come forward Professor Coenen will report on the nature of the wounds caused.

Effects of Lumbar Puncture on Extramedullary Tumors.—Newmark of San Francisco begins by citing the statement of Oppenheim that the unfavorable consequences of lumbar puncture are not always published. The occasion of his remark was the fact that puncture in a case of extra medullary tumor was followed by increased compression in the cord and paraplegia. The author cites two cases of the same type. In the first, lumbar puncture relieved the compression of the cord by withdrawing 6 c.c. of spinal fluid. Before puncture the chief pressure symptom was a paretic right lower extremity. Soon after puncture from increase of intramedullary pressure paraplegia set in. After the removal of the tumor—a psammoma—the condition cleared up, so that this patient suffered no permanent disability. In the second case after puncture had caused a similar result a tumor, also a psammoma, was extirpated with great difficulty, the patient ultimately recovering her motility. In these cases of puncture as preliminary to extirpation of tumors there was, of course, no technical blunder, but patients are not always so fortunate, for the increase of pressure may be sufficient to cause absolute paraplegia and in tumors high up in the canal operative intervention may end fatally as in a case of Nonne's.

Berliner klinische Wochenschrift.

November 2, 1914

Eczema and Neurodermitis in Childhood.—Lechnert states that Vidal was the first to separate neurodermitis from the eczemas. He termed the condition chronic circumscribed lichen because clinically it was a lichen and as such had been described by older authorities. It began as circumscribed papules which itched intensely, and which tended to consolidate to form placques. Apparently there was no exogenous causation, and, since it occured in neuropathic subjects and the itching was apparently subjective the affection was later christened circumscribed chronic neurodermitis. Close study revealed special clinical and histological peculiarities, so that henceforth confusion with eczema or any other dermatosis seemed impossible. Its nearest congener appeared to be prurigo from which, however, it should readily be distinguished. Neisser was nevertheless disposed to replace the affection within the eczemas of which it constituted a sharply individualized form. Continued observation showed that it could occur in the mucosæ which were continuous with the skin, as the lips, conjunctivæ, genital mucosæ, also that it sometimes located itself on the palms and soles causing verrucoid lesions. It even appeared as a moniliform dermatosis, like lichen planus—mere strips or single rows of papules. Of late years its presence has often been noted in children, even in scrofulous children. Differential diagnosis is the more difficult because eczema and neurodermitis readily develop in the same child. In the past two years nearly 300 children have been treated at the local clinic (Frankfurt a. M.) for one or the other affection or a possible association of the two. The proportion of eczema to neurodermitis was about 3 to 1. In 12 cases a diagnosis was impossible. In the undoubted cases of neurodermitis a neurotic substratum was by no means always in evidence. On the other hand a scrofulus component was often noticeable. The order of evolution in children agreed with that seen in adults: a primary, subjective itching, very violent and appearing in crises; the characteristic papules which form placques; the increasing resemblance to a lichen; and chronicity. Tarry preparations are much used in treatment.

Diagnostic Significance of Hemoglobin-rich Macrocytes.—Dünner believes that the original difficulty in differentiating between pernicious anemia and the severe secondary types is gradually vanishing, although something depends upon how we group the anemias, and also on the selection of tests. The use of some refinements of diagnosis may only defeat the object in view. The hemoglobin find and blood pictures seem to suffice in the clinic. In secondary anemias we see the evidence of attempts at rapid repair which are much less pronounced in the pernicious form. Paradoxal finds in rare cases seem to point to the possibility that a secondary anemia from acute hemorrhage may itself give rise to pernicious anemia. The socalled hyperchromic macrocyte, for example, generally regarded as peculiar to the pernicious type may sometimes be encountered in secondary forms. This may be merely an accident and without significance, or it may show that the primary and secondary forms have something vital in common. This cell when seen in blood which answers in other respects to secondary anemia cannot obscure the diagnosis.

Belated Reports of Atoxyl Blindness.—According to Makrocki, despite the numerous cases of blinding traced to the use of atoxyl (notably among African negroes treated for sleeping sickness), and the resulting apparent abandonment of the use of the drug under all circumstances it is still being used extensively. One colleague has made over 500 injections without a single untoward effect. During the present year, however, a case was reported in which a very small dose caused a "high degree of amblyopia." This reporter, Steinebach, believed the case to be unique but the author saw one of the same type in 1902 when the drug was being widely used. The patient was an old woman with a lymphoma of the neck and also a history of malaria. She had been taking Fowler's solution without benefit, and now received three intramuscular injections of atoxyl in the buttock on three consecutive days followed by others at longer intervals. Less than half a gram sufficed to cause total blindness—much less than the smallest recorded quantity.

Münchener medizinische Wochenschrift.

October 27, 1914.

Fatal Injury from an Aviator's Darts.—Grünbaum refers to the recent articles about these missiles and is able to report what had at that time been conjectural—death from their use. Among the slightly wounded in a certain regiment was an officer who half an hour earlier had felt a sharp puncture in his shoulder, soon after which he began to suffer from painful breathing. A lesion was found in the right supraclavicular fossa and treated aseptically. He later complained of tachypnea, slight cyanosis, pain in the hepatic region. There was tenderness to the right of the abdomen, abdominal muscles tense. At this juncture a soldier appeared wounded, his foot having been pinned to the earth by a dart which a comrade had at once extracted. No bad consequences are known to have resulted in this second case, but the officer be-

came progressively worse and it was found that he was suffering from a hemopneumothorax. The dart had actually passed downward through the diaphragm. Patient was too ill for laparotomy and died 36 hours after the injury. An autopsy was out of the question but the missile had set up a fulminating peritonitis.

Be Sparing with Dressings!—Kreeke states that in this present war the incapacitated will reach 50 per cent. of the actual combatants! Statistics show beyond doubt that the percentage must increase with the numbers engaged. Half a million of merely wounded in the first year of warfare is a very conservative estimate. The demand for dressing materials will be colossal. General economy must of course be practiced. A small wound may get along with a little mull and adhesive plaster in place of a big wad of cotton, bandage, pins, etc. Padding material must be spared for fractures. Certain mull for fastening dressings in any locality will be found to save the use of long roller bandages, which latter, however useful in peace times, cannot be renewed frequently in the interest of cleanliness. Plaster of Paris dressings with proper fenestration are the most economical for shot fractures. One must as far as possible use any local resources of the countries involved in the campaign, so that importation will be unnecessary, cellulose wool, wood wool and moss may here be mentioned.

Tetanus.—Eunike describes the first ten cases of lockjaw treated in the City Hospital at Ludwigshafen on the Rhein. All but one of the wounds was made by shell fragment or shrapnel. The entire number wounded was 3,000, so that the proportion of cases of tetanus infection was 1/3 of one per cent. which does not seem high and is doubtless much more favorable than the average. The incubation period ran from 9 days to 3 weeks, and in the majority was from 12 to 18 days. The prognosis therefore was not so hopeless as is often the case. Five patients survived—a 50 per cent. mortality. Three cases arrived from the front in a practically hopeless state, death soon resulting. Each patient received serotherapy (no prophylaxis is mentioned) and narcotics (choral). Magnesium was used to some extent and the author will consider this in a later paper. Voelcker also contributes a paper in which some novel features are mentioned. In one case there was considerable difficulty in distinguishing between tetanus and polyarthritis rheumatica, because as a result of arthritis of the temporo-maxillary articulation the jaws were locked. Recently a case with the diagnosis of tetanus was found at autopsy to have had granular nephritis and uremia. The author like his colleage Czerny speaks seriously of amputation but thinks radical disinfection of wounds with concentrated carbolic acid should be tested along with 2 per cent. subcutaneous injections of the same—apparently a concession to Baccelli's method. The initial injection of antitoxin should be given intradurally.

Münchener medizinische Wochenschrift.

November 3, 1914.

Removal of Beards in Women.—Karl Unna reports some excellent results in this direction. After much progress had been made in the technique of epilation the author chanced to learn of Dr. Schwenter-Trachsler's procedure of polishing and at once tested it. He used pumice stone which had been pulverized and compressed. This substance was used while moistened. The powder could also be applied with the finger. Patients could be taught to make applications every evening. At the end of from one to two weeks the skin should have been rubbed clean. The recurrences are always milder and require less treatment. The author combined this mechanical resource with his oxygen method of depilation as follows: by using a peroxide soap (sodium hyperoxide), with which the beard was well lathered for from 2 to 10 minutes. This soap comes in solid sticks. The softened hairs are now attacked with the compressed cakes of pumice stone which are rounded or whetstone shaped, the former provided with handles, and intended to reach depressions and folds. The polishing period lasts from 2 to 5 minutes. The skin is next wiped dry and dressed with cold cream. If but few hairs are present electrolytic epilation, long the best method, as well as the use of the punch are now regarded as too painful. At present these collections of stiff hairs, for example between the eyebrows, about moles, at the corners of the mouth, etc., are given a preliminary depilation with barium sulphide, after which the area is treated with soaping and frictions as already described. If the women have true beards whether of down or coarse hairs, the author no longer uses the needle but pursues only the new methods. Two illustrative cases are given. The first was in a young woman of 23 with luxuriant scalp hair and also hair in all the localities in which it grows on the male face. A hairy area on the cheek had been treated for six months with electrolysis. This was now quite impracticable because of the detention from business and expense. Her betrothed had recently been shaving her. She was placed at once upon peroxide soap and pumice stone. She did not return to the author for six months because she had been perfectly satisfied with the results. She showed great improvement but as she was not entirely free from her infirmity, treatment was made more intensive, and has now continued for a second half year, at the end of which time there was nothing more to be done. Another case less severe and more circumscribed yielded to two months of treatment.

Serotherapy of Tetanus.—Heddaeus, who introduced the intraarterial method of injection of antitoxin does not believe that serum alone can be curative although it is a valuable resource. He has succeeded in curing 6 out of 8 cases and the question of importance is to what extent did the serum contribute to this excellent showing? Antitoxin was given freely and timely in all the cases, but in all but one narcotics were also given. They included opiates including codein, scopolamin, and veronal. He is inclined to attribute his success to a judicious combination of specific and symptomatic remedies. His narcotics are not given by routine but in various combinations and he does not attempt to show any superiority of one drug over another. In reading his reports we note that he gave the first patient chloral and magnesium sulphate, the second choral, opium, scopolamin, and morphine, the third chloral alone. In the fourth no narcotic is mentioned. In the fifth case choral, scopolamin, and morphine and later large doses of opium, etc. The most striking feature about the treatment is the intraarterial injection of antitoxin which was practiced throughout. The author will not say outright that these injections cured his six patients. Subdural injections were also used.

Hydrogen Peroxide and Wound Treatment.—Walther at the head of the Reserve Hospital at Giessen refers to the great number of preparations of hydrogen peroxide, some of them in solid form, which have been used and recommended in the present war. It is the ideal antiseptic yet the ordinary solutions as they occur in warehouses are not completely adapted to field uses. The percentage of H_2O_2 varies from 0.8 to 2 per cent. and it is the custom to make composite solutions of H_2O_2 and boric acid which are readily seen to cleanse the wound surfaces. Most of the solid proprietary combinations also contain each of these ingredients in

variable proportions. Some of these occur in compressed tablets so that solutions are readily extemporized.

Deutsche medizinische Wochenschrift.

October 29, 1914.

Treatment of Tetanus.—Professor Czerny begins an article on this most inexhaustible subject—inexhaustible because every field surgeon has been adjured to report his experience with this military scourge. This war is one of artillery with its shredded, lacerated shell and shrapnel wounds. The soldiers live in dirt, amid human and animal excrement, in trenches which are often ditches; and when wounded, wet and dirty are packed into unclean transport cars, in which they lie for hours before they can receive any medical attention. With a little straw beneath them they are packed like herrings—many of them ill with dysentery. Transportation is so slow that Cologne may not be reached for from 4 to 6 days from the French battlefields. There are indeed some very superior sanitary trains and happy the man who can take one of them and go directly to his home. But not a tenth part of all the wounded can be thus accommodated after the colossal battles of the present war. One is really fortunate to secure any transportation at all. The author believes that the natural animal defenses can dispose of the tetanus bacillus save under special unsanitary conditions. The cold, wet fall weather is really the cause of the excessive morbidity. So aseptic first dressings when practicable, antagonize the infection. When this is out of the question, conservative treatment is doubtless a mistake—amputation immediately performed would no doubt save life at the cost of limb. It is well enough to say give prophylactic serum injections in all suspicious wounds." But the author once saw a scratch on the nose from a rose thorn kill a gardener in six days from the time of the accident. Again a boy received a punctured wound on a finger, which was at once amputated, while serum was injected at the first appearance of the symptoms. Nevertheless, death took place. The worst cases come on without prodromes. The wounds have not yet been dressed, are painful. One sees the patient's face masklike. Speech and swallowing are difficult and trismus is present. In wounds of the extremities local spasms sometimes give warning. There were turned over to the author reports of twenty-nine cases of tetanus treated at the local hospitals before the end of September. Twenty of these arrived within a few days, from the battlefields in Lorraine. In all but one of the twenty-nine cases antitoxin was given, and but thirteen patients died—less than half. This cannot exactly be set down to the entire credit of the serum because Baccelli's method had also been used in four cases and Meltzer's in three. There were also some recoveries in cases in which the incubation period was prolonged, bespeaking a subacute course. Narcotics were freely employed. In summing up the author advises serum prophylaxis at the time of the wound and intensive serum treatment at the earliest period of the disease proper, giving it by all the customary routes. In certain cases prophylactic amputation must be seriously considered. He recommends narcotics for the pains and convulsions, probably including among these magnesium sulphate, as none are specified by name.

Treatment of Tetanus with Magnesium Sulphate.—Falk's article is very brief. The material is in part personal and in part supplied from the notes of colleagues. He refrains from any attempt at analysis and statistics. Before the injections of magnesium he anesthetizes the skin with novocain. That in some cases convulsions seem to increase in number when small doses are injected seems to be interpreted by him on the duality principle that a small dose of a narcotic may behave as a stimulant. This condition may subside spontaneously—if not one can push the magnesium and give chloral. He has never seen a single dose of 9 grains or a daily dose of 24 grains cause any untoward accessory phenomena whatever. A severe type of tetanus does not by any means signify that extra heavy doses of the drug are to be given. It is better to push it in a steady, uniform manner—three injections (subcutaneous) in twenty-four hours as an average. At the acme of the action of the drug, say one hour after injection, there is enough relaxation of the jaw muscles to permit of feeding. The patient can often suggest the time for an injection by the subjective experience that his muscles are beginning to tighten.

Deutsche medizinische Wochenschrift.

November 5, 1914.

Gastrogenic Diarrhea, Achylia Gastrica and Achylia Pancreatica.—Bitdorf recalls that A. Schmidt, through the labors of some of his students (Oppler, Einhorn) established the fact that many obstinate diarrheas are of gastric origin. Schmidt has recently emphasized the occurrence of a certain syndrome—achylia gastrica with intestinal indigestion plus a periodical appearance of pancreatic achylia. This condition is recognized from the stools while patient is on a trial diet. It is purely functional and the inactive pancreas may be made to secrete by injections of pilocarpin. The association of achylia gastrica with achylia pancreatica is very rare, although hypochylia of the pancreas is more frequently found. As a rule in achylia gastrica trypsin may be found in abundance in the stools and also in the stomach by Boldyreff's method of an oil breakfast. In achylia gastrica with severe diarrhea trypsin is usually plentiful in the feces. But in Schmidt's new syndrome the fecal picture alone is not characteristic for mere absence of trypsin and the other pancreatic enzymes with moderate steatorrhea and creatorrhea could not prove its existence. There might be an organic disease or partial compression of the duct; although here the steatorrhea is more marked and the creatorrhea less so.

Treatment of Sepsis in the Army.—Jochmann states that septic soldiers should always be recumbent in order that the heart may be spared; they should lie flat long after fever has left them. Mouth care is necessary in all cases and daily stools should be secured with enemata. Diarrhea may be best let alone, for to check it may be dangerous; naturally if profuse and weakening one of the tannins should be given. For food egg yolks, alone or mixed up with sugar and wine, milk, beef broth, and serial decoctions are recommended. In theory alcohol may be bad or good—bad if it interferes with the natural defense, good if its calories may be reckoned as food. The author believes its actual good outweighs the theoretical objections. It promotes appetite and affects the patient's depression favorably. Women who have never used alcohol seem to profit more from its use in sepsis than men who have a tolerance. Brandy, red wines and champagne appear to be the best forms for exhibition. The drinking of water and its rectal and subcutaneous infusion are believed to favor elimination of toxins. Permanent colonic irrigation is especially recommended. Antipyretic drugs are perhaps contraindicated on account of the weakened heart. If fever is high enough to cause mental confusion, the patient may receive a cool bath, save when thrombophlebitis is present. The evidence concerning the utility of collargol is extremely conflicting. Therapeutic sterile abscess (the French *abcès de fixation*) is worthy of a trial.

Insurance Medicine.

SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

CONSPIRACY TO DEFRAUD LIFE INSURANCE COMPANIES.

DECEPTION for the purpose of obtaining insurance under false pretences usually occurs in the form of a material concealment or misrepresentation of the answers recorded in the application. A more tangible and flagrant variety of fraud is that of substitution, actuated through a desire for the speedy realization of the end in view. Impersonation is difficult but does occur, and it is, therefore, highly important for the examiner to make careful measurements and observe marks, scars, or peculiarities which may lead to identification in the event of legal proceedings.

The writer had an early personal experience with this form of imposture. It began with an appointment to examine an applicant in the rear room of a barber shop in a locality not noted for a high degree of respectability. The Italian proprietor of the shop, a subagent, was affable and anxious to assist the examiner. The person presenting himself for examination was an Italian without physical flaws. In a few days, a similar experience followed, and the smiling barber seemed delighted with his success as a solicitor. When a request for this same performance came in a third time about ten days later, suspicions were aroused and the company was informed by the writer that he would not be responsible for the personality of these applicants, so further appointments were refused. Another company continued, however, to deal with the same people until suspicious death claims led to a thorough investigation and the disclosure of a conspiracy between the barber, a physician, and an undertaker with some healthy individuals to impersonate invalids supposed to be afflicted with fatal disease. Fortunately the invalids for which the substitution was practised in the three cases examined by the writer did not pass off as rapidly as the conspirators had expected and were still living when the suspicious death claims led to disclosure. The investigation by the other company revealed the plot by which the conspirators paid the premiums and relied upon the deaths of the insured at a fairly early date. The physician and undertaker filled out the death claims.

Other notable cases of substitution are found in the literature of life insurance. The earliest known instance of impersonation was recorded in London in 1780. An application was made to insure the life of a woman for $10,000. The examination and personal history were excellent, so the policy was issued. Within six months a claim was made, consumption appearing in the proofs of loss as the cause of death. The claim was paid, but investigation, started too late, uncovered the fact that one sister, being an incurable invalid, was impersonated by the healthy one at the company's office, who deceived the examiner, and disappeared immediately after receiving the money. In another case, some creditors of a consumptive were anxious to reimburse themselves in advance of this man's death. A healthy substitute was provided for the examination, and policies were issued to the amount of $20,000. The invalid died within a month after the payment of the first premium, too soon for the success of the plan. In still another historical case, the conspirators succeeded in swindling one of the large companies out of $2,000. The policy had been issued two years previously to a certain individual, and at his death the money was paid to his widow. It was discovered later that the insured, a consumptive, had no knowledge of the transaction, and was impersonated throughout the usual preliminaries to the issuance of a policy by another man in collusion with the wife, the substitute receiving half the proceeds.

The collusion of medical examiners with criminals has left a stain upon the profession, but this occurrence is a rare one, notwithstanding the many temptations offered. A notable case is that in which an examiner filled out a blank in the case of a consumptive and gave an unreserved recommendation. The insured wife was innocent in the matter, as the husband arranged the plan, whereby the examiner was to receive $1,000 in the event of death, which was not likely to occur until the period of incontestibility, one year, had passed.

Objection has been made to the publication of the methods for defrauding life insurance companies on the ground that it may prove dangerously suggestive. Schemers, however, do not need much in the way of suggestion, for they are shrewd and clever enough to contrive their own plans. On the other hand, the disclosure of fraud and craft will enlighten the field examiners and the public and thereby lessen the opportunities for these practises. It will, moreover, show that the companies are alert for the detection of crime and determined in their efforts to run down cases of palpable fraud in order that the interests of innocent policy holders may be protected. Many conspiracies similar to those given here as illustrations have occurred in the past, but it is difficult to carry out these prearranged frauds at the present time on account of the improved system of inspection employed by good companies.

Advantage of Insuring Some Types of Chronic Heart Lesions.—Harpole considers that there are many heart cases that are insurable that would make good business for the company, and, in the eye of the expert who is able to give them a thorough examination not only of the heart but of the whole body, in rest and in repose, and to study them thoroughly at different times, they are just as good risks as men with sound hearts. A broad basis would have to be established on which they could be accepted, and rates made on certain selected cases which would be just to the applicant and profitable to the company. The company desiring to engage in sub-standard business and wishing to handle heart cases can create a profitable business by throwing out the dangerous lesions and rating up the safer ones. Upon investigation it would be found that companies would be confined to the acceptance of what are known to be cases of mitral insufficiency, and these can only be accepted when in a state of perfect compensation, and the history of the case and the general health of the individual warrant it. Dr. Oliver Wendell Holmes said that "the way to attain longevity is to acquire an incurable disease." This is a feature of no inconsiderable importance, as such cases save themselves in every possible way, thus raising themselves very closely to the healthy standard. Another element of profit is the tendency of such cases when once they have taken life insurance to remain on the books and loss from lapses is not a feature with them.—Medical Section, American Life Convention.

Book Reviews.

FOOD PRODUCTS. By HENRY C. SHERMAN, Ph.D., Professor of Food Chemistry, Columbia University. Price, $2.25. New York: The Macmillan Company, 1914.

ONE may speak of the present age as one in which the "food-conscience" of the people has been awakened, first, as to food purity, and second, as to food economy. It is surprising how little the average individual knows about the source and the preparation of foods. The present volume supplies a wealth of information on this subject for the general and professional reader. The plan of the work, according to the author, is "to devote a chapter to each important type of food covering (1) an account of its production and preparation for market with such brief statistical data as will indicate the relative economic importance of the industry, (2) the proximate composition and general food value, (3) questions of sanitation, inspection, and standards of purity, (4) special characteristics of composition, digestibility, nutritive value and place in the diet." The subject matter is dealt with under the following headings: the principal constituents and functions of foods; food legislation; milk; cheese and miscellaneous milk products; eggs; meats and meat products; poultry, game, fish, and shellfish; grain products; vegetables, fruits, and nuts; edible fats and oils; sugars, syrups, and confectionery; food adjuncts and unclassified food materials; rules and regulations for the enforcement of the food and drugs act; food inspection decisions; methods and standards for the production and distribution of certified milk; meat inspection law and regulations; and table of 100-caloric portions. The book is eminently practical and no less interesting, and there can be no doubt that it supplies a distinct want. Its value as a work of reference is enhanced by the tables of composition of foods. The data pertaining to food legislation and inspection provide a feature of particularly timely interest.

PRACTICAL BANDAGING, Including Adhesive and Plaster-of-Paris Dressings. By ELDRIDGE L. ELIASON, A.B., M.D., Assistant Instructor in Surgery in the University of Pennsylvania Medical School; Assistant Surgeon, University of Pennsylvania Hospital; Assistant Surgeon, Howard Hospital; Member of the College of Physicians of Philadelphia. 155 original drawings and photographs. Price, $1.50. Philadelphia and London: J. B. Lippincott Company.

THE present volume gives a description of all the bandages in common use, including roller bandages, miscellaneous bandages, elastic bandages, adhesive dressings and plaster of Paris or gypsum bandages. The book is well illustrated, and will prove of service to medical students and nures.

THE PHARMACY HANDBOOK. By F. W. CROSSLEY-HOLLAND, F.C.S., Pharmacist. Member of the Pharmaceutical Society of Great Britain; Member of the American Pharmaceutical Association; Membre de la Société Chimique de France; Fellow of the Chemical Society of London; Associate Editor of "The Prescriber." Price, $2.00. New York: Oxford University Press, 1914.

THIS book is not a work on pharmacy, but it is a useful summary of much that is connected more or less with pharmacy and with which a pharmacist may reasonably be expected to be acquainted. The sections dealing with serums, vaccines, tuberculins, phylacogens, hormones, colloids, and ionic medication are opportune and valuable. The chapter on pharmaco-ethics is interesting, and shows the relation of the pharmacist (in Great Britain) to the physician, to the patient, to clients in general, and to his confrères. It is gratifying to note that the author does not approve of counter-prescribing; but his condemnation of this iniquitous practice is but half-hearted, for he says that advice to abstain from such practice may be regarded as a "counsel of perfection."

OUTLINES OF ORGANIC CHEMISTRY, a Book Designed Especially for the General Student. By F. J. MOORE, Ph.D., Professor of Organic Chemistry in the Massachusetts Institute of Technology. Second Edition. Price, $1.50. New York: John Wiley & Sons. 1914.

THIS small volume is based on a series of lectures which the author has been giving and is intended to present the subject to those who are studying the subject from the non-professional point of view. The organic substances selected for study are chosen because of their practical importance or in some instances because of convenience in illustration. Optical isomerism has been dealt with rather fully as has also the discussion of the construction of constitutional formulæ. The presentation of the subject of valences is especially sane and worthy of recommendation. There is a short but comprehensive chapter on physiological chemistry in which the work of that branch of science is briefly outlined.

THERAPEUTICS OF DRY HOT AIR, WITH A CHAPTER UPON THE INCANDESCENT ELECTRIC LIGHT. By CLARENCE EDWARD SKINNER, M.D., LL.D. Physician in Charge and Physiotherapeutist at Doctor Skinner's Sanatorium, New Haven, Connecticut; Originator and for eight years Physician in Charge of the Newhope Private Sanitarium, New Haven, Connecticut; etc. Third Edition, Thoroughly Revised to Date. Hammond, Indiana: Frank S. Betz Co., 1914.

THIS book makes a strong plea for the wider use of dry and very hot air, either alone or in combination with other agents. This therapeutic measure has in recent years begun to come into prominence, proving its value in a wider range of disease processes than at first imagined. The difference however between clinical success or failure often depends on the technique of its application, which is not so simple as generally supposed; hence, this subject is very important and merits close study. The opening chapter describes the several makes of apparatus. The next two chapters, on Physiological Action and Technique respectively, are especially clear and detailed. Succeeding chapters give the special treatment of different disease processes. The last chapter gives the action of incandescent electric light in comparison with that of dry hot air proper. The book is well illustrated and eminently adapted for instruction in the application of this therapeutic measure.

DIE OPERATIVEN ERFOLGE BEI DER BEHANDLUNG DES MORBUS BASEDOWII. Von San.-Rat. Dr. OTTO KLINKE, Direktor der Provinzial-Heil- und Pflegeanstalt in Lublinitz (Ober-Schles.). Price, 4 Marks. Berlin: S. Karger, 1914.

THIS work consists in a critical review of the history and literature of the operative treatment of goiter based upon studies of what the author calls the older literature, from 1880 to 1894, and the newer literature, from 1894 to 1912; although the 22-page bibliography contains references to selected articles as far back as 1859, while attention is called to earlier compilations covering the literature from 1802 to 1880. The literature of the period up to 1894 shows the gradual development of the theories as to the character and causation of Basedow's disease and the somewhat reluctant acceptance of the suggestion that operation afforded the best promise of its successful treatment. In the second chapter the literature from 1894 to 1912 is taken up year by year and the case for operative rather than medical treatment is gradually made very strong. This is followed by a summary of the operative results in collected cases from 1904 to 1912. These comprise 6,825 cases with Basedow symptoms, in which there were 1,202 cures and 4,653 improved, and 8,992 cases without Basedow symptoms. These statistics are not claimed to include all the reported cases during those years, those from foreign countries especially being incomplete, but the figures are probably representative. Other chapters take up the numerous operative methods, internal medication, etc., while the final chapter gives a résumé of the subject and the author's conclusions, which are emphatically in favor of operation.

The work is an epitome of the subject and embodies the results of a vast amount of research work. In the very extensive bibliography there are relatively few references to the work of Americans who have been among the pioneers in the development of operative treatment, and the names of perhaps the foremost have been omitted altogether.

GYNECOLOGY. Edited by EMILIUS C. DUDLEY, A.M., M.D., Professor of Gynecology, Northwestern University Medical School; Gynecologist of St. Luke's and Wesley Hospitals, Chicago, and HERBERT M. STOWE, M.D., Associate in Gynecology, Northwestern University Medical School; Attending Obstetrician to Cook County Hospital. Price, $1.35.

ALTHOUGH there has been no particular advance in gynecology during the past year, this book contains abstracts of many interesting papers. Frequent pertinent comments by the authors have enhanced the value of the publication.

THE PRACTICAL MEDICINE SERIES, Comprising Ten Volumes on the Year's Progress in Medicine and Surgery, under the General Editorial charge of CHARLES L. MIX, A.M., M.D., Professor of Physical Diagnosis in the Northwestern University Medical School. ROGER T. VAUGHAN, Ph.B., M.D. Series, 1914. Chicago: The Year Book Publishers. GENERAL MEDICINE, edited by FRANK BILLINGS, M.S., M.D., Head of the Medical Department and Dean of the Faculty of Rush Medical College, Chicago, and J. H. SALISBURY, A.M., M.D., Professor of Medicine, Illinois Post-Graduate Medical School. Price, $1.50.

THIS is the second book of the series which is devoted to general medicine. It deals with certain of the infectious diseases such as, typhoid fever, malaria, syphilis and cholera, also the diseases of the digestive tract, liver, pancreas, spleen, and peritoneum. The closing chapter is devoted to dietetics.

DIE AKUTE UND CHRONISCHE INFECTIÖSE OSTEOMYELITIS DES KINDESALTERS AUF GRUND EIGENER BEOBACHTUNGEN UND UNTERSUCHUNGEN. Von Dr. PAUL KLEMM, K. R. Staatsrat, Oberarzt des Krankenhauses vom Roten Kreus, Dirigierender Arzt der Chirurigischen Abteilung des II Stadtkrankenhauses in Riga. Mit 7 Abbildungen im Text und 1 Kurventafel. Price, paper, 9 marks. Berlin: S. Karger, 1914.

IN this monograph we find a most excellent discussion of a subject that is of vital importance to all who have much to do with the surgery of childhood; for there is much truth in the author's statement that osteomyelitis is one of the most frequent surgical affections of the growing individual. Almost any practitioner can make a diagnosis of acute osteomyelitis after the process is well advanced; but by that time there has been extensive destruction of tissues and it is of the utmost importance that these infections be recognized early, for they come under the head of urgent surgery. The author shows that with immediate radical operation the injury will often be limited to a small focus, easily and quickly repaired; but delay may mean not only extensive loss of bone with a protracted period of regeneration and convalescence, but both bone and periosteum may be completely destroyed, while severe general infection is frequent and may be fatal.

Infectious osteomyelitis in childhood is taken up thoroughly, Klemm's point of view, as stated in the preface, being that osteomyelitis belongs to the group of lesions of the lymphatic tissues. In the introductory chapter the foundation is laid for the elaboration of this conception of the disease by reviewing in order the periosteum, the bony framework and the marrow, and the rôle played by each, the physiology and pathology of the marrow, leucocytosis, the relation of inflammation to osteomyelitis, etc. The etiology and pathogenesis are then exhaustively considered and the author's personal material, comprising 320 cases, has been drawn upon for the purpose of showing typical examples to illustrate points brought out in the text. The consideration of general features concludes with a short description of the peculiarities of the disease with each of the more common infectious agents, staphylo-, strepto- and pneumococci, typhoid and colon bacilli; the relation of osteomyelitis to general infection; the diagnosis, prognosis, therapy, and classification of osteomyelitis. Then follows about 100 pages devoted to the consideration of the disease as it affects special bones and regions, and a final chapter of about 40 pages covering osteomyelitis of the joints, particularly the hip, knee, ankle, shoulder, and elbow.

As a whole this monograph furnishes one of the most practical discussions of infectious osteomyelitis that has recently appeared and the subject is presented in a most clear, concise, and interesting way.

STUDIES FROM THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH. Reprints, Volume XIX. New York: The Rockefeller Institute for Medical Research, 1914.

SIXTY-ONE articles are comprised within the present collection of studies, being reprints of articles already published, and representing various investigations in pathology and bacteriology, physiology and pharmacology, chemistry, experimental surgery and experimental biology, and studies from the Hospital of the Rockefeller institute. Mention may be made of some of the important articles, which are as follows: "Accidents following the subdural injection of the antimeningitis serum," by Simon Flexner; "Malarial pigment (hematin) as an active factor in the production of the blood picture of malaria," by Wade H. Brown; "The transmission of *Treponema pallidum* from the brains of paretics to the rabbit," by Hideyo Noguchi; "Contribution to the cultivation of the parasite of rabies," by Hideyo Noguchi; "The influence of temperature on the action of strychnine in frogs," by Thomas S. Githens; "On the action of tissues on hexoses," by P. S. Levene; "Concerning visceral organisms," by Alexis Carrel; "Further experiments on natural death and prolongation of life in the egg," by Jacques Loeb; "Die Bedeutung des Calciums für das Wachstun," by Francis H. McCrudden; "The oxygen content of the blood in lobar pneumonia," by Francis W. Peabody; "The cerebrospinal fluid in syphilis," by Arthur W. M. Ellis and Homer F. Swift; "The combined local and general treatment of syphilis of the central nervous system," by Homer F. Swift and A. W. M. Ellis; "Treatment of pneumonia by means of specific serums," by Rufus Cole; "A study of the cerebrospinal fluid in acute poliomyelitis," by Francis R. Fraser; and "A study of the spirocheticidal action of the serum of patients treated with salvarsan," by Homer F. Swift and Arthur W. M. Ellis.

PEDIATRICS. Edited by ISAAC A. ABT, M.D., Professor of Pediatrics, Northwestern University Medical School, Attending Physician Michael Rees Hospital. ORTHOPEDIC SURGERY. Edited by JOHN RIDLON, A.M., M.D., Professor of Orthopedic Surgery, Rush Medical College, with the collaboration of CHARLES A. PARKER, M.D. Price, $1.35.

AS may be expected the gastrointestinal diseases, the disorders of nutrition, and infant mortality comprise a major portion of the section devoted to pediatrics. The remainder of the book is given over to the consideration of the literature of orthopedic surgery.

THE OPHTHALMIC YEAR BOOK, VOLUME X, containing a digest of the literature of ophthalmology for the year 1913. Edited by EDWARD JACKSON, M.D. Professor of Ophthalmology in the University of Colorado, Assisted by THEODORE B. SCHNEIDMAN, M.D., of Philadelphia; WILLIAM ZENTMAYER, M.D., of Philadelphia; WILLIAM H. CRISP, M.D., of Denver; CASEY A. WOOD, M.D., of Chicago; WENDELL REBER, M.D., of Philadelphia; HARRY S. GRADLE, M.D., of Chicago; ROBERT HENRY ELLIOT, M.D., of London; HUGO W. AUFMWASSER, M.D., of Denver; MEYER WIENER, M.D., of St. Louis; and WILL WALTER, M.D., of Chicago. Illustrated. Published with assistance from the Knapp Testimonial Fund of the Section on Ophthalmology of the American Medical Association. Denver: Herrick Book and Stationery Company, 1914.

VOLUME X of the Ophthalmic Year Book is a volume of 460 pages. It is a great improvement on its predecessor, as all volumes have been over those previously published. It man truthfully be said that the Ophthalmological world owes much to the able Editor of this work, for its conception, production, and progressive betterment. Within these pages is found mention of all, and an able review of very many of the papers on ophthalmic subjects published throughout the world. The subject matter is so arranged that any desired reference may be found with the least possible search, and the grouping such that all the data on a given subject published during the year may be consulted without loss of time. There are numerous illustrations. The biographical notices are a valuable feature of the work. No English speaking ophthalmologist can afford to be without this work.

MANUAL OF THE DISEASES OF THE EYE FOR STUDENTS AND GENERAL PRACTITIONERS. By CHARLES H. MAY, M.D., Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Columbia University, New York, 1890-1903; Attending Ophthalmic Surgeon to the Mt. Sinai Hospital, New York; Consulting Ophthalmologist to Bellevue Hospital, to the French Hospital, to the Red Cross Hospital, and to the Italian Hospital, New York. Eighth edition, Revised with 377 original illustrations including 22 plates, with 71 colored figures. Price, $2.00 net. New York: William Wood and Company, 1914.

THE eighth edition of May's work attests to its continued popularity. It is safe to say that for the undergraduate and for those who desire only a cursory knowledge of the subject of ophthalmology, May's work is one of the very best published. The illustrations in the text and the many excellent colored plates make the volume very attractive. The work is reliable and has the reviewer's hearty endorsement.

Society Reports.

SOUTHERN MEDICAL ASSOCIATION.

Eighth Annual Meeting, Held at Richmond, Virginia, November 9, 10, 11, 12, 1914.

THE PRESIDENT, DR. STUART MCGUIRE OF RICHMOND, IN THE CHAIR.

Some Medical Aspects of the American Negro.—Dr. ROBERT WILSON, JR., of Charleston, S. C., said the negro brought from Africa many diseases and sowed them in the Caucasian race, and that he had been found a fruitful soil for tuberculosis, thus becoming a serious menace in the home. The health of the negro, in a large measure, constituted a public health problem. If we were to solve this problem, we must break ourselves of the habit of taking things for granted and accepting assumptions for facts. We must study the negro after separating the mulatto from the pure stock.

Early Diagnosis of Pulmonary Tuberculosis.—Dr. CHARLES H. COCKE of Asheville, N. C., said he could not too strongly urge the value and necessity of careful history taking, among other things, with the expectation of finding some contact infection, remote possibly, but none the less valuable, for the tuberculin test showed clearly how early one might fall a victim to tuberculous infection, although years might pass before any evidence of disease called attention to the possibility. For the examination the patient must be stripped to the waist, no other examination was satisfactory. Careful palpation did not always elicit the presence of cervical glands, although they should be looked for. Increased fremitus should always be noted, and if found early was at the left apex usually. In percussing, only the most delicate stroke revealed the earliest changes from normal resonance. No examination was complete without careful inspection of the throat with a laryngeal mirror. The *x*-ray was also invaluable both fluoroscopically and radiographically, although perhaps only a small percentage of general practitioners were able to avail themselves of this aid. Of the tuberculin tests, the subcutaneous was the test par excellence where there was no fever, a focal reaction bespeaking active disease, while a febrile reaction alone, unless obtained with the initial small dose, implied a high tuberculin sensitiveness, and consequently almost certain probability of active tuberculosis.

The Significance of the von Pirquet Test.—Dr. THOMPSON FRAZER of Asheville, N. C., drew the following conclusions: (1) A positive cutaneous reaction was less frequent in children than it was once thought to be, the high percentage of reactions obtained being due to the application of the test chiefly to infect the children of the poorer classes, and therefore, a positive reaction was of greater significance than it was commonly supposed to be. (2) While there was an increasing percentage of reactions with advancing years, and a corresponding decrease in the value of the reaction the view usually held, that the reaction had significance only during the first two or three years of life, was not borne out by recent figures, and we should be suspicious of a reaction occurring up to the age of ten. (3) Annual tests should be instituted in the effort to detect early infection, bearing in mind the fact that many if not most cases of clinical tuberculosis in later years were due to renewed activity of old foci, and we should seek by proper means to prevent the development of infection into disease. (4) A negative reaction, negative on the repetition of the test, was valuable evidence of the absence of tuberculosis unless the child was suffering from advanced disease or acute disease, especially measles. (5) Further study of the test was necessary before we could fully interpret the reactions, and in the future it was possible that refinements of technic might enable us to determine with greater accuracy how recent the infection was.

State Policy in the Management of Tuberculosis.—Dr. W. S. RANKIN of Raleigh, N. C., in speaking of the advantages of the combination of cooperative sanatorium and correspondence school, said that neither could accomplish the reduction in the tuberculosis death rate of a state on the same appropriation that would sustain both agencies. The sanatorium could not expect to reach, at least for a number of years and except in a very direct way, more than one-tenth or one-fifth of the consumptive population of a state. The correspondence school would probably reach the majority of the consumptives in a state, but a purely educational attack on tuberculosis was too weak in proportion to the magnitude of the problem. The combination of sanatorium and school was of mutual advantage, the one developing the other. The sanatorium provided out of its maintenance funds a small percentage that could hardly affect its per capita per diem cost which would easily make possible an effective correspondence school, while the latter, in touch not only with the consumptive of the state, but with all the organized interests, political, fraternal, religious, business and social, with which the patient was in touch would abundantly nourish a strong sanatorium. The combination of the two gave the state an educational organization analogous to the ideal system of education in operation in the State of Wisconsin. Our cooperative sanatorium in this system was the central university where about one-tenth of the consumptive population was treated and was taught what constituted the right kind of treatment for consumption. These alumni, on returning home and seeing other cases not being properly treated, enabled the sanatorium reflexively to improve the medical supervision of consumptives throughout the state. The correspondence school, an adjunct of the central university or sanatorium would put the state government in almost personal touch with its entire tuberculous population.

The Federal Government and Our Tuberculosis Problem.—Dr. G. M. COOPER of Clinton, N. C., outlined a plan whereby the National Government should establish a Department of Public Health, saying it should rank with the Army and Agricultural Departments, then let the National Public Health Service, through each state board of health, invite any county that desired to cooperate with it in the work. Such as agreed were to pay one-third of the expense incidental to maintenance of a whole-time, efficient health officer. The state board of health was to pay one-third, and the national government the remaining third. Under this plan the local county government would select the officer, subject to approval by the state and national health authorities. In this manner local self-government would continue to exist and the health officer would have the mail franking privileges, so that he could reach all classes of citizens. Open-air schools and tent colonies in each county would be established, and each county would be the center of a public health school in which preventive medicine would be taught.

Tuberculosis Sanatoria in the South—State, County and City.—Dr. JOHN J. LLOYD of Catawba Sanatorium, Va., stated that the sanatorium was able to accomplish good results for the following reasons: (1) Rest was enforced so long as symptoms remained active. (2) Provision was made for and open air life was insisted upon. (3) Proper food regularly served in abundance was furnished. (4) The patient was placed in entirely new surroundings thus affording complete change. (5) The patient was almost under constant supervision, and therefore, could be more thoroughly taught the extreme importance of attention to details. (6) Observing the progress of fellow patients had a salutary and stimulating effect upon the patient himself. Rest, fresh air, and proper food were the basis of modern treatment of tuberculosis and needed no comment, and an entire change was universally recognized as beneficial in most diseased conditions. The sanatorium was a powerful weapon for prevention from the fact that it isolated patients, but more especially because it taught them about the means of preventing the spread of the disease.

The Pleural Effusions of Artificial Pneumothorax.—Dr. MARY E. LAPHAM of Highlands, N. C., stated that five years' experience with artificial pneumothorax had led her to believe that the tendency to pleural effusions increased with the length of time the compression was maintained, because there was a tendency towards progressive irritability of the pleura in consequence of the punctures and the development of a nervous susceptibility. She had had three types of pleural effusions, those developing without any clinical manifestations and no suggestions of any active process. The fluid collected insidiously and might be first detected by a rise in pressure in the manometer, or by filling the needle, or be heard as a splashing sound by the patient. She called these myocardial effusions. A second class had developed in consequence of repeated traumatisms of the pleura as a result of an acute infection, such as an angina, or of chilling, or from other reasons, commonly associated with ordinary pleurisies. These were called infectious pleurisies. A third class was due to tuberculous nodules and process in the pleural surfaces and these seemed to have been favored by the separa-

tion of the pleural surfaces by the artificial pneumothorax.

Dr. W. S. LEATHERS of University, Miss., said there was no problem in public health that had more aspects than that of tuberculosis. There was no problem that had more difficulties associated with its solution. The best plan of attacking the tuberculosis problem was upon a cooperative basis, as outlined by Dr. Cooper.

Dr. C. W. STILES of Wilmington, N. C., said there were only two questions he wished to refer to in this discussion. One was a potential question. Can you do it? The other was a financial one. Have you got money to do it with? No matter whether one was paving streets, building roads, or fighting tuberculosis, those were the two fundamental questions that lay back of all of the other premises. He took issue with the idea that the federal government was doing very little in regard to this problem. Every pound of meat that came into a State had been inspected by the Department of Agriculture for tuberculosis. The federal government was carrying out certain restrictive measures in interstate commerce according to the law, which was no small contribution to the fight against tuberculosis. Unless the medical profession represented by the State medical society and by the Southern Medical Association were willing to set an example by controlling its own members with regard to spitting, etc., it was foolish to go to the federal government and ask the State to change the Constitution of the United States in order to put local police power into the hands of the federal government.

Dr. CHARLES L. MINOR of Asheville said the von Pirquet test had been misused. He had had cases of full grown adults sent to him on account of a positive von Pirquet. We must not reach the conclusion that because every case reacted to this test it was necessarily active tuberculosis. We must differentiate between latent and active tuberculosis, otherwise there would be great harm done.

Dr. THOMPSON FRAZER of Asheville pointed out the reason why we failed to detect tuberculosis early was because we did not recognize it as a chronic disease with relapses. We did not ordinarily get a case of this disease until it had had one or two relapses.

Dr. W. L. DUNN of Asheville said a firm conviction on the part of the physician was necessary to impress a patient that he was ill with tuberculosis. The average physician was afraid to make an early diagnosis of tuberculosis and say so firmly to the patient, because he was afraid the patient would be unnecessarily treated or his activities would be interrupted.

Dr. E. C. THRASH of Atlanta said that many practitioners had made a diagnosis of tuberculosis from the fact that they got a reaction, and the result was it threw a well person into a panic and perhaps subjected him to many inconveniences, possibly a trip away, while other persons subjected to the test would have the disease. He had seen cases of far advanced tuberculosis that came to him where physicians had told them they didn't have tuberculosis because the von Pirquet or tuberculin test proved negative.

Dr. WILLIAM R. KIRK of Hendersonville, N. C., in speaking of the symptoms of early tuberculosis, called attention to the point that he did not think we should attach too much importance to the temperature curve alone, for very often we got the same character of temperature curve in cases of malignant disease. Recently he had such a case that gave the identical tuberculosis curve, with early morning subnormal temperature and an afternoon rise.

Dr. W. E. DRIVER of Norfolk, Va., recognized tuberculin as a specific, and in the cutaneous or von Pirquet reaction the only aid we had was from a negative standpoint. There were definite conditions in which it did not react in young children, in vague and febrile cases. A 1 per cent. Calmette test was of value from a positive standpoint.

Dr. D. M. MALLOY of Mobile spoke of the method of control of tuberculosis in New South Wales. It was obligatory there upon every physician to report every case of tuberculosis. The law was stringent on this point, and carried with it a severe penalty in the way of a fine, and possibly imprisonment. The reporting of every case of tuberculosis by a physician there also carried with it a reward of five dollars.

Duodenal Alimentation.—Dr. CAMP STANLEY of Washington, D. C., said the greatest field for duodenal feeding was in those cases of gastric ulcer which had not yielded to medicinal treatment, and where the indications for surgical treatment were not clearly defined. The direct aim of this method was to relieve the stomach of all work and to remove the mechanical irritation to a sensitive and disorganized mucous membrane, which under ordinary circumstances was the case when the patient was put on an ulcer diet and food allowed to pass through the stomach. It also obviated the stimulation to gastric secretion which in a large percentage of cases had an excess of HCl, the food in the tube cases passing directly through the duodenum. There was an alkaline reaction. The tube passed into the stomach which in turn passed the food to the duodenum without any further effort on the part of the physician. This method was simple and a comfort to the patient after the first twenty-four hours, in that it accomplished rest for the stomach, maintained the body weight and relieved the gastric distress. The procedure, after the tube was in place was not complicated, and the success of the treatment was now dependent upon careful attention to details. The nourishment must be at body temperature, properly regulated, and allowance made for body temperature, as the movement of liquid through the tube was not very rapid and its temperature was consequently maintained at or at least very near body temperature. The solution must be strained through muslin to avoid the stoppage of the tube at the bulb end. If this precaution was taken, it might obviate the necessity of removing the tube, causing mental and physical discomfort to the patient. In only two of his cases had it been necessary to remove the tube, and when the tip was taken off of the button he found a small mass of white threads and under the microscope they proved to be cotton threads. He learned later that the nurse had used ordinary cut gauze to strain the solution. The tube should be cleaned after each feeding by passing through it a small amount of warm water, followed by a syringeful of air so that the tube might be kept empty. Attention must be paid to the patient's mouth, and a good mouth wash used often.

Dr. J. CLARENCE JOHNSON of Atlanta said the appendix, the gall-bladder, and the stomach had received considerable attention, but this quiet, unobtrusive organ, the duodenum, had been neglected, and yet it was the melting-pot of the alimentary canal. There was no other organ in the body so tolerant as the duodenum. He had used the method described by the essayist not only for feeding, but for systemic medication and for local application to the duodenum.

Dr. PHILIP S. ROY of Washington, D. C., said there was no physician who could not make use of duodenal feeding. It was simplicity itself. The apparatus was not expensive. A point with reference to the diagnosis was the stain test. One could tie a shot to a string and the next morning pull it up, and if he found a stain, it was fair to assume that an ulcer existed. A patient might have cancer, or a juicy mucous membrane, but along with the other clinical symptoms it was an important point in diagnosis. If one added to that the high acidity, which did not occur usually in malignant disease, along with the other symptoms he could make a diagnosis of ulcer of the stomach or duodenum.

The Wealth of Health.—Dr. HARVEY W. WILEY of Washington, D. C., said the Department of Agriculture was spending $100,000 a year quarantining against the foot and mouth disease but this disease is not confined to animals. It often attacked politicians, and every time they opened their mouths they put their foot in it. There were ten States quarantined to protect pigs and cows against disease. But we hardly could think of quarantining against cholera and the plague. This would bring up the spectre of State rights. Only our loved ones would die, not our blooded horses, our registered bulls, or prized pigs. There was nothing so cheap as human life.

Radiotherapy.—Dr. HOWARD A. KELLY of Baltimore gave an address on this subject which was illustrated by numerous slides. He expressed the hope that some day a cure for cancer would be found, although at the present time he had not found radium to be a solution of the problem. Radium was alleviating and had effected many temporary cures, but the principal methods of treatment were a combination of surgery with radium, provided that the case was taken in its incipiency.

President's Address: The Profit and Loss Account of Modern Medicine.—Dr. STUART MCGUIRE of Richmond, Va., said the most distinct profit and loss in modern medicine had come about through changes in medical education, which had been accomplished largely through

the efforts of the American Medical Association, the Association of American Medical Colleges, and the Carnegie Foundation for the Advancement of Teaching. It was recognized that each year a progressively increasing number of low grade practitioners were being graduated by medical colleges and licensed by State governments. An investigation of the medical schools showed that many of them were poorly equipped, had scant clinical material and lacked sufficient funds to procure the necessary time of efficient teachers. To remedy this evil a deliberate and systematic movement was inaugurated to lessen the number and improve the quality of the men who were being added to the ranks of the profession. By moral suasion, by State legislation, and by the combination of the better schools, the entrance requirements were advanced, the number and length of the teaching sessions were increased, the character and scope of the curricula were improved, and the minimum number and approximate pay of the full-time teachers were specified. The result of this movement had been that in the last ten years the total number of medical schools in the United States had been reduced from 186 to 101 and the total number of medical students from 28, 142 to 16, 502. In other words, eighty-five medical schools, weak either educationally or financially, had ceased to teach, and over 10,000 medical students not properly qualified for the profession had ceased to study. While the profit side of the specialist's account was large, still on the opposite page there were some items of loss. The high esteem in which the specialist was held, the pecuniary rewards which his services commanded and the advertising opportunities offered by his position, had made him a victim of imitators and imposters, both inside and outside the pale of the profession, who deceived and defrauded the public. Modern medicine was not responsible for the the quack and charlatans, but it was responsible for the members of the regular profession found in every town and city who claimed to be specialists, but who really did a general practice, and for others who, while they might limit their work to certain diseases, were not qualified as experts and had no more knowledge or experience in their diagnosis and treatment than the average general practitioner.

Oration in Medicine: The Importance of Simpler Methods of Physical Examination in Medicine.—Dr. WILLIAM S. THAYER of Baltimore said that practical bedside examinations should be instituted to test the clinical ability of the applicant and these examinations should be conducted by teachers of medicine. To be a good physician, one must be skilled in the fundamental art of diagnosis. It was the duty of the schools of medicine to see that this art was taught thoroughly by trained and experienced men. Moreover, students should be offered a considerable measure of practical experience in the wards of hospitals before graduation. It was the duty of the state to demand that this experience shall have been had and to offer tests under the control of competent men.

Syphilis in the American Negro.—Drs. KENNETH M. LYNCH and B. K. and G. F. MCINNES of Charleston, S. C., read a joint paper on this subject in which the following conclusions were drawn: (1) In the southern United States syphilis in the negro was a serious problem, affecting probably from 50 per cent. to 60 per cent. of the major class of this people, including day laborers, servants and tradespeople. (2) Negro women were apparently more subject to the disease than negro men. (3) There was no apparent suggestive relationship between a positive Wassermann reaction and high blood pressure in the negro. (4) The ravages of syphilis in the individual were not severe in this study. The diagnosis of the disease was difficult to make in many of this class of cases without the aid of a specific test and in respect to the Wassermann reaction, barring a few doubtful reactions, and three or four negative reactions in suspicious cases, this test proved of great value, verifying the suspicion of the infection. (5) While one or two miscarriages occurred, not more frequently in the syphilitic than in the non-syphilitic, the habit of miscarrying was much stronger in the former. (6) Syphilitic women were not as productive as the non-syphilitic, and their children did not survive as well as those of the latter.

Treatment of Some Typical Cases of Syphilis of the Central Nervous System.—Drs. J. P. MUNROE and A. J. CROWELL of Charlotte, N. C., in a joint paper on this subject drew the following conclusions: (1) Salvarsan seemed to be indicated and proved beneficial in all forms of specific disease of the central nervous system. (2) Salvarsanized serum injected into the spinal cavity added to the efficiency of the treatment in the degenerative types of the disease. (3) In inflammatory conditions of the cord it was risky and perhaps unsafe to use the salvarsanized serum injections. (4) Mercury added to the efficiency of the treatment in most, if not all, cases. It was usually considered as secondary to salvarsan, but in some instances it caused the disappearance of conditions and symptoms that had proven resistant to salvarsan, even though used persistently and in the most approved form.

Treatment of Syphilis.—Dr. E. H. MARTIN of Hot Springs, Ark., said he had proven by numerous doses given to cured patients and to patients who had never had syphilis, that, apart from the idiosyncrasy to the drug in a few cases, a dose of salvarsan had no physiological effect on the body temperature or intestinal elimination. Therefore, the disturbances consistently observed after its administration in the treatment of syphilis were due to endotoxins released from the killed organisms causing the disease, the endotoxins of syphilis caused a rise of temperature or characteristic bowel movements or both. If there were many bowel movements there was not much rise in temperature and conversely. Nausea and emesis were probably drug effects and seemed to be dependent on personal idiosyncrasy, but the changes in temperature and the bowel movements were not drug effects and did not follow doses given to patients who have had sufficient treatment. The absolute cure of a majority of, but not all, cases of secondary syphilis might be accomplished by three intravenous doses of salvarsan. Some secondary cases had been fully sterilized of the treponemata by one dose as proven later by genuine reinfections; many secondary cases were cured by two doses, but to be safe three doses should be given to all cases, and if the slightest endotoxin reaction occurred after the third dose the weekly doses should be continued until it was lacking. The fact that more than three doses were frequently necessary in secondary syphilis could be explained by the probable existence of tertiary colonies which had given no symptoms. The treatment of tertiary syphilis was the same as that of the secondary stage, except that here we had to repeat the doses until all of the colonies were broken up and killed. Usually from five to seven doses sufficed except in cases of cerebrospinal lues. Some cases of bone syphilis required more treatment and a very few cases of old tertiary ulceration of the skin were peculiarly intractable. The treatment of the fourth class of cases, tertiary infection of the cerebrospinal system, did not differ from that of other cases of syphilis except as to the greater persistence required. The final results and the degree of restoration to health would depend upon the extent of damage done by the disease to nerve or brain tissue before treatment was instituted. In tabes many of the most distressing symptoms were evidently caused by not the sclerosis in the cord, but by the area of inflammation around the sclerotic area in progressive cases. Some symptoms would disappear, the progress of the disease would be stopped and the life of the patient would be prolonged and made more comfortable.

Treatment of Tabes Dorsalis and Specific Paresis—Dr. ESTILL G. HOLLAND of Hot Springs, Ark., reported six cases of tabes dorsalis and paresis which were greatly improved by intravenous injections of salvarsan, and said these pathological conditions were amenable to such treatment, no matter what results some other physicians might have had.

Atypical Neurological Syphilis.—Dr. BEVERLY R. TUCKER of Richmond, Va., said that syphilis as a disease might be monosymptomatic or practically pansymptomatic, and between these two extremes it presented in man varied symptom-complexes which might resemble almost any known disease. Neurologically considered, syphilis should be excluded in the diagnosis of every case or else the practitioner would fail in many instances, not only to sustain his reputation but frequently also failed to give the patient, who had entrusted his health to the care of the physician, definite relief.

Dr. E. G. BALLENGER of Atlanta, Ga., stated that syphilis was a very potent cause of heart lesions and of arterial disturbances. If Dr. Lynch would examine carefully for arteriosclerosis in those patients who had had syphilis for eight or ten years, who had been inadequately treated, he would reach the conclusion that syphilis was a very common cause of arteriosclerosis. He had given 2,975 injections, and he could not tell ex-

actly the number of cases he had treated during the primary stage, but he had not yet seen secondary or other manifestations of syphilis follow in those patients who were treated early before the secondary manifestations had developed.

Dr. J. K. HALL of Richmond, Va., said that syphilis ought not to be regarded as a genitourinary disease or a disease which affected the genital organs. It ought not be a disease that should come under the observation of the neurologist because cases came to him too late to be benefited. It ought to be a disease for the general practitioner to discover and to treat early. He had been living among those with late manifestations of syphilis for ten or twelve years, most of them paretics and tabetics, and in spite of the hopeful nature of some of the papers he was convinced paresis was essentially an incurable disease.

Dr. A. J. CROWELL of Charlotte, N. C., had used considerable salvarsanized serum in the treatment of paresis and thought it was perfectly rational and scientific to employ this plan of treating syphilis.

Trachoma.—Dr. C. R. DUFOUR of Washington, D. C., said that trachoma should be a reportable disease and laws should be enacted that those having it should accept treatment. Vaccination was compulsory in most communities, so should the treatment of trachoma be compulsory. This problem was one for the state and the United States Government to take in hand and follow it to a finish. The government was doing good work along these lines, but more hospitals, more physicians and more money were needed. Some, if not all of the states had not the money to carry on this important work.

Dr. JOSEPH A. WHITE of Richmond, Va., stated that once trachoma obtained a foothold among the lower classes it was hard to eradicate, especially if over crowded tenement houses confronted us, as the city grew, and that was almost an inevitable consequence of a rapid increase in the population that was taking place in Richmond. Early recognition of the disease, proper treatment, and the application of the usual hygienic and preventive precautions reduced the risk to a minimum. The State board of health had recognized that the prevalence of the disease in the mountain counties of the State was a danger to be reckoned with, and it was actively engaged in an attempt to stamp out the infection. Total or partial blindness frequently resulted from the disease.

Dr. JOHN A. STUCKY of Lexington, Ky., related his experience with the disease in the mountains of Kentucky, and spoke of the measures for treating and preventing it.

A Plan for the Campaign Against Malaria.—Dr. L. O. HOWARD of the Bureau of Entomology, Washington, D. C., stated that the advance of civilization had increased, rather than decreased, the spread of the disease, because of the construction of ponds and stone quarries, in the still water of which the mosquito found a favorable breeding ground. The present prophylactic measures were too general to be standardized. As showing that the disease was more widespread in the South than anywhere else in the country, he stated that there were 79,000,000 acres of swamp land country, of which 65,000,000 were in the southern states. In addition to that vast territory of swamp acreage there were 150,000,000 acres that needed drainage.

Effects of Impounded Water in the Production of Malaria.—Dr. H. R. CARTER of the United States Public Health Service showed that the great increase in impounded water in the South had resulted in a corresponding increase of mosquitos which, however, could be avoided if the ponds and artificial lakes could be so constructed as to be drained or be cleared of the surrounding brush so as to have wind and wave action. He had suggested that all such impounded waters be placed under the control of boards of health.

The Differentiation of the Disease Associated with Splenomegaly.—Dr. WILLIAM H. DEADRICK of Hot Springs, Ark., said that malarial splenomegaly must be differentiated from that of splenic anemia. This latter condition was as difficult of diagnosis as it was obscure in etiology. It might be well divided into three stages: First, a stage of splenomegaly; secondly, a stage of anemia, and, thirdly, a stage comprehending the Banti syndrome, splenic enlargement, cirrhosis of the liver, and ascites. In the first stage, before the onset of anemia, the diagnosis was very difficult. There was little impairment of the general health. Leukemia and pernicious anemia might ordinarily be eliminated by their blood pictures. Hematemesis was far commoner in splenic anemia than in malaria, and the enlargement of the liver was decidedly more marked in Banti's disease than in malaria. The importance of differentiating enlarged spleen from kidney tumors was impressed by a case once under his observation and which had been diagnosed malarial cachexia, chiefly on the strength of a malarial history and a residence in a highly malarial locality. Exploratory laparotomy disclosed a large sarcoma of the left kidney. In leukemia, especially in the myeloid form, enormous enlargement of the spleen was found. There was nothing characteristic in the splenomegaly of leukemia, but fortunately the blood picture was pathognomonic and the diagnosis might be made in the laboratory without seeing the patient. Hodgkin's disease was relatively rare, but its splenomegaly must be differentiated from that of lymphatic leukemia and of splenic anemia. The spleen was rarely enlarged greatly in Hodgkin's disease. In only a small percentage of cases of pernicious anemia was the spleen considerably enlarged. In one case in which the hemoglobin descended to 25 per cent. the spleen was not palpable nor was the area of dulness perceptibly increased. Cirrhosis of the liver caused enlargement of the spleen which must be differentiated especially from that of Banti's disease. In both conditions there was a cirrhotic liver, ascites, splenomegaly, jaundice, anemia, and hemorrhages. Syphilis in the tertiary stage, aside from its role in hepatic cirrhosis, caused enlargement of the spleen by two processes, gummata, and amyloid degeneration. Amyloid spleen was due to syphilis and to suppuration. When syphilitic it was associated particularly with bone and rectal lesions. The spleen was one of the organs, if indeed not the organ, most frequently the seat of amyloid change. In his experience splenomegaly from all causes was rarer in the negro race than in the white. This was true, notwithstanding the fact that some of the diseases, particularly malaria, syphilis and tuberculosis were common in negroes.

Malaria Carriers and the Important Rôle They Play in Persistence and Spread of Malaria.—Dr. C. C. BASS of New Orleans stated that persons who were not ill and who had not been ill of malaria were the chief malarial carriers. Persons who had recovered from an attack of malaria frequently remained carriers for many months and perhaps years. When an individual was infected with malaria plasmodia the parasites reproduced by an asexual process of segmentation or schizogony if condition were sufficiently favorable. After a sufficient length of time they had multiplied to cause clinical symptoms. With each paroxysm the number increased, unless some influence was brought to bear which interfered. The ideal way to deal with the situation would be to examine thoroughly the blood of all persons in the house and treat the carriers. This would be practical in most instances and the next best thing would be to consider all members of the household, probable carriers and treat them as carriers. Such measures carried out during the cold season were more successful because mosquitoes were not active carriers at that time.

Malaria.—Dr. THOMAS E. WRIGHT of Monroe, La., reported thirty cases of malaria of the estivo-autumnal type, which were treated with quinin intravenously and drew the following conclusions: (1) The intravenous use of quinin in doses of fifteen grams, in a dilution of 250 to 300 c.c. of saline, in the hands of a careful, competent physician was safe. (2) The discomfort to the patient was so slight that it became a matter of small importance and in this respect, when compared with quinin by mouth or hypodermically, was much to be preferred. (3) The number of doses for the different types of malaria, the proper time to elapse between the administration, the exact doses and dilution necessary and safe, the permanency of the relief of symptoms, were problems that would be worked out. (4) The relief from the symptoms in malaria, so often jeopardizing life, might be attained very promptly, safely and constantly by this method.

Filarial Infection.—Dr. F. B. JOHNSON of Charleston, S. C., drew the following conclusions: (1) Filarial infection was extremely prevalent in Charleston, South Carolina. There was no reason for assuming this to be the only place in the South showing such a high percentage of infection. (2) The acetic acid method offered the most serviceable way of detecting microfilaria in the blood. In most of the cases one was able to demonstrate them in the blood during the day as well as at night. (3) In the majority of cases of filarial infection no symptoms might be produced by the worms.

The finding of 19.25 per cent. of filarial infections and 5 per cent. filariasis in four hundred routine examinations was to show that even filariasis was more common than general reports would lead one to believe. Filaria could not be classed as a harmless parasite for certain types of infection had a decided pathogenic effect.

Intestinal Parasites in Adults.—Dr. H. L. McNeil of Houston, Tex., reported fifty cases of intestinal parasites in adults, with a study of some of the symptoms caused by them, and concluded: (1) Indefinite and unexplained abdominal pains or tenderness should make one suspicious of intestinal parasites. Parasites should be suspected in all cases of chronic or subacute appendicitis. (2) The adult negro was practically immune to hook-worm infection in this part of the country. (3) Many apparently normal men, who harbored parasites, were subject to certain indefinite complaints diagnosed usually as indigestion, cramps, biliousness, mild diarrhea, malaria, febricula, grippe, which were really symptoms of the parasitic infections. (4) An otherwise unexplained eosinophilia was good evidence of parasitic infection, even though the parasites were not discovered at the first stool examination, but an absence of eosinophilia did not rule out parasitic infection.

Address: The Public Health.—Dr. R. M. Cunningham of Birmingham, Ala., said that all sanitary regulations among and between the State should be under the laws of the United States, and governmental direction and control was the only feasible method in which a proper regulation for the country at large could be evolved and put into execution. The federal government had jurisdiction over all matters ceded to it by the States, and all of these matters concerned the common welfare. So laws, for the fight against bacteria, should be under the direction of some political unit. Public sentiment was necessary to procure proper laws and to arouse public sentiment there must be education. Sanitary measures must be made political issues. So long as the people were silent, so long would the statesman, who was first a politician, fail to take the initiative. If there were a popular demand for sanitary laws, those running for office would make it as one of the reasons for their election to office. There were four things necessary: (1) to create a desire on the part of the people to know the conditions which affected their health; (2) something specific and definite to teach, not what Socrates or Plato said, but something concerning the health problem; (3) the employment of disinterested and competent teachers; (4) ways and means to reach the public.

The Heart in the Common Types of Liver Diseases.—Dr. Alexander G. Brown of Richmond, Va., said that acute inflammation of the liver was not infrequently the cause of sudden death in case of crippled hearts with weak myocardium. The liver might serve as a reserve reservoir for a dilating heart by driving the blood into the liver and resting the right heart. If the liver was itself a more or less normal organ and the heart was crippled by an organic lesion, with myocardial deficiency, this great organ might serve it well in the hour of its impending failure. In cirrhosis of the liver the heart muscle weakened and dilated. The change was due to toxic and mechanical conditions. The toxic predominated. Syphilis of the liver was worthy of the closest investigation. Late syphilis might display itself in the internal organs without giving evidence of its existence by any outward sign in the skin. The liver was a favorite site when it attacked the organs. When the *Spirochæta pallida* retreated to the liver, producing the varied pathology seen there, it was not infrequent that in the cardiovascular system was set up a concomitant degenerative growth in the endocardium about the aortic opening and in the ascending and transverse aorta, if not in the general arterial tree. With this knowledge one's clinical judgment would be necessarily influenced and therapeutic procedure guided.

The Work of the Council on Pharmacy and Chemistry: Its Effect on Medical Progress.—Dr. George H. Simmons of Chicago delivered an address on this subject in which he pointed out that the fight against fraudulent proprietary medicines during the last ten years had been very successful, and that the activities of patent medicine proprietors in seeking to advertise their wares through the medical profession had very materially lessened.

Antiplague Campaign in New Orleans.—Dr. Rupert H. Blue Surgeon-General, U. S. Public Health Service, said the word plague meant but one plague, the greatest of all the ages. He spoke of the ravages of the plague in Mexico in 1902 to 1903, when two hundred and fifty cases were reported, and of its appearance among the Chinese in San Francisco in 1900, which was its first appearance in the United States. From May, 1907, to January, 1908, it appeared in San Francisco again, and all classes suffered. Out of one hundred and sixty cases, seventy-seven deaths were reported. In 1907 the plague appeared in Seattle, and a year later the epizootic plague made its appearance among the ground squirrels on the coast of California. He recited other facts concerning the outbreak of the pestilence in other parts of the United States, pointing out that no city was immune. The situation became so serious in 1897 that a conference of the nations was held in Venice, and measures were taken to safeguard every port. Another conference was held in Paris in 1903, and forty governments were represented. In 1902 a Pan-American conference was held, and it was recommended that every government represented should notify the other of the outbreak of the plague among its own people. This convention was followed by another in 1909, when it was recommended that every means for the sanitation of seaports should be taken, that all buildings, especially those in which food stuffs were stored, should be rat-proof; that it should be made obligatory that the people should use only galvanized iron garbage cans, and that owners of vessels should rid their ships of rats at periodical intervals. The speaker described how the plague first appeared in rodents and was spread among them and from them to human beings by the flea. It had been clearly demonstrated that the pestilence spreads from rats to human beings, and that the rat was a constant and terrible source of danger. The infection might be kept alive in rats from year to year before it finally reached a human being.

The Old-Time Doctor.—Dr. Cary T. Grayson, Surgeon U. S. Navy, said what wisdom, what patience, what years of toil, what charity, what judgment the old-time doctors showed; what support in sorrow and distress, what companions in joy, what beneficent factors they were in the communities in which they lived. Contrasting their lives and their work with ours, one could not but realize how much we owed to them as examples of what a higher type of men could do and did. They, with their work and lives, had laid the foundation on which had been built the splendid practice of medicine. Their lives had inspired respect and confidence in the profession that to-day was one of the chief factors of our success. We were to-day too apt to measure our success by our material prosperity; they built better and more nobly in the love and filial trust of their patients and the consciousness of trying to their utmost to fulfill the highest privilege of mankind, to do good to our fellow men, from whose efforts our present lives had sprung. In the midst of absorbing activities, we should not forget the gray and careworn brother who still plodded "the trail of the lonesome pine," seeking to carry hope and help to the sick and afflicted in many an unknown field. The old-time family physician, being a broad-minded and greatly beloved and respected citizen, was looked up to for the solution of every problem with reference to life and death that involved the human race from the time of Jenner and including the present day specialism. He solved these problems in a rough and rugged common sense way and thereby placed himself, without any solicitation or effort on his part, in unanimous nomination in the heart and minds of every one he came in contact with.

Heart Arrhythmias.—Dr. E. C. Thrash of Atlanta, Ga., said the principal extracardial causes of arrhythmia were cortical, toxic, mechanical, reflex from pathology in other organs, and vagopathic. The treatment of arrhythmias was as varied as their causes. The treatment of the ones produced by factors external to the heart itself must be based upon methods which would relieve these disturbances. The neurasthenic must be relieved of his neurasthenia; the sufferer from visceral ptosis must have his condition relieved and the mechanical disturbances which interfered with the heart's action must be diagnosed and relieved, if possible. Atropin would not only temporarily relieve these functional disorders, but the fact that it did relieve them aided one in making a diagnosis. This drug would not relieve those of extracardial origin, but would make them worse, as it had a slightly paralytic effect upon the vagus. The lesions which were intracardial must

be treated by directing attention toward the heart itself. If there were any luetic complications they should be treated, and from the writer's experience it was erroneous not to give salvarsan in this form of syphilis as its efficiency had been decidedly apparent in the author's hands. Arteriosclerosis, atheroma, calcareous infiltration, and toxemias played an important rôle in producing these latter lesions and they should be treated according to classic methods for handling such conditions. Digitalis was par excellence the remedy to restore the heart to its normal tone and it should never be overlooked by the physician called upon to treat organic arrythmias.

The Importance of Vital Statistics to the South.—Mr. W. J. HARRIS, Director of the U. S. Census Bureau, said that it was important to householders to know the cause of the death of their negro servants, and this could be accomplished only by accurate statistics. Soon after he was made Director of the United States Census Bureau, he ordered that the negroes and whites should have separate statistics, and he had detailed an employee of the Census Bureau to help the Southern States in inaugurating a proper and scientific system. One of the most important uses of vital statistics was their practical employment for the protection of the public health and for the prevention and restriction of disease. Modern preventive medicine was based on vital statistics, and a sanitary service, whether state or municipal, that was deprived of accurate vital statistics was absolutely handicapped in its work. It was necessary to know when and where a death occurred and its cause, in order that we might know how best to remedy the condition. So long as they were without vital statistics health boards were groping in the dark. The deaths from cancer in 1914 had been greater than during any year before, and vital statistics might be used to prevent such a large percentage of deaths from this dread disease. The registration area in 1913 included twenty-three States the population of which was 63,298,718, or 65.1 per cent. of the total population of the country. Among these States were Virginia, Kentucky, Maryland, and North Carolina. Mr. Harris advised the abolishment of the county system of registration as incomplete and urged the establishment of a local system in its place.

Cancer of the Breast.—Dr. WILLIAM L. RODMAN of Philadelphia gave an address on this subject, which was illustrated by numerous lantern slides. He stated that the proper treatment for cancer was early removal. Much had been said about the *x*-ray and radium, neither of which had been of demonstrable worth from the standpoint of permanent cure. He had not in his experience seen a case of cancer cured either by the *x*-ray or radium permanently. Of those cases reported to have been relieved or cured, the original tumor or growth might have been benign instead of malignant. He believed more in the *x*-ray than in radium, and what had been accomplished by radium had been done better by the *x*-ray. He thought the profession was running after false gods when they gave up surgical operation for these new fads. The speaker said that between 12,000 and 15,000 men and women died annually from this deceitfully terrible disease. If the disease were taken in time, when only suspicion was existent, a cure could be effected; but in the majority—and it was a tremendous majority—of cases the patient came too late, or the diagnosis was made too late, to be cured. A careful study of precancerous conditions should be made and all measures of early diagnosis and precaution should be carried to the ultima thule of safety. Cancer was strictly local in the beginning, as shown by every evidence, clinical, surgical, and indicative. Part of the evidence that it was primarily a local disease was that it was not painful in the first year or eighteen months. It was only when adhesions began and secondary ulcerations appeared that the disease was painful. In the beginning it was strictly painless. The patients ate and slept well and went through the ordinary routine of life as if there were nothing the matter with them. If an operation was performed in the early stages, before the disease had become constitutional, a cure would result. If, however, cancer of the breast were allowed to continue until there was an enlargement of the glands under the armpit, only 25.4 per cent. of the cases would be cured. The disease became secondary, or constitutional, only by transfer from the primary focus, as when it entered and attacked the lymphatic glands. Until this transfer had occurred Dr. Rodman maintained it was strictly local.

NEW YORK ACADEMY OF MEDICINE.

Anniversary Meeting and Reception, Held November 19, 1914.

THE PRESIDENT, DR. WILLIAM M. POLK, IN THE CHAIR.

Introduction.—Dr. WILLIAM M. POLK, in introducing the speaker of the evening, said in part that he wished to explain to the ladies and laymen who were present that this was the occasion when the Academy of Medicine, usually devoted to the scientific study of medicine, endeavored to come into closer contact with the citizens of this great city. He wished to tell them without vanity that the members of the Academy were fulfilling their mission in dealing with the most intricate as well as the simplest problems which were presented to them. They were conscious of the fact that in these days of modern activities the science and art of medicine must not only concern itself with the ailments and defects of the individual, but that it had a mission to perform in the betterment of the city, and they were aware that there was but one man fitted to tell them wherein these duties lay and in what direction they could gain the greatest good for the city, a man they all loved to know and to honor, the Honorable George McAneny.

Anniversary Discourse: Some of the Relations of the Profession of Medicine to the Municipal Government.—Honorable GEORGE MCANENY delivered this address. He declared that to instruct this body of men as their President had indicated would be an unexampled act of daring, for municipal authorities had sat at their feet, taken their guidance, and profited by their teachings to the great advantage of the city. He therefore proposed to talk about the undertakings of the City of New York that were aided by the members of the medical profession, and this could best be done by statistics. There were 8,113 physicians, men and women, in the city, of whom the city employed 650 on salaries and 950 without salaries, making a total of 1,632 in the service of the city. There were also in the city physicians in the State and Federal service. The average salary of the physician in the city's service was $1,372. In addition to the physicians there were a nursing corps and other assistants which brought the salaries up to over one million dollars a year, but after all this was but a little over one per cent. of the city payroll. The speaker then explained the direct and indirect methods of taxation and showed that where the indirect method was in operation the mass of the people took less interest in the expenditures than where the direct method was used. In New York City but eight or ten per cent. of the population paid taxes directly. He then compared the activities of the city twenty years ago, when these were practically limited to police and fire protection, with the varied activities of the present time. Speaking, more especially of the Health Department, he stated that twenty years ago the money expended by the Health Department was $200,000 while at the present time it was about $3,500,000, while the activities of the department reached into the homes, the streets, the schools, the factories, and workshops; it was not merely a watch dog correcting sanitary abuses and watching for epidemics of contagious disease, but was active in eradicating those conditions which produced disease and in carrying on a great social work. In this connection the speaker described some of the work of the Department of Charities and Correction. The hospitals were under the latter and were considered as examples of what hospitals should be in every part of the world. They sent men trained from these hospitals to every part of the world. While their organization was not perfect, the progress had been amazingly good. Three or four years ago they got a small item for social service nurses which enabled them to follow up patients in their homes after they had left the hospitals and this was in the long run an economy as it lessened the possibility of those patients returning to the hospital for want of proper care during convalescence. This was getting at the root of things on the preventive side, and this had appealed to him as a budget maker. The Department of Health had extended its work beyond the enforcement of the Sanitary Code and the control of infectious diseases to laboratory work in bacteriology and to child hygiene. The Bureau of Child Hygiene affected 700,000 children in the city and offered the greatest field for preventive work. This bureau at first met with considerable opposition and was looked upon with suspicion as furnishing a way of giving free medical service, but this impression had gradually been

overcome. Then came the call for dental clinics which also met with opposition, but the need for them had been demonstrated and a number had been established. Children deterred by poor health from keeping up with the school work delayed the progress of their classes and this meant constantly increasing bills, so that in the long run this work for the children meant economy. The work of the Bureau of Child Hygiene was the most splendid work of preventive medicine in the city, and seeing this the city had taken a step further and sought to save the children under school age by lowering the infant mortality. The speaker described the work of Nathan Straus in establishing milk stations and how the city had become a partner in this work and had increased the number of milk stations until there were now fifty-five, and it was to be hoped they would soon have more. By locating milk stations in some districts and not in others and comparing the infant mortality in such districts, they had demonstrated without question the effectiveness of the stations in the reduction of infant mortality. He then spoke of the work in the care and prevention of tuberculosis and expressed the opinion that perhaps there had been too much expenditure in connection with the Seaview Hospital. While conditions on Blackwell's Island were not of the best this would soon be remedied. The campaign against tuberculosis had led to the distribution of knowledge in regard to better living conditions and to efforts to secure better tenement house laws and better working conditions in factories and shops. Though there might be much crudity in the work it should be remembered that to carry it to perfection required much money. Among other of the city activities that aided in securing better health and greater happiness to the people were the playgrounds, public baths, and public gymnasia which were gradually extending their scope and showed that the city was caring for the physical side of life more than hitherto. If the death rate that prevailed in 1880 had prevailed last year there would have been 7,100 more deaths than actually occurred and a much larger amount of illness. The Metropolitan Health Department was established in 1868 and in the decade from 1868 to 1877 there were 154 deaths per 1,000 cases of diphtheria; the following decade the rate was 130; with the introduction of antitoxin it had fallen each decade until from 1908 to 1912 it had reached 32 deaths per 1,000 cases. The deaths from malaria had fallen from 26 per year during the decade 1868 to 1877 to 0.7 during the past five years. The number of deaths from scarlet fever averaged 91 per annum during the first decade while they now numbered 18. The death rate from pulmonary tuberculosis had fallen 40 per cent. from that prevailing from 1887 to 1902. During the period from 1874 to 1883 there were 87 deaths from smallpox per 100,000 population annually; during the last year there was not one. Similar decreases were shown in the death rates from cholera, typhus, and typhoid fever. In 1868 the death rate of the city was 35 per 1,000 population; during 1898, the first year of the consolidated city, it was 20.32; in 1909 it was 16; in 1913, 13.7, and it was estimated that for 1914 it would be 13.5. The mortality rates had been thus reduced not only by the activities of the city through the Health Department but by the advances in medical science, by the better sanitary laws, and the better living conditions. In 1898 the infant mortality was 212 per 1,000 babies under one year of age; in 1904 it was 162; in 1909, 129; in 1913, 101, and it was estimated that for the present year it would be even less. The expenditure of the Health Department averaged 41 cents per person in the Greater City and still there were those who objected to this work as an unwarranted burden on the tax payer. Indeed a few had gone so far as to threaten to take the matter to court. He believed that economy in the salvage of lives and health of the common people added not only to their comfort and happiness but that in a broader sense they were healthier, purer, and cleaner not only physically, but otherwise. The speaker said there was one other point which he hesitated to discuss and that was the effect of preventive medicine on the private practice and income of the physician. It stood to reason that if there was less sickness there was less work for the individual practitioner, but it had been said that the new system of pensions in England had actually increased the average incomes of physicians and it was probable that the positions open to physicians in public health work, workingmen's compensation, etc., offset the loss in private practice. There was one other influence and that was that the output of physicians by the colleges was decreasing owing to the work of the American Medical Association in centralizing and raising the standards of medical colleges. In 1901 there was one physician to every 634 of the population while in 1914 there was but one physician to every 688. In the future the physician would be found more and more in preventive work, for undoubtedly the tendency was to socialize medicine. In looking over the work of the various forces working for the betterment of social and health conditions preparatory to reorganization of the city departments, they had found many faults resulting from a duplication of work, but these were faults due to lack of coordination rather than of efficiency. In this work they hoped that they would do nothing that was opposed to the judgment of the physicians and considered themselves as particularly fortunate in having in their health work such men as Dr. Goldwater and Dr. Haven Emerson. After referring to the work of Dr. Biggs in the State and of the campaign for educating the people in health matters, Mr. McAneny congratulated and thanked the doctors for what they had done for their city and said they held indeed an enviable place in being able to render such service and that in their plans for good city government he hoped that their partnership with the medical profession would not be dissolved.

THE PRACTITIONERS' SOCIETY OF NEW YORK.

Two Hundred and Sixty-Fifth Regular Meeting, Held Nov. 6, 1914.

The President, Dr. Walter B. James, in the Chair.

Removal of Cyst of Cerebello-Pontine Angle.—Drs. C. L. Dana and C. A. Elsberg presented this paper. (See page 1050.)

Dr. Peck asked if the removal of the bone was permanent; was there any attempt at replacement.

Dr. Abbe asked what incision of the dura was made, double or straight across.

Dr. Elsberg said that the bone was permanently removed and no attempt was made at replacement. The incision was straight across; the back of the skull was supported by the occipital muscles. The only symptom which persisted in the patient, and which might still persist, was his deafness. His gait was now normal and he was almost free from subjective symptoms. The swelling of the disks was gradually going down.

Dr. Abbe remarked that this was an admirable case. It showed that cases with the gravest symptoms might be operated upon with the hope of finding something so easily removed as this.

X-ray Findings after Perforating Gastric Ulcer.—Dr. C. L. Gibson presented these cases. He said that the *x*-ray picture of the first case was interesting; it showed a little distortion of the pylorus, but the duodenum was apparently allowing free passage of food. Still more interesting was the six-hour picture showing no trace of bismuth in the stomach. This patient had no gastric disturbance and felt perfectly well. The *x*-ray picture of the second case, six hours after the bismuth meal, showed that there was no retention in the stomach at all. Of the third case no *x*-ray had been taken. The patient was a man of forty-six with a history of lues and alcoholism; the man had made a good recovery after operation and had had no gastric disturbances and now was able to eat anything.

Dr. Meara, in speaking of this subject of perforation said that a patient had come to him with the usual long history of indigestion; there had been nothing in the examination excepting slight rigidity of the right rectus; the next day he had had a severe attack of pain and four days later, when Dr. Meara saw him again, there was a very marked rigidity over the right rectus and sensitiveness in the lumbar region; he had a cough and signs of air and fluid in his chest; there was amphoric breathing over the third space; the diagnosis seemed to be subphrenic abscess and pyopneumothorax from perforation of gastric or duodenal ulcer. Dr. Woolsey had opened a tremendous abscess below the liver and found a perforating ulcer; he had done a gastroenterostomy. Two days later Dr. Meara had taken 8 ounces of pus out of the chest. This was an interesting case of a subphrenic abscess occurring with pyopneumothorax, after perforation of a gastric ulcer.

Dr. Peck said that he agreed with Dr. Gibson's view; many cases healed and remained well when gastroenterostomy was not done; he had had about twenty such

cases himself; he had closed the perforation without gastroenterostomy in more than half of these cases and they remained well; when he did do gastroenterostomy he tried to be guided by the amount of stenosis at the pylorus, if the patient was in good condition; most of them bore gastroenterostomy well, but even without it, there was a good recovery in many cases.

Dr. ABBE asked if there was anything in this series that would support the fact of the constriction of the duodenum at the pylorus causing probable dilatation. He endorsed Dr. Gibson heartily; his experience was based on cases which had been followed for a long time, one patient for 14 years, so that the results were shown to be permanent; this latter case was one in which the man seemed perfectly well; he got out of a train, was taken with violent pain, and collapsed on the platform; he was taken home and given morphine; Dr. Abbe was called to see him twenty-four hours later and found him in a desperate state; at operation the abdomen was found full of fluid and gas was escaping from a perforating ulcer close to the pylorus; Dr. Abbe inverted the opening, as Dr. Gibson had just mentioned, by a purse-string suture that seemed to him at the time almost to jeopardize the diameter of the duodenum at the pylorus; he had then sutured the stomach on to the duodenum; the man made a perfect recovery and had never had stenosis, up to fourteen years; this, Dr. Abbe said, illustrated the permanence and usefulness of this procedure.

Intraspinous Use of Tetanus Antitoxin.—Dr. WILLIAM H. PARK called attention to the fact that the French were reporting good results from the intraspinous use of antitoxin in cases of tetanus. These reports agreed with results which Nicoll had obtained, the last nine cases treated having recovered. The procedure was not new, having been used for a time in Switzerland, about 15 years ago. Where so much antitoxin was required for prevention, as in the present European war, it was too valuable to be used in extra spinal treatment where the effect was practically nil. In reply to questions, Dr. Park said that, in his opinion, the nine cases referred to as having recovered would have died without intraspinal treatment. All were well developed cases with various periods of incubation, one of eighteen days. He had had very striking results with guinea pig inoculations, the animals treated with the intraspinous method, surviving, while those treated by the subcutaneous method invariably died. While it was the custom to give intraspinous and intravenous injections at the same time, he was not sure that the latter was always necessary as the antitoxin passed from the spinal canal into the general circulation very rapidly. He did not think that the results were due to any recent improvement in the potency of the antitoxin, but to its direct application. The essential feature was the intraspinous injection. Three to five thousand units should be injected intraspinously and ten thousand units intravenously. The intraspinous injection might be repeated after twenty-four hours if necessary. For immunization fifteen hundred to three thousand units were given subcutaneously. The immunity lasted from two to four weeks, depending on the rapidity with which the individual eliminated the foreign proteid.

Dr. GIBSON said that he had had two cases recently in which recovery followed the use of antitoxin intraspinally. He had had seven cases of tetanus altogether and the last four had recovered. In the first three cases they had used subcutaneous injections and one had in addition intraneural. Of the cases that died, two had subcutaneous injection and intraneural; intraspinous injection had not been in use at that time. The last two cases had been treated at the New York Hospital and they had recovered more promptly. He had been a little alarmed at first by the reaction, not only of temperature, but constitutional; it almost amounted to collapse; the fluid was found to be a little turbid, but that was often found to be simply a reaction to the irritation. He had been much impressed with the efficacy of the modern methods; his last patient, a boy, was well one week after the intraspinal injection had been given.

Dr. JAMES called attention to the fact that they were trying to give a dose to every wounded soldier.

Dr. ABBE said that this method of spinal injection of tetanus antitoxin had been first used at Roosevelt Hospital, fifteen years ago, by Dr. A. B. Johnson, of this city. Dr. Abbe had had nine cases in one month; in six of these cases the antitoxin was introduced into the ventricles.

PHILADELPHIA NEUROLOGICAL SOCIETY.

A STATED meeting was held on the evening of November 27, in celebration of the thirtieth anniversary of the foundation of the Society. Dr. CHARLES K. MILLS delivered the Presidential Address, which was entitled "Concerning Cerebral Morphology in its Relations to Cerebral Localization," and was illustrated by charts and specimens. He traced the development of knowledge along these lines and pointed out the part that had been played by members of the Society in this development.

Dr. FRANCIS X. DERCUM read a communication entitled "Nervous and Mental Diseases and the Newer Pathology." He pointed out the bearing that infections and intoxications, disorders of metabolism and derangements of the internal secretions of ductless glands had in the development of the phenomena of various affections of the mind and nervous system.

Dr. JAMES HENDRIE LLOYD presented a communication entitled "The Morphology and Functions of the Lenticular Nucleus." He discussed the question from the biologic and evolutional standpoints, and he expressed the conviction that the corpus striatum was a vestigial structure, having in man no important function. He decried the conception of a definite lenticular symptomatology.

Dr. CHARLES W. BURR read a paper entitled "The Psychology of Misers.' He recited the details of a number of historic examples of misers and showed that the peculiar type of individual evolved independently of his social state, his education and environmental influences, exhibiting an exaggerated desire to accumulate money and not for its usefulness or power, but for the sense of mere possession.

Dr. WILLIAM G. SPILLER presented a communication entitled "Remarks on the Central Representation of Sensation." He contended that the several forms of sensation pursued independent paths through the tracts in the spinal cord and accordingly had independent representation in the central nervous system. He presented a man with preservation of touch and temperature sense on the left side of the face, but with absence of pain sense, in conjunction with paralysis of the soft palate and of the vocal hand on the same side. There was a history of syphilis and a positive Wassermann reaction.

Dr. THEODORE H. WEISENBURG presented a communication entitled "The Founders and the Work of the Society." He pointed out the work that had been done in the fields of mental and nervous disease by various members of the Society and of the influence for good that had been diffused by the Society among the medical profession of the country and of the world.

Combined Syphilitic and Tuberculous Infiltration of the Larynx.—D. McKenzie reports the case of a woman, aged 48 years, who came under his care six years ago for tertiary ulceration of the nasal septum, with some redness and thickening of the vocal cords. This was cured by antiluetic remedies. In September, 1913, she returned with a general infiltration of the larynx without edema, ulceration or any other sign suggestive of tuberculosis; but as the patient complained of cough and expectoration the sputum was examined and tubercle bacilli were found. On October 19 an injection of neosalvarsan was made with immediate relief of the symptoms. The voice became clearer and the cough easier. An interesting reaction was observed in the larynx the day after the administration of the neosalvarsan, the mucous membrane assuming a livelier red and appearing to be moister and more succulent. This promise of benefit was not, however, realized. The infiltration increased, and as it was affecting the subglottic region and giving rise to serious dyspnea, the patient was again admitted to the hospital. On November 14 salvarsan was injected, and the same evening an urgent tracheotomy under local anesthesia had to be performed. There was no evidence that the laryngeal obstruction had been increased by the salvarsan. The patient experienced some difficulty with the metal tracheotomy tube, which proved irritating and productive of coughing, and a rubber tube was inserted with immediate relief. The coughing had, however, led to a widespread emphysema of the tissues of the neck and the thoracic walls. Since the tracheotomy the larynx has gradually come to assume the typical aspect of tuberculosis with edematous infiltration of the arytenoids. The galvanocautery puncture has been used once with some benefit.—*Proceedings of the Royal Society of Medicine.*

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

MANUAL OF DISEASES OF NOSE, THROAT AND EAR. By E. B. GLAWSON, M. D. Cloth; illustrated; third edition; 590 pages; price $2.50. Published by W. B. Saunders & Co.

AIDS TO DENTAL ANATOMY. By ARTHUR S. UNDERWOOD, M.D. Third Edition. Cloth; 136 pages; price $1.00 net. Published by William Wood & Company.

TROPICAL DISEASES. By Sir PATRICK MANSON. Fifth Edition. Cloth; illustrated; 937 pages; price $5.00 net. Published by William Wood & Company.

ESSENTIALS OF PHYSIOLOGY. By Drs. BAINBRIDGE and MENZIES. Cloth; illustrated; 434 pages; price $3.00 net. Published by Longmans, Green & Co.

THE CLINICS OF JOHN B. MURPHY. Paper; illustrated. Published by W. B. Saunders Co.

GYNECOLOGICAL TRANSACTIONS. Vol. XXXIX. Cloth; 520 pages. Published by Wm. J. Dornan.

THE CANCER PROBLEM. By WM. S. BAINBRIDGE. Cloth; illustrated; 534 pages; price $4.00 net. Published by The Macmillan Company.

OPERATIVE SURGERY OF THE NOSE, THROAT, AND EAR. By H. N. LOEB, M.D. Vol. I. Cloth; illustrated; 390 pages; price $6.00. Published by C. V. Mosby & Co.

MANUAL OF SURGERY. By ROSE and CARLESS, M.D. Ninth Edition. Cloth; illustrated; 1498 pages; price $6.00 net. Published by William Wood & Company.

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PRAKTIKUM DER UNTERSUCHUNGSMETHODEN. By KLOPSTOCK KOWARSKY, M.D. Cloth; illustrated; 392 pages; price M. 8. Published by Urban & Schwarzenberg.

Therapeutic Hints.

Eczema in Infancy and Childhood.—R. G. Freeman finds that the causes of this condition are excessive food; a badly balanced ration; or irritating food such as eggs, oatmeal, stewed fruit, cake, candy, preserved fruit, or jam. The local treatment, as advised by C. W. Crary is as follows: For facial eczema a mask should be worn, while on the limbs the application should be covered by lint and bound in place. Lassar's paste, made from one part zinc oxide, one part starch, and two parts vaselin, is altogether the most useful application for the skin, especially of the face. It may be rendered somewhat antiseptic by the addition of 2 per cent. resorcin or eurosal. For the dry, chronic eczematous patches on the body or limbs of babies one part tar ointment to seven parts of Lassar's paste is most useful. For the scalp in some cases a diluted sulphur ointment has been found distinctly useful.—*Archives of Pediatrics.*

"Dont's" in the Treatment of Insomnia.—H. Crichton Miller emphasizes three points in the treatment of insomnia: (1) Never let the insomniac drug himself. (2) Never let him know what he is getting or how much. This is necessary, so that the physician or nurse can adjust the dose without the knowledge of the patient. (3) Never under any circumstances allow the patient to go to sleep with the hypnotic by his bedside, with the idea that he will not take it unless he needs to. It means that the patient's mind is started on a train of speculation as to whether he will or will not need the drug, even after the light is out and conditions are favorable for sleep. The patient will probably say: "I will not take it now; I will wait another half hour." The upshot of this is that the wretched patient gets five hours' sleep instead of eight, because during three hours the draught was in the bottle instead of in his stomach.—*Medical Press and Circular.*

Treatment of Recurrent Bronchitis in Children.—C. G. Kerley excludes sugar to a large extent from the diet particularly if the case promises to be difficult. Cow's milk is omitted entirely or skimmed milk is allowed if the case is obstinate. Children three to six years of age frequently gain from three to six pounds after one removes sugar from the diet and gives milk skimmed or none at all. The carbohydrates and fats in vegetables, cereals, and breadstuffs supply all the heat and energy required. Medium-weight underclothing or linen mesh should be used. The child is given a warm bath at bedtime, followed by a vigorous rubbing and sometimes by massage. Inasmuch as the so-called lithemic type is the individual most frequently affected. children of this type are given interval treatment with bicarbonate of sodium alone or with salicylate of sodium. If habitual constipation is present, a free daily evacuation of the bowels is insured by suitable dietetic and medicinal treatment.—*Archives of Pediatrics.*

Cyanide of Gold and Arsenic in the Treatment of Lupus.—Juan de Azúa reports good results following this method of treatment introduced by Bruck. The drug which should be kept in green bottles or ampoules, is used in a 1 per cent. solution. in distilled water and should be injected intravenously in doses of six centigrams. This method has also been employed in the treatment of syphilis, apparently with good results.—*Revista Clinica de Madrid.*

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REFLEX DISTURBANCES DUE TO CHRONIC APPENDICITIS.*

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THE ordinary, every-day, chronic appendicitis makes itself evident by local pain with or without tenderness and muscular rigidity over the appendix. Such cases are easy of diagnosis and are rarely mistaken in these days. More puzzling are those patients with distant reflex disturbances, due to chronic appendicitis, where there are mild or no local signs to focus one's attention upon the appendix. There may be no local pain whatsoever nor any muscular rigidity, and with but slight, if any, local tenderness.

We may tabulate these reflexes as follows:

1. Pain type—colics in children, simulating gastric or duodenal ulcer; simulating gallstones.
2. Nausea type.
3. Vomiting type.
4. Gas type.
5. Intestinal type—toxemia producing anemia; chronic constipation; chronic diarrhea and colitis.
6. Bilious or toxic type—headaches.
7. Neurasthenic type.

1. *Pain Type.*—Grouped under the first, or pain type, are several classes. First are those patients, particularly children, who have recurring attacks of abdominal pain, colics, with or without vomiting, unaccompanied by fever, lasting but a few minutes or hours. The pain may be localized about the navel or radiate generally over the abdomen. In some of these patients the attack may finally culminate in an acute attack of appendicitis. Following the removal of the appendix nothing further is heard of the colics.

In other patients the symptoms resemble those produced by duodenal or gastric ulcer; that is, pain referred to the epigastrium, which is variously described as gnawing or gripping, coming at definite intervals, two or three hours after eating and occasionally relieved by vomiting. In some cases there is a history of gastric hemorrhage. The cause for such recurring distress is a reflex protective spasm of the pyloric sphincter, which is of itself sufficient cause for pain. This spasm is called forth by irritation from the chronically inflamed appendix. This, however, is made even worse by a chronic hypersecretion which almost regularly accompanies the pyloric spasm. Without local signs over the appendix, the exact diagnosis may not at once be accurately made. A process of exclusion will have to be gone through with, and it may take some little interval before a correct diagnosis is arrived at. Evidence is accumulating to show that the cause of gastric and duodenal ulcers may be the absorption of toxins or bacteria from the lower intestinal tract. This opinion seems strengthened by the frequent association of gastric and duodenal ulcers and chronic appendicitis. Mahnert found that in 64 per cent. of his gastric ulcer cases, there was an inflammatory process in the appendix. He regards the ulcers as due to an embolic process from the thrombotic veins of the omentum, the appendix, and its mesentery. Fenwick states that about 12 per cent. of all continuous fasting hypersecretions are due to chronic lesions of the appendix. Paterson calls attention to the frequency with which appendicitis coexists with duodenal ulcer. Obvious appendicular disease was present in 66 per cent. of cases in which at operation duodenal ulcer was found. In none of Patterson's cases was there any clinical reason to suppose the existence of disease of the appendix.

In case physical examination does not reveal any local tenderness in this pain type an absolute diagnosis may not be at once possible.

One of the most practical rules given by Lockwood in distinguishing between ulcer and appendicular gastralgia is afforded by the behavior of the patient with supposed ulcer during his ulcer cure. If after two weeks of treatment the original symptoms persist, even though they be in a less severe form, chronic appendicitis must be considered possible.

Hematemesis is frequent in appendicular gastralgia and may be alarming in amount. Its combination with epigastric pain may give the exact picture of gastric ulcer. Lockwood believes that many of the hemorrhages are due to traumatism of the pyloric mucous membrane caused by the spasm, which results in a lack of vitality of tissue and the production of minute, superficial erosions, due to self-digestion.

On account of the belief that duodenal or gastric ulcers as well as gall-bladder disease may arise from, or be associated with, chronic appendicitis, it would seem wisest to always remove the appendix whenever one is operating for any of these lesions.

In this pain type there is a class whose symptoms may be indistinguishable from those caused by gallstones. Such patients have more or less prolonged, dull, either mild or severe pain in the epigastric area, right hypochondrium or whole liver region. These patients pass through prolonged, steady attacks, while between times comparatively good health may be enjoyed. During the attack dyspeptic symptoms are prone to be present, such as upward pressure of gas and considerable distension, eased by belching and vomiting. If there are no local signs, such as tenderness, then one can scarcely make a positive diagnosis. After prolonged and unavailing medical treatment,

*Read before the Hospital Graduates Club, October 22, 1914.

an exploratory laparotomy may discover that the cause of the whole symptom complex was due to a chronically inflamed appendix.

2. *Nausea Type.*—The single symptom of appendicular disease may be an obstinate, nagging nausea of a low grade, constant intensity. It has no fixed time of occurrence, and is not made worse by eating. These patients are considered to be instances of nervous indigestion. Medical treatment is of little avail.

3. *Vomiting Type.*—In this type of chronic appendicitis there is vomiting, one or more times a day after eating, or without reference to meals. This is continued over long periods of time. The patients remain in good nutrition and appear healthy outwardly. The vomiting of blood has been mentioned already. Medical treatment for this vomiting type is of little benefit.

4. *Gas Type.*—This is an important class of cases. The sole complaint is gas in the stomach, two or three hours after eating, giving rise to discomfort and even pain, until relieved by free eructations. Medical treatment is of little avail.

These are the distinctive dyspeptic classes of patients, with a very brief, merely suggestive mention of their symptoms. All possible combinations of these various types may be present. It is unfortunate that in the majority of instances the examination of the fasting stomach and of the test breakfast in chronic appendicitis may show no abnormalities whatever. The number of patients with hyperchlorhydria, anacidity, or achylia is about in the same proportion as the average run of patients with indigestion (Lockwood). It must be remembered that a functional hyperacidity is not accompanied by either heartburn or pain, and the occurrence of either of these symptoms should suggest an organic origin. More important is the examination of the fasting stomach for the detection of a chronic hypersecretion. Lockwood says that mild hypersecretion is three times more frequent with chronic appendicitis than in the general run of dyspeptic patients.

5. *Intestinal Type.*—Appendicular toxemia producing a mild, secondary anemia. This type was brought to my attention by Dr. Harold Barclay. The principal symptoms are fatigue, mild digestive disturbances, mostly characterized by gas, which is independent of food. Bowels may be apparently normal but after a cathartic there is material found in the rectum, indicating mild constipation. The fatigue increases so that ordinary exertion is very wearisome. The hemoglobin may be found down to 60 per cent. and the red cells as low as 3,500,000. The ordinary treatment of a patient with such symptoms is usually iron. This is quite wrong as it increases the constipation and consequently intensifies all the symptoms, which are those of intestinal toxemia. The patient should be put upon daily colon irrigations and given a purin-free diet, and injections of arsenic. A teaspoonful of a mixture containing salicylate of soda ʒii, phosphate of soda ʒss, sulphate of soda ʒx, should be given before breakfast, dissolved first in hot water. If there be no local symptoms such as appendicular tenderness, the diagnosis can be arrived at only by attempting the above treatment and watching the results. If the toxemia be due to a diseased appendix, then there will be but slight response to the above medical means, or an advance will not be held for long and there is a prompt relapse into the former condition. On the removal of the appendix the blood promptly returns to the normal and the fatigue disappears, as well as the remaining toxemic symptoms.

In this intestinal type must be mentioned those patients whose sole symptom is either constipation alone or this is accompanied by more or less vague gastric symptoms, such as are generally described as discomfort, or a sense of fulness in the epigastrium, usually coming after meals. They complain of the symptoms of gastric atony. There is no actual pain. An instance of this type is the following patient:

G. R., male, 26 years of age; total abstainer from alcohol, and uses tobacco moderately. His present condition dates back some six years, when he was a senior at college. At that time his bowels gradually began to be constipated. He became unable to sleep, lost appetite and weight. He had consulted several physicians, who regarded his condition as due to neurasthenia. He was under the care for four years of Dr. Harold Barclay, who sent him to me. His complaint was of discomfort in the epigastrium occurring within 15 or 30 minutes after ingestion of food, and of constipation. Repeated physical examinations always proved negative. In December, 1911, I performed exploratory laparotomy. The large intestine was normal. No Lane's kink of the small intestine and no Jackson's membrane were found. The appendix was long and much thickened and contained one-half dram of mucopus. It is now almost three years since the operation, and the patient writes that his bowels are moving normally daily, that he has gained 15 pounds in weight, and that he suffers from no indigestion at any time. There had never been any local focal symptoms.

In this instance the intestinal motility was depressed by reflex irritation arising from the appendix. In other instances there is increased peristalsis originating in the same cause, producing diarrhea. This may not be accompanied by any other gastrointestinal symptoms. In some cases the movements contain varying degrees of glairy mucus, mixed with the stools. At times this mucus is in shreds, having the appearance of small particles of moist tissue paper. These diarrheal attacks alternate with periods of normal movements or constipation. The stools are often preceded by some cramping pains over the lower half of the abdomen. An instructive instance of this diarrheal type is the following:

A barber of 30 years of age had had for four years sudden attacks of diarrhea when he stood up by his chair. Never had had any pain nor obstructive symptoms, nor had he ever passed any blood, but occasionally a little mucus. Never had had any diarrhea at night. He could abort an attack by lying down. No tenderness over the appendix. By exclusion it was considered probable that the appendix was at fault, so in November, 1913, I removed that organ. It showed chronic changes in its walls and contained four concretions. There was also found a distinct Lane's kink in the ileum, three inches from the iliocecal valve. This was straightened out. News from this patient, eleven months after the operation, shows that he was cured by the appendectomy. He has had no diarrhea since, and follows his occupation, which requires standing all day, without discomfort.

There has been much discussion as to the relationship between chronic appendicitis and chronic colitis. There is positive evidence that chronic appendicitis may cause colitis. Mr. Lockwood of England has recently recorded three cases of colitis in which the removal of a chronically inflamed appendix resulted at once in the disappearance of all the colitis symptoms; in each of the cases the appendix contained septic material which periodically escaped into the cecum. Chronic appendicitis can apparently give rise to colitis in three ways: (1) By the inflammation spreading from the appendix

directly to the cecum, ascending colon, and transverse colon; we have evidence of this in many cases of chronic appendicitis. (2) As a result of appendicitis, adhesions may form between the appendix or cecum and other parts of the colon, usually the sigmoid, producing kinks and angles, which result in a local inflammation of the mucosa, which spreads to other portions of the colon. (3) The inflamed appendix acts as a septic focus which is constantly discharging septic material into the colon. It would seem as reasonable to consider this sepsis a cause of colitis as to regard gastric ulcer and gastritis as a result of septic conditions of the mouth and teeth. In the beginning of an attack of colitis there is usually tenderness over the whole course of the colon. Very frequently all the tenderness will disappear except that over the appendix, where it persists. This is an indication that the appendix is involved. The quickest way in such a case to cure the symptoms is to remove the appendix. Recurring attacks of colitis are frequently due to chronic appendicitis, and such attacks may only be permanently cured by removing the appendix.

6. *Bilious or Toxic Type.*—This type is characterized by severe periodic headaches, with occasional attacks of nausea and vomiting. There may be no so-called digestive symptoms other than nausea and vomiting. Between the times of headache such patients are well, save for more or less persistent constipation. An instance of this type is the following:

H. S., female, of 21 years of age. Began to have headaches at 14. She wakes up with intense pain over right eye. There is nausea and she vomits food eaten the previous night. She feels prostrated for the remainder of the day. Three years ago she was put upon a milk diet and was free from headaches for three months, until she returned to solids. Bowels very constipated. For past two weeks she has been in bed and on a milk diet with colonic irrigations. Examination of test breakfast shows nothing abnormal. Examination of a stool shows much free starch and large amounts of mucus. There was persistent tenderness over the appendix and ascending colon. Dr. Harold Barclay transferred the patient to me for removal of the appendix, which was performed in April, 1912. The appendix was chronically inflamed, irregularly thick and its mucous membrane resembled granulation tissue, extending along the side of the appendix and cecum was a definite Jackson's membrane, which was divided. Two and a half years after the operation, the patient considers herself well. She has an occasional mild headache on getting tired. Her bowels are acting normally. Examination of the feces shows them now to be perfectly digested.

7. *Neurasthenic Type.*—An instance of this is the following:

A woman of 38, with a nervous temperament, was seen November 30, 1913. For 13 years had had attacks of abdominal distension in the early morning, which came on without reference to food. By belching she would try to bring up gas, which attempts would make her so nervous that she would then become nauseated and would vomit. There was no pain other than the discomfort caused by the distension. The patient gradually became more nervous and more irritable. She dreaded seeing people so much that she did not go out alone, and her fear was so great that she would not board a train or auto or street car. She was melancholy and depressed. Bowels were very constipated. The toxemia was treated medically and under this treatment the bowels became regular but the gaseous distension still kept up. An *x*-ray picture showed nothing but a retaining of the bismuth in the cecum, ascending and transverse colon for 72 hours. The stomach emptied itself normally. There was considerable intermittent tenderness over the appendix. This organ was finally removed. Its tip was adherent in its distal half and it was obliterated. There was a small ulcer in its base and it contained several fecaliths. After four months the bowels are now acting normally, the nervousness has practically ceased and the gas is improving rapidly.

In the October, 1914, issue of the *Amer. Jour. of the Med. Sciences*, there is an article by Friedman in which he attempts to differentiate by means of examinations of the blood between gastric ulcer, duodenal ulcer, and chronic appendicitis. The results are based on fifty operatively demonstrated cases. The conclusions in the main are as follows:

Gastric ulcer		Duodenal ulcer	Appendicitis
Pyloric group	Nonpyloric		Large mononuclears
Anaemia	Polyglobulia		
Absence of leucocytosis	Leucocytosis	Polycythemia	Transitionals Leucocytosis
Relative eosinophilia	Absence of eosinophilia		

If Friedman's conclusions are sustained, then we may find help in examining the blood so far as making a differential diagnosis is concerned. As for my own conclusions concerning results obtained from the blood examinations, I may say that such examinations have, as a rule, yielded very little positive help in making a diagnosis in chronic appendicitis or gastric ulcer.

The above are the types of reflex disturbances, as I have seen them, which are caused by chronic appendicitis. I do not maintain that it is a complete list whatsoever. It will serve, however, as a warning to our medical brethren not to use the words nervous indigestion, neurasthenia, gastralgia, intestinal toxemia, bilious headaches, and similar terms as indicating a functional disturbance only unless an organic basis has been ruled out absolutely.

In appendicular gastralgia most cases are cured by the removal of the appendix. Paterson makes the assertion that in from 10 to 12 per cent. of appendectomies for chronic, reflex disturbances, this operation is not followed by relief. He explains this by the fact that a gastric ulcer (superficial) may have been present which, at the time of the exploration, was not discoverable on external examination. The sequence of events in such cases is this: 1, appendicular disease; 2, erosion of gastric mucosa; 3, then superficial gastric ulceration (so-called medical ulcer); 4, and later a recognizable, indurated ulcer. In such cases a second exploration might be justifiable. If there are external evidences of a gastric ulcer being present, then a gastroenterostomy would be in order. If no such evidence is discoverable, then it would be proper to open the stomach wall itself so as to positively ascertain whether a superficial erosion or ulceration were present or not. No gastroenterostomy should be performed in the absence of a demonstrable lesion. Perhaps the majority of conservative surgeons would hesitate about performing this second exploration but it is conceivable that the symptoms might become so severe as to require its being performed.

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THERAPY OF FEVER IN PULMONARY TUBERCULOSIS.

By EDWARD N. PACKARD, JR., M.D.,

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On theoretical grounds the artificial reduction of fever would seem to be contraindicated. Vaughan[1] believes that practically all fevers are "protein fevers," *i.e.* the infecting organism constitutes a foreign protein which is split up into its finer parts

by either general or specific enzymes formed by cells outside the digestive tract. The non-specific proteolytic enzymes are normally present in the body and constitute the most important factor in racial and individual immunity. Those protein molecules which escape the action of the general enzymes stimulate certain parenteral cells to produce a proteolytic enzyme which is specific for that particular foreign protein. Fever itself is produced by (1) the activity of the cells to produce this enzyme, (2) the cleavage of the foreign protein, and (3) the reaction between the products of this digestion and the tissues, especially when an active and virulent poison is liberated.

Fever must be regarded as a conservative process. Its purpose is the disposal of foreign and dangerous material.

Although fever may be a "beneficial reaction," yet we are justified in doing all that is within our power to limit or control the introduction of the injurious substances causing this reaction, and to conserve and aid the body to overcome the poisons stimulating the tissue cells.

In general, the therapy of any fever consists in removing, or limiting, the cause of the fever; or reducing the fever itself by drugs, hydrotherapy, and other measures.

Unfortunately it is impracticable, and often impossible, to remove the foci of disease in a tuberculous lung on account of surgical and anatomical difficulties; but we can limit the absorption of tuberculoprotein from these areas by at least two methods. The first is functional rest of the lungs by means of rest in bed; the second is mechanical rest of the lungs by means of artificial peumothorax, or the more severe operation of thoracoplasty and pneumolysis. Other means for attacking fever are the dietetic and hydrotherapeutic measures, and, more indirectly, vaccines, tuberculins, and drugs.

Rest.—The value of rest in pulmonary tuberculosis has not been generally appreciated. The surgeon has long made use of this principle in the treatment of tuberculous joints. He finds that his success depends upon his ability to immobilize the affected parts. Why this treatment has not been applied more vigorously in the past to pulmonary cases is probably because the outward signs and symptoms of the consumptive have overshadowed and masked the underlying cause. Both physician and patient have noted the pallor, the loss of weight, and the loss of strength. The advice has been to get out into the country, to breathe deeply, and to take long walks in order to build up. Had the patient a turberculous knee he would not have received such advice. The leg would have been put in a cast for months. If active infiltration of an apex, or an ulcerated area caused pain with every movement of the lung, patients, no matter how strong or robust, would remain exceedingly quiet.

In any tuberculous condition rest of the affected part is the indication. Under certain conditions absolute rest of the lung can be obtained by artificial pneumothorax. But this form of treatment is applicable to a comparative few, while for the vast majority of febrile tuberculous patients rest in bed is the great antipyretic. The respirations are diminished in number, the heart is slowed, and the lung is given functional rest. Thus the absorption of tuberculoprotein is limited, and the "fever reaction" is directly affected.

It has been estimated that the normal man at labor produces several hundred per cent. more heat than when he is at rest.[2] It is especially important then that the muscular exertion of febrile patients be limited to the minimum.

Whatever the degree of fever rest in bed is indicated. Paterson[3] believes in the complete immobilization of the patient. That is, the patient is not allowed to leave the bed but must use the urinal and bed-pan; he is fed; he must not raise his arms but must keep them at his sides; he is denied visitors and reading matter. In other words, "he lies like a log." This treatment is applied to those patients previously afebrile who suddenly have a fever of supposedly tuberculous origin. Of course in the chronic type of fever this measure could not be so completely carried out, although Paterson enforces the strictest rules for a time. With low-grade fevers certain indulgences may be allowed, such as the use of the toilet, washing or shaving oneself. Perhaps when the fever does not rise above 99.5° the patient may sit in a reclining chair for a good share of the day. With fever above 100° the bed should be used and muscular movements limited. With high fevers the patient should be waited on for everything.

Moreover, rest in the open air has its great advantages. Cold air acts as an antipyretic and has a markedly soothing effect upon the cough. Coughing is vigorous exercise and produces upon the lung an effect directly opposite to that which we wish to attain. Therefore, cough sedatives should not be withheld.

As to the value of rest in fever the figures of Burton Fanning[4] are interesting. He found that of 716 sanatorium patients at rest 50 per cent. lost their fever within a period of one month.

Artificial Pneumothorax.—One of the great advantages of this form of treatment is the relief which it affords from such distressing symptoms as fever and cough. Unfortunately the benefits to be derived by its use can be applied to but a limited number of the tuberculous. At present its usefulness is confined to rapidly advancing unilateral cases, or far advanced cases with limited disease on the "good" side, and for uncontrolled hemorrhage. Fever *per se* is not an indication for collapse therapy, but chronic fever associated with other signs and symptoms favorable for pneumothorax treatment is a strong argument for its use.

The reduction of temperature following the injection of gas depends more or less upon the extent of the collapse established. Complete collapse with no active disease on the other side, and no complications, reduces the temperature to normal. Even with a partial collapse fever and cough are often markedly reduced.

From personal observation of twenty-three cases running fever before the beginning of the treatment, eighteen, or 78.2 per cent., showed a reduction of fever following the establishment of the collapse.

Dunham and Rockhill[5] report a reduction of fever in ten out of fourteen of their cases, or 71.5 per cent.

Samson's[6] report is still higher, showing a reduction of fever of varying degrees in fourteen out of sixteen cases, or 87 per cent. These cases were complicated by nephritis, exudates, etc.

The literature upon artificial pneumathorax is very extensive. Reports from all sources agree as to the power of collapse therapy to alleviate symptoms. In general, it may be said that the treat-

ment will cause a temporary or permanent reduction of fever in at least 75 per cent. of all cases favorable for the injection of gas.

If fever is a sign of active disease, these figures are very significant.

Thoracoplasty.—In connection with mechanical rest of the lungs mention should be made of the more radical operation of thoracoplasty. Sauerbruch, L. Spengler, L. Brauer, and Tuffier are the chief exponents of this treatment. It is the extrapleural method of collapsing the lung by a resection of ribs on the affected side, causing that side to fall in, and so restrict lung movements. Baer[7] of Davos has devised a scheme of resecting a rib over a cavity, then by pushing in the parietal pleuræ he forces the walls of the cavity together. The hollow created between the pleuræ and the ribs he fills up with paraffin or fatty tissue.

Sauerbruch[8] reports a favorable effect upon the fever after thoracoplasty. The temperature is raised immediately following the operation, but later it gradually and steadily falls. His statistics are interesting, especially when we bear in mind the fact that the majority of his cases were far advanced. Of a total of seventy-five cases, two died at operation, eleven died at varying intervals later, seventeen were healed, nineteen greatly improved (of these six to eight were practically cured), nineteen were improved; four remained unchanged, and three were made worse.

Surgery of the lung is at the beginning of its development, and no doubt in the future it will be of great benefit to many.

Vaccines.—The great excursions of temperature seen in the advanced stages of tuberculosis, coupled with the fact that in the sputum of such cases there are often found large numbers of organisms besides the tubercle bacillus, led Koch and his school to interpret this condition as septic in nature, and due to a mixed infection in the lung. Pettit,[9] and Brown and Petroff[10] have reported positive blood findings in many tuberculous cases.

On the other hand, Radcliff's[11] detailed investigations tend to minimize the occurrence of mixed infection. From a number of conclusions which he makes I take the following: (1) In the majority of cases of advanced tuberculosis of the lung the tubercle bacillus is the sole infecting agent. (2) Secondary infections do play a part in pulmonary tuberculosis in a small percentage of cases. (3) The temperature curve is useless in determining the presence or absence of a secondary infection. (4) In all cases (except one) no effect was produced on the clinical picture, or on the course of the disease by autogenous vaccine treatment, in spite of the fact that the opsonic curve showed an immunizing response to the inoculation of a mixed vaccine.

Radcliff thinks that some good can be accomplished by vaccine treatment against secondary infections, but that the temperature and general condition of the patient is due to the rapidly advancing tuberculosis, which is the important factor in these cases.

Do vaccines made from the predominating organism or organisms in the sputum have any effect upon the temperature?

Hudson[12] reports upon four hundred cases of pulmonary tuberculosis treated with vaccines. In 70 to 80 per cent. no result was produced, either good or bad. A few among the remaining were markedly benefitted, the rest seemed to show more or less general improvement with the fever "abating a degree or two." It is difficult to interpret from these results the value of the vaccines, for all the patients were following at the same time the routine measures of treatment.

Riviere and Morland[13] have employed vaccines as a routine procedure and have seen benefit from their use.

The time and trouble required to make a vaccine, the uncertainty as to the exact organism supposed to be causing the symptoms, and the lack of abundant positive results following its use, have kept the majority of clinicians from using autogenous vaccines more generally. But it is a method of treatment worthy of trial in stubborn cases.

Tuberculin.—By some authorities tuberculin is considered an antipyretic. It should, however, never be used until less drastic measures for reducing fever have been tried. At least three to four months' rest in bed should be required before tuberculin is injected for its antipyretic effect.

Not every type of fever should receive tuberculin. Early cases with low-grade fever should be kept quiet, depending on rest to reduce the temperature. Higher grades of fever do not do well under tuberculin treatment, whether this fever is considered due to "mixed infection" or not. Far advanced cases with fever are too saturated with their own tuberculin to respond to the outside stimulus. The fever which responds most readily to tuberculin is the low-grade, chronic type found in well-nourished individuals, or those cases who have no fever when at rest, but have a rise in temperature on slight exertion. But even among these types only an occasional case will be found in whom tuberculin can be credited with lowering of fever.

If fever is considered a spontaneous tuberculin reaction the injection of more tuberculin would seem to be contraindicated. The favorable results seen in some febrile patients taking tuberculin is explained by Shali[14] to be due to the sudden variation in the concentration of the poison in the organism. The injection causes a favorable anti-action, an anti-action which does not result from the more uniform absorption in the natural course of the disease.

Whatever the theoretical grounds for and against its use in febrile cases, tuberculin doubtless has an antipyretic effect in some patients. Phillippi[15] reports that in ninety cases of all stages who had had fever for an average period of five and one-half months before the commencement of specific treatment sixty-five became afebrile with tuberculin. The average time required was from twenty-four to fifty-six days, depending upon the stage of the disease.

On the other hand, Bardswell[16] in his recent report says that he has failed to obtain any conclusive evidence of the antipyretic value of tuberculin. He adds that "tuberculin can often be given to febrile cases without the production of reactions, but even if such disturbances are avoided, no beneficial effects have so far been noticed."

Thus one is forced to the conclusion that tuberculin given to febrile cases in extremely small doses (.0000001 gm. to .00000000001 gm.) may do no harm and may possibly work the desired effect. Such treatment, however, is fraught with danger.

Hydrotherapy is one of the oldest remedies for allaying fever. Its usefulness is so well known that no extended comment is needed here. Often a little alcohol, or vinegar, added to the water in the proportion of one to four and used as a sponge bath

will be found useful. An alcohol rub is of great service, as the rapid evaporation cools the skin. A cold-water coil, or an ice bag over the heart is soothing to many patients.

Ice rubs, cold packs, or cold spinal douches, are vigorous measures and should be used with caution in the tuberculous. Any hydrotherapeutic measure that excites or fatigues the patient may prove more harmful than helpful.

Dietetic.—Sahli[4] recommends a short "fasting cure" when patients are running a high fever. He believes that fever more often subsides with a scanty diet than with a free one; that in fever there is incomplete digestion, and that a rich supply of food adds new toxic factors to the question, and perhaps promotes the direct absorption of foreign protein and bacteria from the intestines. On the other hand, a diminished food supply acts as an antipyretic in decreasing the production of heat.

In acute febrile attacks a limited diet, such as milk and the whites of eggs, is given, and with the lowering of temperature a gradual return to solid food. A slight temporary loss in weight during such an attack is of less moment than the digestive disturbances caused by forced feeding.

With the chronic type of fever as much solid food should be given as is compatible with the digestive powers of the patient. Fever rarely abates in a patient losing weight.

Medicinal.—The artificial reduction of fever by drugs is a questionable procedure. If fever is a part of the defensive mechanism of the body, on theoretical grounds, the use of drugs as antipyretics would be contraindicated. However, with uncontrolled high fever sapping the strength of the patient, and producing distressing effects upon mind and body, we are justified in making a trial with them.

Unfortunately, results are not uniform. If an antipyretic effect is obtained this is usually lost immediately on stopping the drug. Very frequently the unpleasant after effects of the antipyretic are of more discomfort than the fever itself. Very rarely is a permanent lowering of the temperature seen after the administration of a drug.

Drugs which have a direct effect upon fever are the coal-tar and wood-tar derivatives. Their exact action upon the heat-regulating mechanism is not known, but following their ingestion decomposition products are formed in the tissues, and at the same time fever falls.[17]

The various members of this group differ chiefly from each other in the rapidity with which these products are formed. A rapid formation leads to blood changes and collapse, while the antipyretic effect passes off quickly. Those drugs are found the most satisfactory in which this decomposition proceeds gradually, so that the temperature falls slowly and remains low for a longer time. A partial list of these drugs or their derivatives includes antipyrine, antifebrine or acetanilide, phenacetine, analgine, thalline, salophen, salicylic acid, salicin, salol, aspirin, and pyramidon.

Probably the drugs used most frequently to-day for the reducton of fever in phthisis are pyramidon and aspirin. Both these preparations have held their own against all the other drugs which have flooded the market. Pyramidon is best given in small doses (2 to 5 grains) in a glass of water to be sipped over a period of three or four hours before the usual rise of temperature. The dose may be repeated in an hour. Aspirin is usually given in 5-grain doses, but frequently 2 to 3 grains will be enough to cause profuse sweating.

There are two points to be remembered in the administration of antipyretics. First, individuals vary in their susceptibility toward them, and second, patients using these drugs for any length of time often acquire a tolerance toward them.

The disagreeable results attendant upon the use of antipyretics are sweating, chills, and depression. When the fall of temperature is rapid, sweating is very likely to occur, and the following rise of fever causes chills or chilliness. During the day after the use of these drugs there is often a marked mental and bodily depression.

New preparations aimed to produce antipyretic effects without the attending disagreeable symptoms are being added to the list year by year. A few of these newer drugs are: Melubrin, a substitute for aspirin, said to have a longer antipyretic effect; aspirin-calcium, which contains 10 per cent. of calcium, and is said to be better borne than aspirin; hydropyrin grifa, a watery solution of the lithium salt of acetyl-salicylic acid (aspirin)—Neivling[5] recommends it combined with arsenious acid in the chronic fevers of phthisis; tropfenform, a preparation from ichthyol; and iodglidine, derived from iodine.

Good results are said to follow the injection (either intramuscular or intravenous) of colloidal copper (electrocuprol). Thirty-eight cases reported by Damask[19] became permanently afebrile after three to twelve injections. Subcutaneous injections of 20 per cent. camphor oil twice a day have been recommended by Weihrauch,[20] 20 per cent. of his two hundred and forty-six cases so treated showed complete or partial reduction of fever after ten to forty injections. G. Schroeder[21] was unable to convince himself of the usefulness of this remedy for fever.

Hartley[22] has had success in treating febrile tuberculous cases without a luetic history with neosalvarsan. His sixteen cases all showed a defervescence after from one to three injections. No severe reactions occurred, although some patients were in a far advanced stage. He recommends that this form of treatment be given a more extended trial among the febrile tuberculous.

Summary.—The points to be emphasized in the therapy of fever in tuberculosis are briefly these: First and foremost, absolute rest in bed, preferably out of doors; artificial pneumothorax in selected cases; a trial with autogenous vaccines, especially when there is copious purulent expectoration; the cautious use, if at all, of tuberculin, and then only after other measures have failed; hydrotherapeutic measures suited to the condition and comfort of the patient; an ample diet, but not necessarily "forced feeding"; and the judicious use of medicinal antipyretics.

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GANGRENE WITHOUT ORGANIC VASCULAR DISEASE.

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THERE are still many clinicians who are of the opinion that gangrene of the extremities must depend upon some organic derangement of the patency of the arteries or veins, regarding those scant reports of Raynaud's disease, in which changes in the vessels have been found, as being irrefutable testimony in favor of their own view. An analysis of such references in the literature has convinced us that no distinct causal relationship between the vascular lesions and the symptoms has been definitely established in any of the reported cases. Furthermore, when in the course of our studies on arterial disease we had the good fortune to obtain amputated material from two cases of gangrene *in which all the vessels were pulsating*, an opportunity was afforded us to prove conclusively that *even extensive, spontaneous gangrene can occur without organic vascular disease.*

In previous publications* it was held by one of us that it is possible by clinical and pathological attributes to separate two great classes of cases in which vasomotor and trophic disturbances of the extremities dominate the clinical picture, those dependent on and those independent of vascular disease.

In order that all doubt may be dispelled as to the possibility of the occurrence of gangrene in the absence of vascular disease, it may be of some value to report briefly the histories of our two cases and also to give a resumé of the results of our pathological studies.

CASE I.—*Sensory and vasomotor phenomena of both lower extremities, gangrene of small extent with pulsating and normal vessels.* M. R., male, Russian Hebrew, 40 years of age, was first examined by us on November 24th, 1908, at the Mount Sinai Hospital. As far as can be elicited, there are no nervous stigmata; habits good, very little alcohol, smoking moderate. Some 6 years ago he remembers having had some "trouble" with both feet. There were periods of weeks and months during which the toes of both feet became exceedingly painful, the big toes being first affected, followed by successive involvement of each and every toe of both feet. He is not certain that the toes were discolored, but believes that they had a tendency to become blue. There was no pain in the leg and foot on walking. These symptoms would pass off after 2 or 3 months, and did not reappear for almost 9 months. He distinctly remembers a severe recurrence after this interval, but the relapse was not of as long duration as the initial attack. He has been free from all symptoms for almost 4 years.

In August 1906, he was first attacked with severe pain in the middle toe of the left foot. The toe became discolored, intensely blue and slightly swollen. Gangrene set in within 3 weeks and in September the toe required amputation. There had been no trouble in walking or any ache whatsoever, nor can the patient think of any cause for the affection, such as injury, exposure, etc.

In June, 1907, there was pain in the toes of the right foot, the fourth toe soon becoming blackish, and ulcer resulting after the separation of some mortified skin.

In September 1908, the middle toe of the right foot and the little toe of the left foot developed similar manifestations with small areas of gangrene.

Examination, November 24th, 1908.—Left leg: The third toe has been amputated at the first interphalangeal joint. The fifth toe is cyanotic over its distal half. Otherwise the color of the foot is normal. *All the palpable vessels of the foot and leg, the dorsalis pedis, posterior tibial, the femoral and the popliteal pulsate strongly.* Right leg: There is marked cyanosis of all the toes, particularly of the third toe even in the horizontal position. In the pendent position, the cyanosis gradually deepens, but absolutely no evidence of rubor or erythromelia can be elicited. In the horizontal position, the tips of the third, fourth and fifth toes are purple, but apparently less so than when examined some two weeks ago. There is a superficial patch of gangrene over the third toe, and the fifth toe shows the deepest blue discoloration. *All the vessels pulsate, the dorsalis pedis, posterior tibial, popliteal and femoral.* In the elevated position, it is difficult to determine whether ischemia is present or not. At any rate, it is not sufficiently marked to be diagnostic. In the pendent position, the right leg becomes more blue, the veins stand out very prominently and, at times, one can see a certain amount of rubor which is not typical of thrombo-angiitis obliterans. The same phenomena are present when the left leg is examined in this position; the pain becomes more marked, to such an extent that the patient cries for relief wishing to bring the foot back to the horizontal position. Sensation is practically normal over both feet and even the gangrenous toe has sensation, except over the mortified area. Nerve status, negative (no evidence of syringomyelia). Thus the symptom-complex is mainly characterized by *cyanosis* of the toes and foot, *gangrene* of slight extent with *pulsation of all the palpable vessels.*

On December 29th, 1908, the patient was again admitted to the Mount Sinai Hospital. He says that for more than a month the little toe of the left foot has troubled him, the bluish color persisting, till gangrene finally set in.

Physical examination shows dry gangrene of the distal half of the little toe of the left foot. Now, too, the striking signs are the pulsation of the vessels, cyanosis and gangrene.

January 4th, the little toe was disarticulated and within a month the wound was healed.

In brief, we are dealing here with a case in which, after a prodromal period of attacks of sensory disturbances in the lower extremities, there supervened paroxysms in which sensory and vasomotor disturbances made their appearance. These in their turn gave way to dry gangrene, the toes of both feet being affected almost symmetrically. The absence of the typical ischemia, of erythromelia and of any evidence of obliteration of the vessels, excludes the diagnosis of thrombo-angiitis obliterans; we may, therefore, assume that we have here, either a case of atypical Raynaud's disease or of so-called "acro-asphyxia."

CASE II.—*Paresthesiæ, chronic cyanosis, and pain terminating in gangrene; all palpable vessels pulsating.*—M. S., 50 years of age, male, Russian Hebrew, admitted to the Mount Sinai Hospital, February 13th, 1909, traveling salesman; in this country four years. Habits good, smokes ten cigarettes daily, married, four children, denies lues. He thinks that about 13 years ago, he had symptoms in the right hand similar to those that now affect his left leg. The finger tips

*Buerger: *Am. Jour. Med. Sc.*, Oct., 1908, and Jan., 1910.

were blue and cold, and there was a feeling of "pins and needles," with occasional pain, lasting for almost two months.

About 6 months ago his right leg began to trouble him, and the second toe became very blue, but the symptoms all disappeared upon internal medication. Three months ago he began to experience peculiar sensations in the toes of the left foot, and the third and fourth toes became very blue. In addition to the pain and cyanosis, there were peculiar sensations in the toes and in the ball of the foot, as if they were pricked by needles. As time went on, these pains increased so that they finally became almost unbearable in the pendent position of the leg. As for the general symptoms, he complains of frequent dizziness, and attacks in which spots appear before the eyes.

Physical examination: The patient is a well nourished male; heart negative; radial pulse somewhat thickened. Left leg: The third and the fourth toes are distinctly bluish, the foot is cold; *all the palpable vessels are found to pulsate distinctly.* Right leg: There is slight cyanosis in the pendent position. Wassermann reaction negative; blood varying between 150 and 175 mm. Nerve status; no evidence of any organic nerve lesion can be detected on complete examination of nerve status (D. I. Strauss).

Examination, February 24: Left foot: Cyanosis of the left foot has considerably deepened in the horizontal position; the third, fourth and fifth toes are very blue, and on the plantar aspect suggest that these are the seat of the impending gangrene. *The dorsalis pedis, posterior tibial, popliteal and femoral arteries pulsate strongly.* There is slight edema of the forepart of the foot.

March 4, 1909: Now the third toe of the left foot over its distal phalanx is distinctly gangrenous, the foot and ankle are very edematous, although all the vessels can be felt pulsating. There is no marked erythromyelia, no marked ischemia in the elevated position.

March 7: The second and third toes of the left foot are now completely gangrenous; the fourth toe shows a patch of superficial gangrene over its plantar aspect; the big toe is slightly cyanotic, but shows no evidence of gangrene. The edema of the foot is increasing considerably.

In short, within a period of four months, the symptoms being cyanosis and pain in the left foot, there finally developed gangrene of three toes. Because edema was rapidly increasing over the foot and leg, and the gangrene bid fair to extend rapidly, and because of the intense, almost unbearable pain, it was decided to amputate, so that on March 11 the leg was ablated through the upper fourth by Dr. F. Oppenheimer. *The larger vessels were found patent* and required ligation. None of the usual appearances so characteristic of the vessels in thrombo-angiitis obliterans were found, and no evidences of thrombosis discovered at the point of section.

On the following day, secondary hemorrhage occurred. The patient was taken to the operating room and the vessels caught and tied.

On March 24, 1909, because of sloughing of the skin and absence of any tendency to heal, reamputation was done, after which the wound healed slowly, the patient being discharged on May 18, 1909.

Summarizing the important features of this interesting case, we may say that in a patient in whom some thirteen years previously there had been a distinct history of vasomotor phenomena in the upper extremities, and in whom, some six months ago, the right lower extremity also seemed to have been involved in a similar way, there finally developed the following symptom-complex in the left leg: paresthesiæ, pain and asphyxia or cyanosis of the left foot. After a period of four months, in which the pain became more and more severe, the cyanosis involving three of the toes deepened, finally terminating in gangrene. All of the vessels that can ordinarily be palpated were found distinctly pulsating and at operation proved to be patent at the point of ablation.

Pathological Examination.—It was the material from the second case which was particularly valuable for our pathological studies. In Case 1, we were only able to obtain the little toe for examination; in Case 2, however, the foot and lower two-thirds of the leg were carefully dissected and practically all of the larger arteries, veins and nerves preserved for microscopic examination, as well as the tissue of four of the toes. A thorough study of the larger nerves in Case 2, with the usual histological methods, was included in the investigation. For our purposes here it will suffice to record simply a brief summary of the pathological findings, reserving a detailed account for a future publication on the subject of gangrene.

In addition to the vessels of the toe in Case 1, the following arteries and their accompanying veins were completely dissected out in continuity in Case II, and a larger series of microscopic sections made: the posterior tibial, anterior tibial, the plantar arteries, dorsalis pedis, their venæ comites, and the internal saphenous vein through their course, and all of the tissue save the bone of the second, third, fourth, and fifth toes.

Except for slight thickening of the walls of the veins and arteries in a few places, and an occasional sign of the earliest atherosclerotic changes, the vessels were practically negative throughout; nowhere were they occluded.*

As for the nerves, the following were examined: the internal and external plantar, the anterior tibial, the posterior tibial, and branches of the peroneal nerve. In none of these could degeneration be detected. The Marchi and Bielschowsky were the methods employed in searching for degeneration.

In short, there were neither lesions in the nerves nor in the arteries and veins that were in any way related, or could be held responsible for the gangrenous process in either the first or second case.

If we call to mind the various affections of the extremities in which sensory, vasomotor, and trophic disturbances co-exist in varying syndromes, we have, on the one hand, those in which the clinical manifestations depend on occluded arteries, on arteries and veins, and on the other hand, those in which neither organic vascular disease nor organic nerve lesion can satisfactorily explain the phenomena. In the former group we include the disease "thrombo-angiitis obliterans" and the atherosclerotic and endarteritic affections of the vessels of the extremities. To the latter group belong erythromelalgia, Raynaud's disease, gangrene, chronic acroasphyxia, scleroderma, sclerodactyly, and multiple neurotic gangrene, etc. All of these may terminate in a gangrenous process that arises spontaneously, without the aid of external physical agents, such as trauma, or of chemical influences.

If we analyze the histories of our two cases we at once realize that it is to the second group that our patients belong, the differential diagnosis in both resting between Raynaud's disease and chronic acroasphyxia. Whereas the first case seems more closely related to the Raynaud affection, the more progressive and continuous nature of the cyanosis and the absence of paroxysms would tend to characterize the second case as one of the group "acroasphyxia chronica."

Conclusion—It has, therefore, been definitely shown by our pathological investigations of the vessels and nerves in one case of gangrene of the lower

*Only few arteries leading into some of the gangrenous areas showed recent thrombosis, doubtless as a sequence of the mortifying process. Some interesting observations were made on the minute vessels in the subcutaneous tissues. Marked proliferation of capilaries was noted in places. These, however, did not seem to be of significance and we, therefore, reserve a discussion of the finer histological points for future publications.

extremity, and by clinical observations of two cases, that spontaneous gangrene can occur in the presence of patent vessels and of peripheral nerves in which no significant pathological alterations can be detected.

INTESTINAL TOXEMIA AND DIABETES.

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REDUCED carbohydrate tolerance (*i.e.* glycosuria following the administration of 100 to 150 grams of dextrose when the stomach is empty) will often be found in patients presenting the manifold clinical picture to be presently described; this is associated with the excretion of abnormally large amounts of aromatic bodies in the urine, viz., chiefly aromatic sulphates, with indican, in quantities over 20 mg. per diem, as their main representative, and aromatic (conjugate) glycuronates. The latter reduce Fehling's solution and may lead to confusion with true glycosuria.*

As a rule all these bodies indicate excessive intestinal putrefaction with absorption of abnormal aromatic cleavage products of albumin; the latter being produced in such excess that after saturation of the available sulphuric acid to form aromatic sulphates (indican, etc.) a surplus calls for saturation with glycuronic acid, causing the elimination in the urine of aromatic glycuronates. This in itself constitutes a mild interference with the normal carbohydrate metabolism, for glycuronic acid is a product of the incomplete oxidation of dextrose. Hence, even in the absence of dextrose from the urine, the excretion of glycuronates may constitute a diabetic, or "pre-diabetic," phenomenon. Combined with dextrose glycuronates are often found in the urine in fully developed diabetes.

The subjective complaints of the patients are essentially dyspeptic (dystryptic); these are symptoms in the region of the upper abdomen without, as a rule, determinable evidence of organic lesions about the stomach, bowel, liver, or pancreas, even when the abdomen is opened, as is so frequently done on suspicion. The difficulties in the beginning, at least, are purely functional in character. Constipation is the rule, now and then alternating with diarrhea, the latter the result of chemical and mechanical irritation of the sigmoid and rectum, as manifested by the appearance of mucus, occasionally a little blood in, or rather on, the stools. Vague aches and pains all over the body (possibly a mild toxic polyneuritis) are very common. Practically all of these patients are depressed and chronically fatigued. Hence they are frequently classified as neurasthenics or, on account of the fleeting pains in muscles and joints, as rheumatics, or, on account of the scanty, concentrated urine, with resulting abundant sediment, as uric acid cases.

Very characteristic are disturbances involving the sympathetic system with vasomotor instability manifesting itself chiefly in poor capillary circulation, hyperhidrosis with cold extremities, occasionally dermography and hives. Vagus irritation becomes manifest in arrhythmia, fluttering of the heart, palpitation, all very disagreeable to the patient, but not interfering with active exercise; in fact, usually disappearing upon physical exertion. Now and then one encounters very troublesome visual disturbances that are characterized by their unstable character, so that attempts at refractive correction remain quite unsatisfactory. Often the pupils are dilated and respond only sluggishly to light. Roaring in the ears is a common symptom without discoverable local causes. Headache, especially of the migrainous type, is occasionally observed.

In all cases presenting the above syndrome together with the urinary findings described, I have made it a rule to make tolerance tests for dextrose and I find marked degrees of tolerance reduction in a large proportion of these patients. A normal subject should excrete no dextrose in the urine, after the ingestion of from 100 to 150 grams of dextrose when the stomach is empty. Nearly all of these patients do. In some of them even intolerance to other carbohydrate foods can be discovered.

The trouble no doubt lies primarily in the upper intestine, for the most important early steps in the carbohydrate metabolism are carried out in this region and in the large digestive glands tributary thereto. Broadly speaking the picture is that of a chronic intoxication, presumably the result of incorrect, disturbed degradation, especially of the food albumins, aided by the decomposing action of putrefactive bacteria upon abnormal albumin fragments.

The exact nature of the poisons generated in this way remains quite uncertain, although naturally nearly every cleavage product found in the intestine has been incriminated; nor has it even in fact been demonstrated with accuracy that poisons circulate at all. In view of the fact, however, that the symptoms produced in these cases markedly resemble the manifestations of certain alkaloids that are intensely toxic, so that they can produce very harmful effects in almost incredibly small doses that assuredly would evade detection by chemical means; in view of the fact that biologic means of detection are as yet inadequate, particularly as we are in all probability dealing with putrefactive products of albuminous molecules that differ only slightly from the normal fragments (it should be remembered that the nearer cleavage products remain in their composition to the original molecule, the more toxic they appear to be) it need not surprise us that we cannot specify certain definite chemical individuals as the offending malefactors. We are quite justified, however, in postulating their existence from their manifestations.

The development of alimentary glycosuria (reduced tolerance) and later diabetes in these cases is presumably the result of prolonged injury by these poisons to the liver and to the pancreas, the liver being continuously flooded with the toxins as they pour into the portal system, the pancreas being in-

*These glycuronic acid compounds often produce in the absence of urinary dextrose simply a browning of Fehling's solution, a "delayed Fehling reaction." The differentiation between glycuronic compounds and dextrose is not always easy. Whereas the free acid is dextrorotary, its aromatic compounds turn the plane of polarized light to the left. Hence urines containing no dextrose but slightly reducing Fehling's solution should, if they contain aromatic glycuronates be levorotary. In order to demonstrate positively the presence of glycuronic acid, the latter must be liberated from its compounds by boiling with dilute sulphuric acid. The orcin test is then made. If it is positive, corroborative evidence can be secured spectroscopically. If urine containing dextrose remains levorotary after removal of the dextrose by fermentation, beta oxybutyric acid, or aromatic glycuronates may cause this levorotation. If, however, the urine after fermentation still reduces Fehling's or Nylander's solution and gives a positive orcin reaction, then the presence of glycuronic acid compounds is demonstrated.

volved either directly by ascending infection through its ducts or indirectly via the liver; the sequence cholangitis, cholelithiasis, chronic pancreatitis being notoriously common. Injury either to the parenchyma of the liver, to the duodenal wall, or the pancreas can produce diabetes.

The treatment of these conditions can be discussed under three heads, dietetic, medicinal, surgical.

To place these patients at once upon the discovery of a reducing urine on an "antidiabetic" diet is, of course, bad practice. If the reducing body is glycuronic acid then such a meat-fat diet is actually harmful and an increase of the glycuronates and of the other aromatic bodies will be promptly noticed, together with an aggravation of the symptoms. For the main exogenic sources of these aromatic radicles are the food albumins; to increase the latter far above normal rations, therefore, of necessity increases the source of poison.

If the urine contains no dextrose or small quantities of dextrose, associated with large quantities of aromatic bodies (viz., indican in quantities of 30 to 100 mg. a day and glycuronates, *vide supra*) then the diet should primarily be arranged in such a way that the aromatic bodies become reduced. even though dextrose excretion in the beginning supervenes or, if it is already present, remains at the same level or even slightly increases. To accomplish this the diet for a period of days should consist of vegetables, fruits, coarse cereals, bran breads, nuts, milk diluted with lime-water, buttermilk similarly diluted, an abundance of fat in the form of cream, butter, olive oil on salad dressings, and a little bacon, with the minimum of meat, fish, poultry, eggs, and all preparations made from them. All alcoholic beverages and malted liquors and all spices and condiments are forbidden. As a rule all actual sweets are forbidden at first; in some cases it is permissible, heterodox as this may seem, to feed these patients for 24 or 48 hours on a sugar solution exclusively, preceded by a thorough purgation; this reduces the toxemia more rapidly than any other measure, short of actual starvation, and gives the upper bowel region a "digestive rest" that is often beneficial, and in favorable cases accelerates the restoration of normal function.

Such a diet produces a bulky stool, the abundant cellulose undergoing slow gaseous fermentation and rendering the stools fluffy, the fat producing a soapy soft stool that is readily evacuated. It will often be found that on such a diet, even though it incorporates abundant carbohydrate, the sugar excretion will generally remain stationary, occasionally decrease and often disappear, whereas glycosuria promptly recurs as soon as animal proteins are added to the diet. Patients can, of course, maintain their nutrition for an indefinite period on a vegetarian-farinaceus-fat-milk regime of this kind; it is usually unnecessary, however, to maintain this schedule indefinitely, so that after a few weeks meat, fish, poultry, eggs can be gradually added. If they are well tolerated (using the excretion of aromatic sulphates, etc., as an index) while the dextrosuria still persists, then the amount of carbohydrate ration should be gradually reduced, occasional tolerance tests made for control, and in this way the tolerance raised as in any other case of mild diabetes and according to all the well known rules relating to the maintenance of the general nutrition of this class of patients. A one-sided diet is by all means to be decried as well as any routine form of treatment. Individualization is necessary.

Medicinally something can be accomplished in several directions; either, first, by way of a substitution therapy, normal digestive ingredients of the intestine may be supplied, or the secretion of the digestive glands may be artificially stimulated, or, second, certain drugs may be administered that can hold the activity of putrefactive bacteria in check, so-called intestinal antiseptics.

To the first group of remedies belong pancreas and bile preparations. Dried pancreas preparations usually contain an indefinite quantity of inactive material so that it becomes very difficult to standardize their amylolytic or tryptic powers. Moreover, toxic albuminoids are frequently present, the result either of proteolysis occurring during the process of preparation, or of bacterial contamination. Much to be preferred are glycerin extracts of pancreas prepared aseptically.

Of bile preparations the bile-acid salts are in all probability the only bile ingredients that become operative in the upper intestine; as it is possible to isolate them without difficulty from bile, these bile-acid salts, chief among them sodium glycocholate, should by all means be employed in place of the preparations of whole bile. The mode of action of the bile acids is manifold, and has been fully described elsewhere.* Not only do they furnish an ingredient necessary for the proper conduct of digestion in the upper intestinal tract, but they also constitute one of the few real cholagogues we possess and incidentally, both directly and indirectly, operate to reduce bacterial activity; hence they can also be included in the group of intestinal antiseptics.

Sapo medicatus is another valuable cholagogue and is claimed to stimulate the secretion of the pancreas (Felig). The sodium salt of oleic and margarinic acid being normal to the upper intestine renders the remedy essentially a physiological stimulant to hepatic and pancreatic activity.

These remedies should be administered in combination with an alkali, preferably sodium bicarbonate, to be effective. Chologestin may be used in mildly glycosuric cases; it is sugar free and contains sodium glycocholate, a glycerole of pancreas, and sodium bicarbonate in a palatable vehicle.

Salicylic acid and its salts are generally included among the intestinal antiseptics, so called, but I have not found it particularly effective in reducing the urinary excretion of aromatic substances. Hexamethylenamine occasionally produces a good result. The metallic antiseptics are dangerous; organic peroxides, lactic acid bacilli, I have never been able to form a real opinion about.

While the difficulty in these cases lies in the upper intestinal tract, still it is useful to promote thorough cleansing of the large intestine frequently by enemata and by the use of saline laxatives. This should be done systematically. Violent purgatives or carthartics and calomel should not, however, be administered to these cases. Gastric lavage, provided there is stagnation of stomach contents, as the result of mechanical obstruction or of motor insufficiency, may, of course, aid in reducing the toxemia; when gastric motility is normal this measure is, at least, superfluous.

*Croftan: "Some Experiments on the Intermediary Circulation of the Bile Acids," *Am. Journ. Med. Sciences*, January, 1902; "The Bile Acids as a Remedy," New York *Medical Journ.*, April 21, 1906.

In cases presenting evidence of gallstone disease, associated with glycosuria and profuse urinary excretion of aromatic bodies, the diagnosis of chronic pancreatitis must be considered. Cholelithiasis and pancreatitis are not infrequently associated and removal of the gallstones or relief of the cholangitis occasionally cure the pancreatitis; in more advanced cases incision of the pancreas is indicated and is occasionally effective. Special functional tests for pancreatitis should precede such an inroad.* And it should be remembered that the presence of sugar in the urine in these cases must in no way be considered a counter-indication to surgery. Provided the diagnosis is correct, these glycosurias disappear. Chloroform should never be used as an anesthetic in this type of patients; for alarming degrees of acidosis with serious damage to the liver parenchyma have been known to result from its use.

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EHRLICH'S ALDEHYDE REACTION FOR UROBILIN.†

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Urobilin, first described in the urine by Jaffé,[1] has been the source of extensive discussion among clinicians and laboratory workers. Reports on the biological and chemical origin, methods of recognition and clinical significance vary with the clinics and laboratories from which they appear. Some laud its value, other condemn it—the enthusiasts are, however, in the majority.

That urobilin is derived from hemoglobin is beyond reasonable doubt, but it is believed by some that the bile pigments represent intermediate changes in this transition. Hoppe-Seyler[2] was able to prove conclusively that hemoglobin with the aid of strong reducing agents could be changed to urobilinogen and the latter to urobilin by exposure to daylight. This Disqué[3] proved was due to oxidation. Moreover, Nencki and Zaleski[4] showed that hematin was also an intermediary stage in this process.

Numerous theories, many supported by experimental data, and a few which do not stand such close scrutiny, are offered for the biological explanation of the appearance of this substance in the urine. Those worthy of discussion may be thus grouped (1) Hepatogenous, (2) Enterogenous, (3) Renal, (4) Hematogenous, (5) Histogenous, and (6) Hepatoenterogenous.

Hepatogenous Theory.—Fishler,[5] in support of the hepatogenous theory, produced biliary fistulæ in dogs and drained the bile externally. He injected amyl alcohol and phosphorus into the gall bladder. The liver showed marked pathological changes and urobilin appeared in the urine. Berghausen[6] demonstrated that in order to induce urobilinuria in these cases it was necessary that the poisons act slowly. Under circumstances in which the poisons act rapidly death ensues before the changes take place; and the urine in the bladder is, therefore, negative. Hayem[7] classifies the hepatogenous type of urobilinuria into absolute and relative—the former, if the pathological changes occur in the liver, and the latter when extraordinary quantities of blood pigment are brought to the liver as occurs in the blood dyscrasias associated with the destruction of the red cells, thus exaggerating the normal functions.

Enterogenous Theory.—According to Hildebrandt[8] urobilinogen and urobilin originate from bilirubin by bacterial decomposition which occurs only in the intestines. In order to show the importance of the intestines in the mechanism of the formation of urobilin, Moller[9] mentions a case of marked jaundice due to complete obstruction of the common duct by a malignant growth at the ampulla of Vater with metastases in the liver and a negative urobilinuria. He maintains that the absence of bile in the gut signifies an absence of urobilinogen and urobilin in the urine. Eustice[11] also mentions an absence of the reaction with icterus due to complete obstruction of the common duct and notes that on the return of the bile flow to the intestinal tract the reaction is again positive. Müller,[12] the earliest observer on the absence of urobilin in the urine when the common duct is closed, gave such a patient bile by the stomach tube and immediately the urobilin reaction was positive. Since in the early life of the newborn the intestinal bacteria are few in number urobilinuria rarely occurs during this period. Kimuria[10] cites a series of cases of marked diarrhea in which the fecal contents passed through the intestines so quickly that the bacteria were not given ample time to exert their deoxidizing influences. The urines gave negative tests. In connection with this discussion may be mentioned sixteen cases of urobilinuria which were thought to be due to a patent ductus venosus, *i. e.* the blood of the intestines went directly into the general circulation without entering the liver. This series occurred in the same family.[13] An attempt[6] made to prove Neubauer's contention that ligation of the common duct gave negative reactions was successful on two rabbits.

Renal Theory.—Gilbert and Herscher[14] argue that the bile pigments circulating in the blood reach the kidneys and are there transformed into urobilin. Jaksch[15] upholds the above contention and considers all cases of urobilinuria as having been preceded by a urobilinemia. To disprove this theory Fishler[5] perfused the kidney with urobilin, but failed to get a positive urobilinuria.

Hematogenous Theory.[16]—Marked urobilinuria is associated with severe malaria, paroxysmal hemoglobinuria, scurvy, lead poisoning, and pernicious anemia, but the underlying pathological basis for the findings is open for further observation. Still the intimate relation between hematin and urobilin was made clear by Nencki and Zaleski.[4]

Histogenous Theory.[16]—In jaundice large amounts of bilirubin are deposited in the tissues and are subjected to local changes which lead to the formation of urobilin and its excretion in the urine.

Hepatoenterogenous Theory of Friedrich von Müller.—In the production of urobilinogenuria and urobilinuria pathological changes are necessary in the liver while the intestines must be functionating normally. The bacteria will thus deoxidize the bile pigments and allow their absorption into the portal circulation so that if the liver is overwhelmed with work the urobilinogen and the urobilin will pass into the general circulation unchanged.

As previously noted, Moller states that unless bile passes into the intestines, bilirubin cannot be changed into urobilinogen and urobilin. On re-

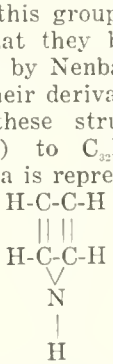
*Croftan: "Pancreatic Diabetes and Its Relation to Gallstones," *Surgery, Gynecology, and Obstetrics*, December, 1908.

†From the Chemical Laboratory, Beth Israel Hospital, New York.

turning to the liver *via* the portal circulation the latter are again transformed into bilirubin if the liver functionates normally. In cases of inefficiency of the liver they pass into the general circulation and are later recognized in the urine. The interrelation between urobilinogen and urobilin is so intimate that the term urobilin will be used to indicate both.

In alcoholic cirrhosis Fishler[17] holds that it is absolutely necessary to have a positive urobilin reaction in the urine, otherwise the clinical diagnosis is incorrect.

The chemistry of this group of substances leads to the conclusion that they belong to the pyrrol derivatives as shown by Nenbauer,[18] who disproved Nencki's theory of their derivation from indol. He also showed that these structures range from $C_4H_{11}N$ (hemopyrrol) to $C_{32}H_{40}N_4O_7$ (urobilin). Their general formula is represented by



The five methods of examination for the presence of urobilin in the urine are:[19]

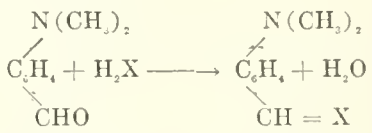
1. *Salting Out with Ammonium Sulphate.*—This method is advocated by such authorities as Hoppe-Seyler,[20] Viglezio,[21] Ladage,[22] and Charnas.[23]

2. *The Spectroscopic Method.*—The spectroscopic method is recommended by Gerhart,[24] Beck,[25] Saillet,[26] Conner and Roper,[16] Auché,[27] Simpson,[21] Hayem,[7] Deniqué,[28] Hildebrant,[29] Zoja,[30] and Charnas.[23] This method depends upon a characteristic spectroscopic band between b and F produced by the filtrate after adding an equal amount of a 10 per cent. alcoholic solution of zinc acetate.

3. *The Fluorescence Method.*—The filtrate in the preceding method shows a typical fluorescence.

4. *The Colorimetric Method with Copper Sulphate.*—This test is made by adding copper sulphate to urobilin solutions. A violet color denotes a positive reaction.

5. *The Colorimetric Method with Ehrlich's Aldehyde Solution.*—This color reaction depends upon the appearance of a pink to a red color on adding an acid solution of para-dimethylaminobenzaldehyde* to urobilin urines. The clinical significance of the presence or absence of the urobilin group and if present the relation of small and large amounts by this method arouses our attention. Extensive investigations have been recorded since the discovery of this substance in the blood, urine, and bile. Of the newer methods the Ehrlich aldehyde reaction is the most recent. About a decade ago Ehrlich accidentally discovered that a hydrochloric acid solution of this drug gave a pink color on addition to some urines and not to others. This was later determined to be due to pyrrol derivatives.[18] That the above reaction occurs according to the following formula in which the aldehyde combines with a methylene or amido group of a still unknown constituent has also been considered. "X" represents the unknown quantity.



The urine analyses with the aldehyde reaction have thus far been limited to a few classes of cases and with a view of examining a large number of normal and abnormal urines of every description was the present problem undertaken. Many of the findings coincide with those of previous observers, many other, however, show surprising results.

The technique of the reaction is as follows: A few drops to one c.c. of a 2 per cent. solution of para-dimethylaminobenzaldehyde are added to five c.c. of urine. A positive reaction consists of a pink or reddish color imparted to the solution which intensifies on standing. Dark amber discolorations appear slightly reddish on looking through the column of the fluid and become more marked on heating in a flame for a few seconds. In some instances shaking the mixture with chloroform produces a pink color in the chloroform which is also considered a positive test. A light green color after adding the reagent is always negative.

Normal Cases.—The urines of twelve men were used for this series of tests and three to four specimens in each instance, making a total of about forty analyses. In each urine a deep red color appeared as soon as the reagent was added showing what would be considered a heavy urobilin reaction. A number of careful observers were only able to find traces and others no urobilin in normal urines. However, all did not use the aldehyde test. That the above urines were otherwise normal is indisputable; they were recently examined. Braun[32] considers urobilinuria only pathological when in large amounts. Conner and Roper[16] hold that no urobilin occurs in freshly voided urine. Their researches do not lay particular stress on the above test since they were more interested in other methods especially in their relation to blood serum examina-

*Para-dimethylaminobenzaldehyde	2.0
Acid Hydrochloric Conc.	50.0
Water	to 100.0

TABLE I.

PERSISTENCE OF THE ALDEHYDE REACTION.§

Number	Within Twelve Hours	Twenty-four Hours	Second Day	Third Day	Fourth Day	Fifth Day	Sixth Day	Seventh Day
S. A. 416	++	+	+ (H)*	+ (H)	+ (H)	+ (H)	± (H) alk.	+ (H) alk.
M. K. 418	++	+	+ (H)	+ (H)	+ (H)	− (H) alk.	− − −	− − −
I. C. 419	++	+	−	+ (H)	+ (H)	+ (H)	+ (H)	+ (H)
I. J. 422	++	++	++	±	++ (H)	−+ (H)	+± (H)	++ (H)
A. J. W. 423	++	+	+	+	− (H) alk.†	− − −	− − −	− − −
C. J. B. 424	+	+	+ (H)	+ (H)	+ (H)	− (H)	− − −	− − −
E. G. 425	++	++	+	++ (H)	± + (H)	−+ (H)	− (H) alk.	− − −
J. L. 426	++	+	++ (H)	++ (H)	++ (H)	± (H)	+ (H)	− (H) alk.
J. G. 427	++	+	+ (H)	+ (H)	− (H)	− (H) alk.	− − −	− − −
S. S. 428	++	+	+ (H)	+ (H)	+ (H)	± (H)	+ (H)	− (H)

* After heating.
† Alkaline reaction.
§ Reaction of urine acid except where indicated.

+Positive reaction.
++Strongly positive reaction.
−Negative reaction.

tions. Wilbur and Addis[19] state that normal urine gives a positive reaction for only a very small quantity. Baar[33] made the same observation using freshly passed urine. In summarizing his findings Simon[31] mentions that the presence of urobilin in the urine is not normal and thinks it necessary to have the urines within twelve hours after voiding.

In view of the last statement a series of freshly passed urines were collected and exposed to direct daylight and to the air in long narrow test tubes and the reactions observes daily for a week. Half of the series remained positive for the aldehyde reaction for the whole week. Of those that remained positive three were acid in reaction and two were alkaline. The accompanying table is self explanatory.

a group of twenty-five patients whose urines were examined seventy-five times and only forty-eight reactions were positive. These patients represent medical, surgical, and gynecological ailments. In a majority of the cases the other chemical and the microscopical analyses were negative. In many instances there were no diseases which could be explained by any of the above theories as the etiological factor for the urobilinuria.

In the next series of cases it is instructive to observe that two or more patients suffering with the same ailments as those in Table II, with a few exceptions, gave negative tests.

Of the patients not occurring in Table III. are the following: one case each of splenic anemia, pyopneumothorax, lung abscess, tabes dorsalis, and

TABLE II.

Positive Aldehyde Reaction in Disease.

No.	Clinical Diagnosis	Urine Examination	Number of Examinations	Positive	Negative	Remarks
201	Carcinoma, breast	Negative	2	1	1	Post operative
206	Pelvic peritonitis	Negative	4	2	2	Russo negative (1 examination)
214	Fibroid uterus	Negative	5	2	3	Post operative.
217	Fracture, tibia	Albumin and casts	6	2	4	– – – – – – –
223	Pyosalpingitis	Negative	3	1	2	++ Reaction.
230	Nephrolithiasis	Negative	4	3	1	++ One examination, pre-operative.
243	Hemorrhoids, internal and external	Negative	1	1		Pre-operative.
280	Gastric ulcer	Negative	3	1	2	Not operated.
281	Typhoid fever	Albumin, trace	1	1		Second week. Diazo +.
289	Pyopneumothora	Negative	4	2	2	Negative before operation.
296	Pneumonia	Negative	4	4		After crisis.
298	Endo- and myocarditis	Albumin and casts	1	1		Enlarged liver.
299	Splenic anemia	Albumin, casts and bile	5	5		Jaundiced.
304	Typhoid fever	Negative	3	1	2	Convalescence.
333	Chronic bronchitis	Albumin and casts	1	1		Enteroptosis.
334	Cardionephritis	Albumin, casts and bile	1	1		Enarged liver.
346	Lung abscess, following pneumonia	Albumin and casts	2	1	1	Serious.
349	Pancarditis	Albumin and casts	2	2		Failing compensation.
359	Empyema, following pneumonia	Negative	4	2	2	Post operative.
367	Lobar pneumonia	Negative	4	3	1	Before crisis.
371	Bronchopneumonia	Negative	3	3		Acutely sick.
377	Atrophic cirrhosis	Albumin, casts and bile	3	3		Jaundice and ascites.
386	Carcinoma, liver	Albumin, casts and bile	3	3		Jaundiced.
388	Tabes dorsalis	Negative	1	1		Early case.
412	Myasthenia gravis	Negative	1	1		Bedridden.

TABLE III.

Negative Aldehyde Reaction in Disease.*

Number of Cases	Medical Diagnosis	Number of Cases	Surgical Diagnosis	Number of Cases	Gynecological Diagnosis
2	Carcinoma, stomach.	6	Acute appendicitis.	6	Fibroid uterus.
8	Cardionephritis.	2	Carcinoma, breast.	1	Lacerated perineum and cervix.
2	Chorea minor.	4	Carcinoma, elsewhere.	2	Ovarian cyst.
3	Chronic endo- and myocarditis	3	Cholelithiasis.	3	Pelvic peritonitis.
2	Cerebrospinal meningitis.	3	Cystitis (urinary).	2	Pregnancy and pulmonary tuberculosis.
2	Cerebrospinal lues.	3	Cholecystitis.		
7	Chronic nephritis.	4	Empyema.	3	Pyosalpingitis.
2	Pleurisy with effusion.	2	Fracture, upper extremity.	2	Retroversion, uterus.
11	Pneumonia	5	Hemorrhoids.		
2	Pyelitis.	4	Hernias.		
4	Rheumatism with endo	2	Infected hand		
2	Typhoid fever.	2	Mastoids.		
3	Ulcer, stomach.				

*This table does include a number of ailments which occurred only once but whose urines were examined on several occasions.

TABLE IV

Scarlet Fever, Measles, and Diphtheria.*

	Number of Patients	Number of Urines Examined	Total Positive	+	++	Negative	Per Cent Positive	Per Cent Negative
Scarlet fever†	147	214	106	99	7	108	47.6	52
Measles	92	92	33	33	0	59	36	64
Diphtheria	47	67	54	49	5	13	80.6	19

*Examined at Willard Parker Hospital, Department of Health, N. Y. City, through the courtesy of Dr. Wilson and Dr. Hertzfeld.
†Seven cases of scarlet fever were complicated by chickenpox.

It is evident from the foregoing that the reaction may be positive independent of the acidity or alkalinity of the urine, in a few instances, even for a week.

Pathological Cases.—In a series of 500 urine analyses of 214 patients with the aldehyde reagent performed independently of the clinical, operative, or post-mortem diagnoses, the following table shows

atrophic cirrhosis which gave positive reactions and because of the infrequency of these types of cases in the hospital I was unable to examine more than those noted, in order to compare any coincidence.

Kamsarakan[34] examined 155 cases of scarlet fever and obtained 100 per cent. positive reactions. Out of 214 analyses of 147 patients' urines only 106 or 47.6 per cent. gave a positive result. He also ex-

amined 84 diphtheria urines and noted 54 positive or 64 per cent. in comparison to 67 analyses on 47 patients with 54 positive or 80.6 per cent. Among his other findings which do not coincide with the above results, it may be mentioned that he obtained negative results in the initial stage of pneumonia, in chicken pox, in typhoid fever, measles, and mumps. Rach and Reuss[35] tested 51 measles urines and observed 47 or 92 per cent. to be positive in contrast to the Kamsarakan's[34] negative findings and 36 per cent. positive cases in my results. They contend that the reaction continued positive for a few days and was always mild. In their series direct complications did not affect the urobilinuria. They also hold that is was never observed till the end of the eruptive stage. Schelenz[36] noted positive reactions in his scarlet fever urines almost constantly and concluded that hexamethylamine interfered with the test which I was not able to confirm. Umber[37] depended on this reagent to differentiate the anaphylactic red rash of diphtheria antitoxin from true scarlet. The basis for this observation depended upon finding 93 out of 96 true scarlet urines positive. In 60 serum rash urines, 59 were negative. Simon[31] mentioned that his results were negative in measles, scarlet, and diphtheria. The summary of his findings is as follows: Not all cases of typhoid, pneumonia, appendicitis, icterus, and tuberculosis showed positive urines. In many instances a positive diazo reaction was also obtained. He considered rapid wasting an important etiological factor of its appearance in the urine and cited a case in which recovery after such an illness coincided with the disappearance of a positive urobiliniuria, but he failed to explain the corresponding pathological changes associated with this manifestation. Similar findings were recorded by Clemens;[38] 6 out of 9 cases of appendicitis gave positive results; 3 cases of carcinoma of the stomach showed one positive test; one case of chronic constipation was positive; one empyema urine was negative; 9 out of 26 cases of pulmonary tuberculosis were positive; negative reactions were noted in a case of acute endo- and pericarditis; a case of nephritis and one of cystitis; a case of pseudodiphtheria was also negative; 3 out of 6 cases of facial erysipelas were positive; 2 out of 3 typhoids were positive. Cases of articular rheumatism were also positive. Out of 6 cases of measles 2 were positive; diabetic urines were negative.

Koziczkowsky[39] examined the urines of five fatal cases of pulmonary tuberculosis and obtained positive results in all, but temporarily positive urines were obtained in five other cases of tuberculosis. The negative results occurred coincident with improvement. He also made a comparison between the incidence of the indican and the aldehyde reactions, but he was unable to deduce any relationship. These findings were corroborated by me in normal and pathological urines at the Beth Israel Hospital. We (Hertzfeld and Berkowitz) also confirmed these findings in measles, scarlet and diphtheria in Willard Parker Hospital. We also attempted to make a study of the relation of the indican, aldehyde, and Russo reactions with practically a negative outcome.

The findings in erysipelas also vary from negative tests in two cases[6] to 100 per cent. in 183 cases.[26] The former observer also obtained negative results in scarlet fever and in typhoid fever.

Do extraneous substances interfere with the aldehyde reaction? Schelenz[36] infers that the administration of hexamethylamin (urotropin) influences positive results and makes them negative. This drug is excreted in the urine as formalin and unchanged urotropin. Both of these chemicals were added to six positive urines and observed daily for a period of three days. The urines were examined daily, but gave positive results with a diminution of the intensity. Controls were also observed for comparison.

Attempts were made to study the effect of urinary preservatives upon the reaction. These tests were made as follows: To three sets of test tubes containing 20 c.c. of positively reacting urine five drops of chloroform, 5 per cent. solution of formalin, toluol, and a saturated watery solution of thymol were added and allowed to stand for seventy-two hours. They were examined from day to day and compared with controls. In each urine containing the formalin the intensity of the reaction was somewhat diminished, but the test remained positive.

TABLE V.

THE ALDEHYDE REACTION AFTER ADDITION OF EXTRANEOUS SUBSTANCES—URINARY PRESERVATIVES.

	Time	Control	Formalin, 5 per Cent	Thymol	Chloroform	Toluol
W.	Fresh	++	++	++	++	++
	24 hours	++ (H)	+ (H)	++ (H)	++ (H)	++ (H)
	48 hours	+ (H)	+ (H)	++ (H)	+ (H)	+ (H)
	72 hours	+ (H)	+ (H)	+ (H)	+ (H)	+ (H)
G.	Fresh	++	++	++	++	++
	24 hours	+	+ (H)	+	+	+
	48 hours	+	+ (H)	+	+	+
	72 hours	+	+ (H)	+	+	+
B.	Fresh	++	++	++	++	++
	24 hours	+	+ (H)	+	+	+
	48 hours	+	+ (H)	+ (H)	+	+
	72 hours	+	+ (H)	+ (H)	+	+

The other extraneous substances observed may be classed in the following groups: of amines and amides, urotropin and chinosal; of aldehydes, formalin, lactose, and chloral; of glucosids, amygdalin; of ring compounds, mandelic and salicylous acids. All substances were used in watery solutions except salicylous acid which was dissolved in 95 per cent. alcohol and 5 drops added to 5 c.c. of positive urine followed by a few drops to one c.c. of the reagent and allowed to stand for a few minutes before the readings were made. Also 5 c.c. of urine to which only the reagent was added in the usual manner was kept for control. To rule out any error that might arise from the extraneous substance, it was also tested but with negative results. That these extraneous substances have no effect on positive urines, within twelve hours after voiding, was successfully proven on a series of six individuals' specimens.

Conclusions.—The confusion that occurs in trying to arrive at any logical conclusions in the above report surely limits the value of Ehrlich's aldehyde reaction for the appearance of urobilin in the urine.

I take this opportunity to thank Dr. Max Kahn, director of the chemical laboratory of the Beth Israel Hospital, for suggesting this problem, and for permission to use the material required for carrying out this work.

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281 East Broadway.

A NEW VESICAL CALCULUS EVACUATOR.*

By MARTIN W. WARE, M.D.,

NEW YORK.

Whereas the acme of perfection has been attained in the construction of lithothrites, a defect always rested with the evacuators used to remove the debris.

The earliest type of this instrument—the Bigelow—in a modified form survives to this day. At its best it is a complicated and costly apparatus. It is to the great credit of the late Dr. Chismore, to have devised the very simple all-rubber bulb evacuator, with the glass reservoir. Those familiar with its use are unsparing in their praise in pronouncing it as the "last word" in the construction of evacuators.

An extended experience with the Chismore apparatus, however, has led me to detect some defects inherent in it, because of the large amount of rubber that enters into its construction, for the manufacture of a perfect Chismore bulb even in expert hands is a matter of considerable difficulty. Many have to be discarded since the outlets for catheter and reservoir contain air holes, arising in the molding and vulcanizing of the rubber. This it is which materially adds to the cost of the bulbs. Then, either from disuse or oft-repeated sterilization, the rubber deteriorates and it is no longer possible to

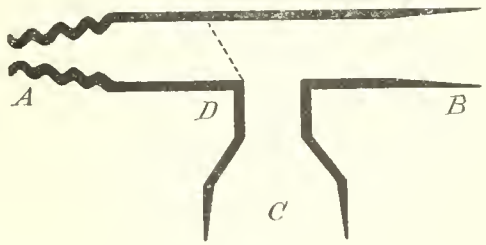

Fig. 1.

obtain a watertight coupling with the glass reservoir or the evacuating catheter. Hence the necessity arises of always having a new reserve bulb of recent manufacture to guard against breakdown.

To overcome these defects, my endeavor was to reproduce an instrument of the Chismore type with the minimum of rubber. I believe that I have accomplished this in the instrument herein depicted. It may best be described as a T tube (Fig. 1) with three outlets modified: The one at "*A*" corrugated and tapering to accommodate the coupling of variably sized rubber bulbs with varying outlets; the

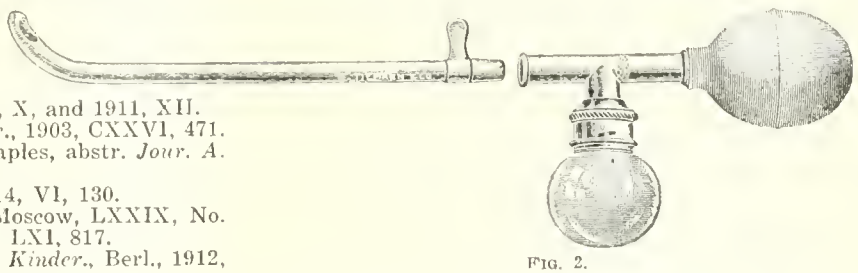

Fig. 2.

outlet at "*B*" is ground so as to effect an absolute occlusion with the corresponding cone-shaped end of the evacuating catheter; the vertical end of the T, "*C*" expands into a hood the orifice of which is also ground to insure an accurate coupling with the cone-shaped metal investment of the neck of the glass reservoir. Escape of the bottle by pressure of water is guarded against by bayonette catches. In the interior of the T tube at the angle (D) a sieve is placed at an incline, which prevents fragments of the stone being drawn into the bulb, at the same time directing them into the bottle. The advantages claimed for this evacuator are its construction in greater part of metal and glass, with an irreducible minimum of rubber, which insures its durability, reliability, and permanence of action.

It can be readily sterilized with other instruments in the sterilizer. A longer life for the rubber bulb is possible if it be sterilized after preliminary cleansing in the autoclave, as we are wont to treat rubber gloves. The bulb provided with this outfit has a capacity of two ounces. The tapering corrugated end of the aforesaid tube permits of the use of any rubber bulb or improvised rubber ball, in an emergency.

A material advantage is the low cost of the instrument and the economic feature is that only the rubber bulb of inconsequential cost calls for renewal. Repeated trials have convinced me of the perfect action of this instrument (Fig. 2), manufactured by Tiemann & Co.

27 East Eighty-first Street.

*Presented before the Genitourinary Section N. Y. Academy of Medicine, Nov. 18, 1914.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

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New York, December 26, 1914.

LITHIASIS IN THE BRANCHES OF THE HEPATIC DUCT.

AFTER operations for the removal of bilary calculi it occasionally happens that there is a cessation of all obstructive symptoms for some weeks or months, only to be followed by a recurrence of symptoms pointing to the retention and impaction of calculi in the gall-ducts. When this complication occurs it is usually thought that a small removable calculus was overlooked at the first operation and the surgeon is often condemned for careless work. While this judgment may be just in some instances, it is by no means so in all cases. It has long been known that calculi may occasionally be found not only in the main hepatic duct, but also in its branches, right and left, and even in their further intrahepatic subdivisions, as pointed out by Cruveilhier, Courvoisier, and others. In these cases it may be impossible for the surgeon to appreciate by palpatation or other diagnostic means at the time of operation that small concretions still remain in the upper bile passages.

Quénu and Mathieu have shown why, even with the most painstaking care, some calculi may occasionally be left, especially when they are fixed in the branches of division of the hepatic duct. These calculi may or may not be accompanied by stones in the common duct or intrahepatic bile passages, and appear to be especially characterized by their fixity, their firm adherence to the walls of the canal in which they are enclosed. There is sometimes such an accumulation of calculi that all the biliary passages—gall-bladder, common duct, hepatic duct and all its branches are stuffed with calculi piled one upon the other, for which condition Quénu suggests the term *total* lithiasis. The identity of form, consistence, and structure of these calculi suggest a common origin, namely, the gall-bladder, the usual place for the formation of calculi. In cases of total lithiasis, the considerable number of calculi and, above all, their extremely small size, explain perfectly why some of them can escape the most careful exploration. In spite of all difficulties, operation in these cases is generally followed by a good result. When the case is one of intrahepatic lithiasis, intervention is only exceptionally practicable. It is very important to bear in mind the possible occurrence of these intrahepatic calculi, for they probably explain the origin of certain stones found later in the extrahepatic passages, and their existence considerably clouds the prognosis. Calculi localized in the branches of the hepatic duct usually do not attain the considerable volume of calculi in the common duct, as they seldom exceed the dimensions of a small hazelnut, or even of a pea. They may be elongated and of an irregularly cylindrical form. The very small concretions are the most frequent but one may encounter all the intermediary sizes. The stones may be facetted, but ordinarily the surface is rough and the color a blackish brown. Their consistence is soft and friable, though certain portions of them may be quite hard. One fact important to note is the frequent adherence of the calculus to the wall of the hepatic ducts. There is sometimes a regular incrustation of this wall, prolonged to a greater or lesser extent even into the intrahepatic ramifications. There do not appear to be any clearcut special signs or symptoms characterizing calculi in the branches of the hepatic duct, though Quénu and Mathieu have found in such cases a lithiasis of the principal duct with well accentuated symptoms, but with an unusual evolution. Ordinarily there is a history of long-standing lithiasis, the patient having suffered for many years and having had repeated painful crises, more or less exactly referred to their true cause, then icterus appears, to disappear or persist in varying degree. Elevations of temperature occur, and the clinical picture is, on the whole, sufficiently sharp so that one ought always to regard the diagnosis of lithiasis of the principal duct as probable, but it is almost impossible to foretell the exact situation of the calculi. The pains seem particularly acute.

The necessity for operation is unquestionable when one suspects lithiasis of the hepatic duct. The accentuated symptoms of biliary retention that the patients present do not permit hesitation, and besides this we know the gravity of the prognosis in such cases. The common duct is first explored. If it is dilated and a calculus is perceptible at this level, incision of the common duct precedes all exploration of the passages above. That is a fixed rule; but a negative exploration of the lower parts of the biliary tree shall not lead one to neglect exploration of the hilum. This exploration, if the choledochus is incised, is done by catheterism and palpation at the same time. When the principal duct is incised the absence of flow of bile points to obstruction above; but even if the bile flows the catheterization will still be necessary, although it is not always satisfactory as the bougie may pass calculi without revealing their presence. Exploration with the finger introduced into the duct toward the liver is better, but none of these procedures is absolutely sure. Palpation of the biliary passages at the level of the hilum is not always easy; on the contrary, it is usually very difficult to get the branches of the hepatic duct between the fingers and an exact knowledge of the anatomy of the region of the hilum is necessary before operative intervention, particularly as the hepatic duct may divide into three or even four branches before reaching the liver, where it gradually splits up into its ultimate ramifications.

Operations upon the superior passages are usually rather difficult, particularly in fat subjects. The absence of bile flow, internal exploration by incision of the common duct, or palpation in the region of the hilum would lead one to suspect the existence of a calculus in the upper passages, but it is rather rare that intracanalicular manipulation with a metallic instrument is able to bring it down. Failing in this, one must incise the upper biliary ducts. Sometimes direct incision upon the calculus will suffice; sometimes, and this is the more frequent, one must have recourse to incision from place to place in the hepatic duct and its branches. If the calculi are free, if their development is limited to accessible parts of the ducts, the problem is easily enough solved and complete extraction is possible. It is far different if the calculi are adherent to the walls of the canals, if they are small and numerous, if they extend into the secondary and tertiary branches and, above all, if the case is one of intrahepatic lithiasis. Then, no surgeon can say that all calculi have been removed. The extraction of calculi having been pushed to the maximum, it is necessary to establish drainage of the incised ducts and to tamponnade, the drainage being kept up for a long time in order to free the liver from concretions, should any have been left in spite of the most careful search.

GAS GANGRENE.

ALL great wars bring their own peculiar medical and surgical problems. The armies of Napoleon contracted trachoma in the Egyptian campaign. Typhoid fever was the chief cause of death in the Spanish-American War. Hospital gangrene was the bane of the surgeons during the Civil War. So far during the present European conflict we have heard comparatively little of diseases as a factor in determining issues. Owing to the high state of development of the medical corps of modern armies it is not probable that any of the old, time-worn, devastating camp diseases will work great havoc. Cholera, typhoid, smallpox, measles, and pneumonia will possibly claim a small share of the general mortality rate, but increased efficiency in preventive measures will largely eliminate the danger of widespread epidemics from these diseases. It is the new and unknown which hold the greatest possibility of disaster.

Malignant edema has been known as a dangerous disease for many a decade, but the possibility of its appearing in epidemic form has never been discussed in any text books of medicine or surgery. Now it seems that a surgical gangrene closely resembling if not identical with malignant edema has broken out among the wounded soldiers of both armies on French and Belgian soil. This peculiar form of surgical complication has received the name of "gas gangrene." It is liable to affect any wound, whether serious or trivial. It has caused so much mortality that it has been made the subject of a special report to the English Secretary of the War Office from the Field Laboratories of the Allies. The report is published in the *Lancet* for November 28, and from it we learn that the medical corps and field laboratories are busily engaged in efforts to combat the fearful ravages of this complication of the wounds of modern warfare. From the data so far available it appears that "gas gangrene" is always due to a traumatic infection; that is, the projectile carries infected soil into the wound. The nature of this infection is not yet definitely determined in all its details, but sufficient has been learned to make sure that the particular organism belongs to the malignant edema type. In other words, it is an anaerobic, spore-forming, gas-producing bacillus. A rapidly fatal gangrene supervenes upon the implantation of the organism in the tissues. There is no pus infection except at the edges of the wound, but a dark gray discoloration which subsequently turns green and is accompanied by subcutaneous gas infiltration, rapidly involves the whole extremity, and within thirty-six hours from the receipt of the injury the process has extended so far that amputation is frequently the only chance of saving the life of the patient. From a perusal of the report it would seem that this alternative is often a very doubtful one, because hand in hand with the extension of the local trouble there goes a cardiac depression so great that death usually occurs in spite of all treatment. Consciousness is preserved till the last. There is no delirium, very litle fever, and practically no circulatory acceleration, but the heart becomes so weak that its sounds are scarcely perceptible and the radial pulse disappears entirely. The odor from the gangrenous parts is described as being not only diagnostic but also unbearable. So fearful is this smell that a properly conducted autopsy is almost impossible.

The laceration of the tissues and extravasation of blood caused by the tearing wounds of modern shrapnel seem to produce a most favorable nidus for the growth of anaerobic bacteria. Anaerobic microorganisms like those of tetanus and malignant edema find their most favorable habitat in barnyard and cultivated soil.

SUDDEN DEATH.

THE mystery of sudden death in the absence of all known causal elements has often been the subject of medical and especially of forensic discussion. The monograph by Brouardel on "Death and Sudden Death" published many years ago in English was undoubtedly of service in calling the attention of the American public to this subject, and we continue to hear of cases of thymus-death and other symptomatic deaths (which upon analysis seem to involve the status thymicolymphaticus as the chief factor). A careful review of the conditions which lead up to sudden death shows a great lack of unanimity. Given there are one or two inevitable causes the secondary factors are very numerous. At a meeting last spring of the Niederrheinische Gesellschaft für Natur- und Heilkunde in Bonn (*Deutsche medizinische Wochenschrift*, November 12) Ungar related a case of sudden death preceded by hysteriform crises. With many phenomena of hysteria there were no stigmata, paralyses, or contractures. The crises were motor and accompanied by cries. The woman came out of this state and seemed to be nearly normal. In the midst of this new health she was seized with attacks of pain in the head and neck, had motor crises with weeping, etc. She emerged from this seizure but within a short time

had another epileptoid attack, with exposure of the genitals. The whole picture was highly hysteroid. The crises became more frequent and severe until death took place, apparently from sudden cessation of respiration. At autopsy pronounced lesions were found in the ventricular region of the brain. The case is valuable as showing that clinical hysteria may end fatally; the practitioner, confronted with these crises, must remember that a fatal ending is by no means excluded.

Total Alopecia Following Traumatism.

In a war of the dimensions of the present conflict, if we bear in mind the great contemporaneous advances in the medical sciences, it should be possible to illuminate many obscure recesses of clinical pathology, to rescue from a former state of oblivion much truth, and to condemn for all time much false teaching which has become part of the established order. The peculiar behavior of the hair under conditions of severe injury and mental stress has often been taught by the isolated example. We refer here to the sudden shedding or blanching of the hair. Thus far nothing typical, nothing which connects cause and effect, has ever been demonstrated. At a meeting last summer of the Berlin Medical Society —before the present war—(*Berliner klinische Wochenschrift*, November 16), Frank reported a case of thoracic injury, in which 10 days after the accident the hair began to fall out. The broken ribs healed promptly, but the hair shedding proceeded, and in three months there was total loss of hair over the entire body. This depilation extended to all localities and even the vibrissæ of the nose fell out. The victim sought reimbursement on the ground that his baldness exposed him to draughts and catching cold. It can be shown that partial alopecia is often of traumatic (reflex) origin but total alopecia must be dependent on a neurotic element in which psychic shock is actively concerned. The psychic shock stands in close relationship to the physical trauma. The innervation of the trophic nerves is often disturbed by these accidents; and as a result of some inhibition in the centrifugal impulse, the hairs fall off.

News of the Week.

For the Relief of Belgian Physicians.—At a meeting of the Committee of American Physicians for the Aid of the Belgian Profession, held in New York City on December 20, a permanent organization was effected and the following officers were elected: *Chairman*, Dr. Franklin H. Martin of Chicago; *Vice-Chairman*, Dr. W. L. Rodman of Philadelphia; *Secretary*, Dr. Howard C. Taylor of New York; *Treasurer*, Dr. Frank F. Simpson of Pittsburgh; *Executive Committee*, Drs. Franklin H. Martin, J. Riddle Goffe, Howard C. Taylor, and Frank F. Simpson. All supplies purchased by the Committee will be forwarded to Belgium and distributed free of charge by the Commission for Belgian Relief. The supplies forwarded by this commission are packed in boxes marked with distinctive bands for each of the classes to be relieved: a box with a green band for infants and children, a blue band for invalids and convalescents, and a red band for healthy adults; the boxes holding supplies for physicians will bear a yellow stripe. Contributions for the Belgian doctors should be sent by money order or check to the order of Dr. Frank F. Simpson, 7048 Jenkins Arcade, Pittsburgh, Pa. Acknowledgment will be made in the medical journals each week of the amounts received.

New York City Death Rate.—During the week ending December 12 there were 1,338 deaths in this city, giving a death rate of 12.50 per 1,000, as compared with 1,343 deaths and a rate of 13.04 for the corresponding week last year—a decrease of 5 deaths and 0.54 of a point in the rate, equivalent to a relative decrease of 58 deaths. The most noteworthy feature of the mortality as compared with that of the corresponding week in 1913 was the large increase in the deaths from acute respiratory diseases, especially pneumonia; there were 119 deaths from lobar pneumonia and 95 from bronchopneumonia, as compared with 86 and 81 respectively during the corresponding week last year. For the week ending December 19 the death rate was 13.09 per 1,000, approximately 0.8 of a point lower than that of the corresponding week of 1913. The death rate for the first fifty-one weeks of this year was 13.41 per 1,000 as compared with 13.78 during 1913. If this decrease is maintained during the last week of the year a saving of 2,056 lives will be recorded.

Cheaper Radium.—In his annual report, Director Joseph A. Holmes of the U. S. Bureau of Mines says that chemists and engineers of the bureau have demonstrated that a process they have devised for the extraction of radium from ores can be successfully used on a large scale and will prove more efficient than that used by the largest foreign producers of radium. Through this process it is possible that the cost of radium to the consumer will be reduced to one-third of the present price. The process is to be patented and dedicated to the public. Radium now sells at $120,000 a gram, but can be produced by the new process for $40,000 a gram, thus bringing it within the range of possibility for many small hospitals to purchase a supply.

Disinfection of Subway and Elevated Cars.—In the *Bulletin* of the New York City Health Department a letter is printed from the general manager of the Interborough Rapid Transit Company, announcing that the company has decided to discontinue the use of disinfectants in its cars, relying rather upon frequent airing and thorough mechanical cleansing of the floors and all points of contact.

Additional Red Cross Surgeons.—Three American surgeons sailed last Saturday for foreign service under the American Red Cross. Dr. P. A. Smith, sailing on the *Potsdam*, is from Enid, Okla. He will be the third assistant staff officer at the Imperial Royal Reserve Hospital in Vienna. The two other surgeons, who sailed on the *Dwinsk* for Russia, are Dr. John Mann of Petersburg, Va., and Dr. T. L. Haslett of Pittsburgh.

The American Ambulance of Paris, in announcing recently the receipt of $800 said that there was on hand now enough money only to run the hospital for three months longer, a short period compared with the probable demands which will be made on it.

Praise for an American Surgeon.—In a despatch from Belgrade published in the New York *Times* mention is made of the good work done by Dr. Edward W. Ryan, Director of the American Red Cross, during and just preceding the occupation of Belgrade by the Austrians. Having volunteered to stay when the Serbs left, he preserved order for forty-eight hours preceding the Austrian entry, and protected all the Servian wounded and fed them.

To Start an American Red Cross Hospital near Metz.—Dr. Nordhoff-Jung, a woman physician connected with the American Red Cross Hospital in Munich, has reported to the Red Cross headquarters in Washington that steps are being taken for the establishment of a large American Red Cross hospital near the battle front in the vicinity of Metz for the care of the wounded whose condition is too serious to permit their removal to greater distances. She says all the available hospitals are filled with wounded from the armies along the southern German border and that German, French, and British wounded are being crowded into private residences in Munich.

Personal.—Dr. Samuel G. Dixon was recently elected president of the Philadelphia Academy of Natural Sciences for the nineteenth successive time.

Dr. J. Herbert Claiborne has been elected surgeon of the Veteran Corps of Artillery, to succeed Dr. Thomas M. Cheesman, who recently resigned. Dr. Claiborne is a veteran of Squadron A, N. G. N. Y., and was at one time a surgeon attached to the staff of the Twelfth New York Infantry, with which command he went to the front in the Spanish-American war.

Dr. Alexis Carrel of the Rockefeller Institute in this city, now a surgeon in the French army, was until recently in charge of a military hospital in Lyons. At present he is making a tour of inspection of the French military hospitals at the front.

Medical Societies Elections.—The Tri-State Medical Society of Texas, Louisiana, and Arkansas, meeting in Shreveport, La., on December 8 and 9, elected the following officers: *President*, Dr. W. G. Hartt of Marshall, Texas; *Vice-Presidents*, Dr. E. H. Martin of Hot Springs, Ark., Dr. Oscar Dowling of Shreveport, La., and Dr. E. L. Beck of Texarkana, Texas; *Secretary and Treasurer*, Dr. J. M. Bodenheimer of Shreveport, La. The next meeting will be held in Marshall, Texas.

The Twin City Medical Association at its meeting in Neenah, Wis., on December 7, elected the following officers: *President*, Dr. S. D. Underwood; *Vice-President*, Dr. E. C. Dollard; *Secretary-Treasurer*, Dr. G. M. Williamson.

The Des Moines, Ia., County Medical Society, at its meeting in Burlington, December 9, elected the following officers: *President*, Dr. A. H. Vorwerk, Burlington; *Vice-President*, Dr. J. P. Mathias, Mediapolis; *Secretary and Treasurer*, Dr. E. A. Hunt, Burlington; *Censor*, Dr. G. A. Chilgren, Burlington.

The Madison County, Ill., Medical Society elected the following officers at its meeting in Alton on December 4: *President*, Dr. L. G. Burroughs of Collinsville; *Vice-President*, Dr. R. D. Luster of Granite City; *Secretary*, Dr. E. W. Fiegenbaum of Edwardsville; *Treasurer*, Dr. R. S. Barnsback of Edwardsville.

The Jay County, Ind., Medical Association, meeting at Pennville on December 10 elected the following officers for the coming year: *President*, Dr. M. M. Moran; *Vice-President*, Dr. E. C. Garber of Dunkirk; *Secretary and Treasurer*, Dr. George V. Cring, Portland; *Chairman, Board of Censorship*, Dr. W. D. Schwartz.

The Medical Society of the County of Chautauqua, N. Y., at its meeting in Jamestown on December 8, elected the following officers: *President*, Dr. Fred C. Rice of Ripley; *Vice-Presidents*, Dr. A. Wilson Dods of Fredonia, and Dr. J. H. Kellogg of Bemus Point; *Secretary*, Dr. J. W. Morris of Jamestown; *Treasurer*, Dr. George F. Smith of Falconer; *Censor*, Dr. Morris N. Bemus of Jamestown; *Delegate to the Medical Society of the State of New York*, Dr. V. M. Griswold of Fredonia; *Alternate*, Dr. G. W. Cottis of Jamestown.

Hospital News.—The Utah-Idaho Hospital at Logan, Utah, was dedicated with appropriate ceremonies on December 3.

The Isolation Hospital for the treatment of contagious diseases in New Haven, Conn., was opened for public inspection on December 11-13, and on December 15 opened its doors for the reception of patients. The building is on the grounds of the New Haven Hospital. The building cost approximately $150,000, of which $75,000 was contributed by the city, $40,000 by friends of the hospital and the balance appropriated from the unrestricted funds of the hospital.

Charitable Bequests.—By the will of the late Margaret McLean of Philadelphia the sum of $2,400 is bequeathed to the Germantown Hospital and Dispensary.

By the will of the late Joseph Steidler of Pittsburgh, Pa., the sum of $400 is bequeathed to the Jewish Hospital Association of Philadelphia.

The Late Dr. Peabody.—At a meeting of the Association of Alumni of the New York Hospital, held December 16, the following preamble and resolutions were adopted:

Whereas, it has seemed good in the sight of Almighty God to withdraw from our midst our associate, Dr. George Livingston Peabody, so long connected with the New York Hospital, a man eminent in his profession as pathologist, physician, and teacher, wise in counsel, loyal in friendship, realizing always in his work the highest ideal and the loftiest sense of duty, and one moreover personally dear to so many of us;

Therefore, be it *Resolved*, that we, the Association of the Alumni of the New York Hospital, extend to his family our deepest sympathy and expressions of the esteem and affection which we have always entertained toward our old associate and friend; and be it

Resolved, that these resolutions be engrossed upon the minutes and a copy be sent to the leading medical papers of the city.

Obituary Notes.—Dr. Henry Garrett Voorhees de Hart of White Plains, N. Y., a graduate of the College of Physicians and Surgeons, New York, in 1873, one of the organizers and for many years a member of the medical attending staff of the White Plains Hospital, died at the hospital on December 14, aged sixty-five years.

Dr. Frank McWilliams died at Schuylkill Haven, Pa., on December 16 at the age of forty years as a result of pneumonia. He was graduated from the medical department of the University of Pennsylvania in the class of 1899. He was for a number of years connected with the medical staff of St. Joseph's Hospital at Reading, Pa.

Dr. Julius L. Friedler of New York, a graduate of the University and Bellevue Hospital Medical College, New York, in 1889, died at his home on December 13, aged fifty-nine years.

Dr. Alexander P. O'Malley died at Wilkes-Barre, Pa., on December 12 at the age of sixty-one years. He was graduated from the New York University Medical College in the class of 1876.

Dr. Roland H. Gilman died at Williamsburg, Pa., on December 17 as a result of pleuro-pneu-

monia. He was graduated from the Medico-Chirurgical College of Philadelphia.

Dr. THOMAS OSBORNE HUNTER of Biloxi, Miss., a graduate of the Memphis Hospital Medical College, Memphis Tenn., in 1889, and for several years city health officer of Biloxi, died suddenly of heart disease on December 3, aged forty-six years.

Dr. WINFIELD S. SMITH of Boston, Mass., a graduate of the Boston University School of Medicine in 1883, a former president of the Massachusetts Medical Society and of the Surgical and Gynecological Society of Massachusetts and professor of operative surgery in Boston University, died at his home on December 16.

Dr. THOMAS WILFRED FLOOD of Haverhill, Mass., a graduate of the Baltimore University School of Medicine, Baltimore, Md., in 1902, died at his home of typhoid fever on December 16, aged thirty-one years.

Dr. CHARLES WILLIAM TRUEHEART of Galveston Texas, a graduate of the Medical College of Virginia, Richmond, in 1864, for many years city health officer of Galveston, and a member of the American Medical Association, the State Medical Association of Texas, and the Galveston County Medical Society, died in San Antonio on December 15, aged seventy-seven years.

Dr. GEORGE NICHOLS of Brooklyn, N. Y., a graduate of the Hahnemann Medical College and Hospital, Chicago in 1861, and a member of the Kings County Homeopathic Medical Society, died at his home on December 19, aged eighty-five years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

GENERAL MEDICAL COUNCIL—ADMISSION TO QUALIFICATION TESTS TO BE MAINTAINED—ADJOURNED DISCUSSION AT MEDICAL SOCIETY ON WOUNDS IN WAR—OBITUARY.

LONDON, December 4, 1914.

THE General Medical Council has been holding its 100th session and transacting the usual amount of formal but necessary business. Education and registration—to complete its full name—have, of course, the first claim on its attention and all matters relating thereto occupy it at every meeting. But even into the proceedings of this staid body the subject of the war has intruded just as it does into every department of our life. As the authority regulating medical education and practice, the most important of its deliberations on this occasion was the question submitted by several of the qualifying corporations whether, in prospect of the demands on the profession probably leadng to a shortage of practitioners in the future, it would be well to modify or suspend some of the minor regulations, so that students who enlist for the war might on its conclusion find that their military service had not unduly injured their medical curriculum? Further, the question arose whether the Council would approve the proposal of some bodies to hold special additional examinations so as to be able to grant diplomas to students who had completed the curriculum and had only to wait till the next ordinary examination to undergo the final test—thus hastening for a few weeks their qualification to enter the Army Medical Service?

Now, the requirements of the Council have always been met by the regulations of the qualifying bodies and represent what has been determined to be the minimum standard and that cannot be less for the military or naval than for the civilian patient. The Council evidently felt that a firm adherence to their position was called for and that it was their duty to maintain unimpaired the present standard of knowledge and skill which they have heretofore demanded from everyone seeking admission to the status and privileges of registered practitioners.

At the adjourned discussion of the Medical Society of London on the "Treatment of Wounds in War," Mr. d'Arcy Power said the cases he had seen in the present war were mostly bullet or shrapnel wounds; he had met with none due to bayonet, lance or sword. He showed a skiagram of foreign bodies lodged in the erector spinæ. Two of them were sovereigns driven out of a money belt an officer was wearing on to the transverse process of the first lumbar vertebra, which was smashed; the coins were twisted and concave and one had on it the impression of the milled edge and part of the obverse of the one above it. In the other case a bit of the patient's diary had been driven into his thigh. The most interesting and yet difficult cases were nerve injuries. To decide whether damage was done by the bullet in its passage or where it lay in *situ* needed a skilled neurologist and expert *x*-ray photographer. Their reports would decide the surgeon's course. The bullet should be removed if still causing irritation, but would not benefit damage done in transit. Each case must be considered as to the circumstances, and experience proved that *x*-rays were not infallible guides to the position or depth of the foreign body. An extensive operation might be needed to find it or it might be missed altogether. Sloughing was more often seen than suppuration. When a bullet had passed through a limb the inlet and outlet might appear as wounds when the rest of the track was healed. When healed wounds again became painful they had to be reopened, and generally he had found pieces of clothing had been left in the tissues, causing no pain at first. Dry dressing had had to be replaced by fomentations. Iodine was useful, 1 dram of a 2½ per cent. solution in a pint of warm water applied on cotton wool. Too hot water would volatise the iodine, starch in the dressing render it inert. Time would be saved by bringing the edges together with strapping. The surgeon, Mr. Power held, needed constant help from the physician, neurologist, pathologist and radiographer. He must know when to operate and when to stay his hand. His attitude should incline away from rather than towards operating. It was better to lay wounds freely open than to plug or drain them.

Mr. Charles Symonds was glad Sir W. Sheyne had recalled to them the time when septic infection was the rule and shown that the same results would follow the same conditions wherever they prevailed and could only be met by Lister's methods. A remarkable point about the cases brought home was their septic conditions with absence of toxæmia. Did the missile sear the tissues in its passage? Certainly the constitutional effects were very different from those of equally septic wounds in civil life. He had treated flesh wounds with fomentations of boric acid. In comminuted fractures by bullet or shell he employed the same. It might seem tempting to open up and disinfect the humerus or to plate or wire the tibia, but it was better not. When a main vessel is involved or a joint opened.

the question of more active interference causes anxiety. With an exposed artery and its sheath injured he favored ligature of the main trunk above. To open a clean bullet wound, except to secure a large vessel, was not permissible. To immobilize fractures of the femur for transit he would use plating or wiring. It had been good to hear that Sir W. Cheyne had not lost faith in Listerism, and brought them back to the value of carbolic acid—the antiseptic with which his earliest and greatest trimphs had been won. Relying on that and on mercury, Mr. Symonds also admitted the power of iodine (2 per cent. in rectified spirit) in large lacerated wounds even with bone involvement. Which ingredient was the most efficient? Alcohol had some part in the work. Curiously it had in some form been applied to wounds from the earliest ages, as in circumcision. Perhaps there was more than met the eye in the use of the wine and oil of the Good Samaritan, who might be called the earliest antiseptic surgeon.

Dr. Ironside Bruce showed many radiograms of gunshot injuries and pointed out the use of *x*-rays as a guide to the operator and the difficulties which prevented the accurate information being fully obtained.

Mr. Jessop spoke of *x*-rays in ophthalmic work and related many cases of blindness arriving from the war, but which recovered.

Mr. Rowlands said most men at the front were so familiar with *a*septic surgery that they hesitated about putting strong *anti*septics into wounds. But dirty wounds must be disinfected at the earliest possible moment—that is, against invasion or multiplication of organisms. Even strong antiseptics were useless and might do harm after 24 to 36 hours, and many cases cannot be dressed within that time. He said that Mr. Turner had found picric acid, 1 per cent., dissolved in methylated spirit, cheaper and just as efficient as the iodine solution. In this war the R. A. M. C. had overcome enormous difficulties. Hope of further improvement rests upon getting the patients into base or field hospitals earlier. Perhaps motor ambulances may come into use, but bad cases must be moved as little as possible and not brought home.

Mr. Jocelyn Swan had some 2,000 cases sent to the Herbert Hospital, Woolwich, nearly all septic. They must realize the difficulties of the R. A. M. C., often working under fire—not only in the line but in the field hospitals. At Woolwich they freely opened, washed and drained these septic cases—did not sew them till sepsis was controlled. They had ten cases of tetanus in which they opened the wound, disinfected it and injected antitetanus serum in the lumbar region. Seven recovered. In eighteen skull cases the bullet entered the brain—in five traversed it completely—but two of these recovered, the depressed fracture having been attended to. He thought skull injuries should be dealt with at once, though those of thorax or abdomen were best let alone.

The president, Sir J. Bland Sutton, in closing the debate, remarked that he had himself given up carbolic acid because he was specially susceptible to its ill-effects. He used perchloride for a long time, but had lately been trying iodine and was well satisfied with it. It was a striking fact that these septic wounds cleared up rapidly with fomentations, especially peroxide of hydrogen. When the sepsis subsided foreign bodies could be cleared from the wounds, which then healed with great rapidity.

Colonel H. T. Thompson, M.D., of the Royal University of Ireland, who served for a long time in First V. B. of the Royal Fusiliers and held the V. D. and was J. P. for Croydon. He was author of a work on "The Importance of Milk Sterilization."

OUR LETTER FROM THE PHILIPPINES.

(From Our Special Correspondent.)

PHILIPPINE ISLANDS MEDICAL ASSOCIATION—ORGANIZATION OF A RED CROSS PARTY FOR THE WAR—A TRAVELING SANITARY EXHIBIT—PHILIPPINE GENERAL HOSPITAL—TYPHUS IN MINDANAO—A PLAGUE OF FLIES—WAR AGAINST MOSQUITOS—INCREASED POWERS OF THE MEDICAL LICENSING BOARD.

MANILA, November 8, 1914.

THE Philippine Islands Medical Association closed a very successful meeting with the election of its officers for the ensuing year. The new president is Col. W. D. McCaw, chief surgeon of the army in the Philippines; the vice-presidents are Lieut.-Col. S. C. Gurney of the Medical Division of the Philippine Constabulary, and Dr. A. G. Sison; secretary-treasurer is Dr. R. B. Gibson; councillors, Dr. N. M. Saleeby, Dr. W. E. Musgrave, Dr. Benito Valdez, Dr. M. W. Ireland, and Dr. Ferdinand Schmitter.

The sessions were followed by a banquet at which covers were laid for about sixty, the Secretary of the Interior and Commissioner De Veyra being guests of honor. Dr. J. A. Johnston presided as toastmaster and a number of speeches were made. Dr. N. M. Saleeby, the retiring president, pointed out the great benefits conferred, not only on the Filipinos, but upon all the peoples of the Orient through the work of the American physicians here, which had already had a profound effect upon the development of this part of the world. Dr. H. E. Eggers, of the Harvard Medical School in Shanghai, while not deprecating the work of the Shanghai doctors, pointed out the much greater difficulties encountered by the doctors in these islands. Whereas in Shanghai the most serious diseases or epidemics only occur for short periods at certain seasons, such difficult problems are always presented in Manila and have to be constantly combated. The acuteness and urgency of medical conditions were, he said, much greater here than in Shanghai. He also said that the local accomplishment in advancement of tropical medicine and hygiene were not adequately recognized by the rest of the world.

Dr. Sison delivered a masterly address on the scope and importance of the medical profession.

Mr. W. T. Denison, the Secretary of the Interior, described his particular interest in the work that the members of the association were doing, both as individuals and in relation to the health service. He felt it perhaps the most potent power for good in the islands and promised the association his earnest support in all its undertakings.

Col. W. D. McCaw, the new president, in a most polished oration, dwelt particularly on the wonderful changes which had occurred in the islands since he left them in 1902, and which had been accomplished for medical and sanitary uplift. In gracefully acknowledging the new honor which had been bestowed upon him, he pledged his best efforts to making the record of the association as brilliant as it had been under his predecessor.

Manila is much interested in the proposed formation of a Red Cross party to go to the scene of the

European war to take part in the humanitarian work there. Bishop Brent, Speaker Osmena of the Philippine Assembly, and Commissioner Palma have the matter in charge—the Philippine Red Cross having the same status toward the American Red Cross as a state society. The plan is to organize a party of three representative physicians, fifteen female nurses, with the necessary cooks and attendants to make it a unit complete in itself, and equipped with the necessary instruments, etc., to take over and operate wards of approximately 125 beds capacity. The projectors are fortunate in being able to have the advice of Col. Lynch, formerly army representative with the Red Cross, and of Major Darnell, medical supply officer, both of whom are on duty in the islands, in matters of organization, administration, and equipment. The Filipinos see in the project an opportunity to place themselves before the world on a national status and to "put the islands on the map," and are much interested in seeing that only thoroughly representative physicians and nurses shall compose the party. The society is in touch with the American Red Cross, and its party will report to the national representative now stationed in London. It is planning to be absent about eight months.

The Bureau of Health gospel of hygiene railroad car and traveling sanitary exhibit, is now ready to enter in its work and was thrown open to inspection by the public recently. Refreshments were served by pretty Filipina nurses from the General Hospital and a large number of visitors were in attendance. The exhibit is very complete and includes a moving picture outfit, and will prove very interesting and do a great deal of good. The Bureau of Education is to assist in the work of publicity by having all its pupils attend the demonstrations and lectures while the car is in their town, and by sending out notices regarding the latter through the children and by teachers, posters, etc. The health officials will, of course, cooperate, and the governors and other officials have been asked to assist in every possible way while the car is in their provinces or municipalities. The railroad towns for about 150 miles north of Manila will first be visited.

The Philippine General Hospital is still a center of newspaper interest, the latest proposition being to turn it over to a church organization which is about to discontinue the St. Paul's Hospital in the Walled City as being too great an expense. It is difficult to see how an organization that seems to have failed of successful administration of a seventy-five bed hospital could successfully manage one of five times that size. Of course, the Government, which is careful to avoid any religious complications and entanglements, will enter into no such arrangement. Another proposition is that the Philippine General Hospital should refuse to admit pay patients and become a purely charitable institution. This change would, of course, be enthusiastically received by the various private hospitals, since thereby the great burden of charity patients would be shouldered by the Government, letting the private hospitals have all the patients in whom a profit could be found. However, it hardly seems equitable to deny the wonderfully complete medical and surgical facilities of the Philippine General Hospital to people who have a few pesos they are willing to spend for treatment, and force them to go to the far less generously equipped private institutions for their care. The idea seems to be to eliminate it from competition with the smaller hospitals, so that the latter might benefit thereby—all of which might be quite desirable from the viewpoint of the latter. There are quite a number of Government employees who are entitled under their contracts to free medical treatment, and it is proposed that the Government turn them over to one of the private hospitals and pay for their treatment there. This Government free treatment seems now in a fair way to be done away with in reference to future contracts, and a bill has been introduced in the Assembly to that end. The work done at the Philippine General Hospital has its magnitude well shown by the fact that it handles about 750 patients a day, with a staff of about 40 doctors, 100 Filipino graduate nurses and 250 student nurses to handle the work. The entire personnel employed in connection with the hospital amount to over 800. The extent to which Filipinization has been accomplished is shown by the fact that of the above total only 8 are Americans, although at the outset practically all the attending and nursing staff were Americans.

Typhus fever has recently been reported as endemic in Mindanao, Dr. George B. Foster, of the United States Army, reporting five cases of Brill's disease in an outbreak at Camp Keithley, three cases occurring among native soldiers and two more in native camp-followers. A very few such cases have been diagnosed previously, but the diagnosis has not been unquestioned, and until the last year or so its existence in these islands had not been expected. Camp Keithley is located on the cool uplands at an elevation of about 2,200 feet, and the climate is apparently cool enough to enable the disease to maintain an existence. The Moros of that vicinity are squalid and filthy, seldom bathing or washing their clothes, and herding together in large houses, so that any lice present have every opportunity for migration and transference of infection. It will now be interesting to learn whether it ever occurs among the Igorrotes and other dwellers in the 5,000 and 6,000 levels of the Luzon highlands. In the past year tremendous outbreaks of typhus have occurred in Japan. With the occurrence of typhus, yellow fever appears to be the only remaining great scourge of the human race which is not established in these islands.

There are now a great many more flies in the city of Manila than there have been for a long time. This is believed to be largely due to the fact that the ants, which live in the ground and systematically prey on fly larvæ were largely killed off by the September floods, while the flies took shelter in buildings and thus kept alive. Since then the flies have reproduced themselves more rapidly than their natural enemies, the ants, and nature's balance for the suppression of flies has been temporarily disturbed. Pending the necessary increase in the ant population, the Bureau of Health has asked the public to take special measures for fly prevention and destruction. Special efforts are being made to keep down flies about the dumps. It will be recalled that some of the lowlands of Manila are being filled in with garbage and refuse. This is dumped in about 6 feet deep, and immediately covered over with clean earth to assist in decomposition and diminish odors. Unfortunately much of the garbage is flyblown before collection and constant vigilance is necessary to destroy the flies which hatch out and work their way to the surface. This is done by systematic spraying of the surface with larvacide solution every two or three hours, when the young flies and maggots are readily killed.

The work of mosquito destruction, which has been carried out by the municipal authorities, has just been turned over to the Bureau of Health. The city is to pay the necessary bills, and the health authorities are to provide the personnel, conduct the work, and take the responsibility. This mosquito work is to be conducted in connection with the work against flies and rats, the general sanitary inspection force assisting in reporting breeding places while the work of destruction is to be done by a special force. Dr. C. S. Banks, the well-known entomologist of the Bureau of Agriculture, is to conduct the work under the Bureau of Health, and is now preparing systematic plans of endeavor.

A bill has just been introduced in the Assembly by Dr. Santos, an assemblyman, calling for the examination of graduates of the medical school of the University of the Philippines by the Medical Examining Board as a prerequisite for practice. Heretofore the university graduates have been the only ones exempt from this requirement. In presenting his bill, Dr. Santos made serious charges against the competency of the students, alleging particularly that they were not made sufficiently acquainted with cholera, leprosy, plague, and other grave transmissible diseases. His allegations called forth emphatic denials and protests on the part of graduates and undergraduates of the university, and are now being investigated by the Assembly Committee on Education.

Progress of Medical Science.

Boston Medical and Surgical Journal.

December 10, 1914.

1. The Action of Lecithin Upon Tubercle Bacilli and Their Relation to Experimental Tuberculosis. E. Zueblin and F. Proescher.
2. Variation in the Sensory Threshold for Faradic Stimulation in Psychopathic Subjects. First Note. G. P. Grabfield.
3. Experience with the Lange Colloidal Gold Test in 135 Cerebrospinal Fluids. H. C. Solomon and H. O. Koefod.
4. Cases to Illustrate Lymphomatic Psychoses of Cardiorenal Type. F. E. Williams.
5. The Margin of Error in Psychopathic Hospital Diagnosis E. E. Southard and H. W. Stearns.
6. In the Systematic Control of Salvarsan Therapy, Based on the Rapidity of Arsenic Excretion. H. M. Adler.

1. The Action of Lecithin Upon Tubercle Bacilli.—E. Zueblin and F. Proescher show that human tubercle bacilli subjected to the action of lecithin undergo some loss in virulence. In the case of the bovine bacilli the impairment of virulence is less marked.

2. Faradic Stimulation in Psychopathic Subjects.—G. P. Grabfield has investigated the sensory threshold for faradic stimulation in various psychopathic individuals and finds that in general the threshold of the psychopath tends to be high. Alcohol appears to be a definite factor in raising the threshold. Interesting figures are available for cases of dementia precox, indicating that the paranoidal forms have a normal threshold, whereas those classed as catatonic and hebephrenic have pathologically high thresholds. It is remarkable that the hebephrenic cases tested (two in number) showed some of the highest thresholds calculable. The manic phase of manic depressive insanity shows a normal threshold, the depressive phase a pathologically high threshold. Beyond a high threshold average, it is impossible to ascribe to the syphilitic group more than a tremendous variation in different cases. The psychoneurotics seem to have normal thresholds, which fact may be of practical value when the diagnosis is in doubt as against the frank psychoses.

3. The Lange Colloidal Gold Reaction.—H. C. Solomon and H. O. Koefod report the results of their experience with this test in 135 cerebrospinal fluids. They find that the test requires very small quantities of fluid, is rapid, easy and cheap, but must be done with great care. Paresis gives very typical reactions, but cases of undoubted paresis may give atypical reactions, and cases not paresis may give the type reaction. We are unable to offer any conclusion as to its value in the differentiation of cerebrospinal syphilis and paresis. Tabes gives a reaction quite different from paresis, fairly characteristic of syphilis, but not in itself diagnostic of tabes. It is of no certain value in cases of congenital syphilis, showing no other signs of central nervous system involvement. Non-syphilitic cases give at times reactions in the so-called syphilitic zone. In view of the above statement it can be maintained that a reaction in the syphilitic zone in cases of syphilitics does not necessarily argue syphilitic involvement of the central nervous system, all other signs being negative. It would seem to offer a differentiation of tuberculous meningitis, and is here at times more valuable than any other test.

New York Medical Journal.

December 12, 1914.

1. Abnormal Mental States. H. M. Friedman.
2. Changing Tendencies in Disease. J. R. Wiseman.
3. The Treatment of Pectus Excavatum (Funnel Breast). J. Madison Taylor.
4. Radium and Mesothorium in Conjunction with Röntgen Therapy. R. H. Boggs.
5. Some New Potentialities Associated with Electrical Energies. T. D. Crothers.
6. Hemiplegia Complicating Thoracic Aneurysm. L. Napoleon Boston and L. C. Rummage.
7. Colon Bacillus Infection in Middle Ear Disease. D. S. Dougherty.
8. Puerperal Sepsis. J. N. Upshur.
9. Pneumococcus Peritonitis. L. M. Kahn.

3. The Treatment of Funnel Breast.—J. Madison Taylor describes a mechanical method of treating this condition, the essential of which method consists in forcing the chest to expand and the ribs to rise to a normal level. The patient is directed to clasp hands behind and place them just below the shoulder blades, then to pull apart one against the other, extending both steadily downward, as far as possible, maintaining both traction and extension with increasing force, and to hold them at the end of full downward extension an appreciable time—a few seconds. This maneuver involves full action of the erector spinæ muscles; as they pull down, the thorax is lifted up in front; all the ribs are elevated and likewise full traction is exerted on the ribs at their insertions into the manubrium. As an important detail, first the right hand clasps the metacarpal bones of the left hand, the fingers of the left hand remaining extended. The thumb of the clasping hand is not used; encircling the left hand twists the right and imparts the direction of pull. The movements are repeated, using alternate hands, one to clasp and one to extend; both being thrust down and pulled apart; also holding the back vertical, *i.e.* not protruding the belly. It is sufficient to make ten extensions at a time—five with each hand—and daily at least for two or three months; then two or three times a week Whatever ultimate results can be obtained depends on the degree of contraction, state of tissues, and the energy used in the motions. A further detail of importance is that the chin shall be extended directly upward with each downward thrust of the hand. The chin moves up as the hands go down and greatly adds to the uplift of the ribs and the emphasis in downward pull of the vertical muscles of the back.

7. Colon Bacillus Infection in Middle Ear Disease.—D. S. Dougherty reports twelve cases in which the association was present and alludes to the paucity of investigations as to the relative frequency of the colon

bacillus as a source of aural infection. A possible route for this organism is the Eustachian tube during postanesthetic vomiting. In four of the author's cases the source of the infection was furunculosis of the canal wall. In one case the source was a rectal abscess.

9. **Pneumococcus Peritonitis.**—L. M. Kahn concludes that this condition may exist without the presence of pneumonia, and occurs in two distinct phases: the acute diffuse peritonitis and later the localized abscess formation in the peritoneal cavity. Nothing is gained by operation during the height of the diffuse peritonitis. Every effort should be made to support the patient in the acute diffuse stage so that the infection may become localized. Provided the correct diagnosis is made, the correct time for operation is after the formation of the localized abscess.

Journal of the American Medical Association.

December 12, 1914.

1. The Relation of the Medical Sciences to Clinical Medicine. F. S. Lee.
2. Gastrointestinal Studies. IV. Direct Evidence of the Secretion of a Gastric Juice of Constant Acid Concentration by the Human Subject. M. E. Rehfuss and P. B. Hawk.
3. The Prevalence of Occupational Factors in Disease, and Suggestions for Their Elimination. E. R. Hayhurst.
4. Clinical Classification of Ethmoiditis. E. M. Holmes.
5. Pathology of the Ethmoid Labyrinth. G. E. Shambaugh.
6. The Section on Stomatology: Its Needs, Its Duties, and Its Opportunities. II. The Field of Stomatology. W. C. Fisher.
7. The Section on Stomatology as a Faction in the Evolution of Dental and Medical Science. G. V. I. Brown.
8. Continuous Painless Renal Hemorrhage and Its Treatment. W. M. Spitzer.
9. Extraperitoneal Rupture of the Bladder. Its Surgical Management. E. Fuller.
10. The Mechanics of a Plaster-of-Paris Cast in Fixed Lateral Curvature of the Spine. E. G. Abbott.
11. The Three Cardinal Clinical Signs of Fracture Into or Near Joints. W. G. Stern.
12. Prophylactic Vaccination Against Epidemic Meningitis. A Supplementary Note. J. H. Black.
13. Trichotillomania. R. L. Sutton.
14. Dermatolysis, with Report of Two Cases. W. W. Cadbury.
15. A Bicornate Uterus Which Contained Three Pregnancies. C. H. Parkes.
16. The Thyroid Gland in Pellagra. C. F. Beeson.
17. A Tack in the Eparterial Branch of the Right Main Bronchus. W. Lerche.
18. A Case of Cardiospasm, with Improvement in Method of Dilatation. T. A. Johnson.

3. **Occupational Factors in Disease.**—E. R. Hayhurst points out that occupied persons, other than agriculturists, suffer an enormous mortality (figures show 74 per cent.) from well-recognized preventable and prematurely degenerative diseases. Occupational diseases exist because industrial health hazards exist. Responsible employers do not realize the existence of either, while treating agencies take little cognizance of employments. From one-fourth to one-third of the medical afflictions of tradespersons are due in whole or in great part to industrial health hazards. In institutions the vast majority of industrial diseases are lost sight of through a failure to recognize properly the industrial relations of the patients, to make etiological diagnoses, and to classify properly in subsequent filing. Specific occupational diseases, such as lead poisoning, are not recognized in more than one out of three or four instances, more especially the chronic cases.

8. **Continuous Painless Renal Hemorrhage.**—W. M. Spitzer states that the changes found in kidneys of essential hematuria are identical with those found in passive congestion and are therefore caused by passive congestion. The bleeding is due to passive congestion, the kidney being an organ so constructed that it must of necessity bleed in the presence of passive congestion. It is erroneous to ascribe the bleeding to nephritis, as there are no clinical symptoms or urinary findings indicative of nephritis, nor can the latter be unilateral. Still, it is admitted that if the bleeding continues, the pathological changes in the kidney would be the same as in chronic interstitial nephritis. The passive congestion occurring in one kidney only is due to some interference with the outflow of blood, which comes from a twisting of the kidney on a short pedicle. Operative interference is warranted only when it becomes necessary to save the patient's life because of an increasing secondary anemia. Bisection of the kidney for the cure of this condition is contraindicated and is dangerous.

12. **Vaccination Against Epidemic Meningitis.**—J. H. Black reports the results of his supplementary studies along this line, which show that prophylactic vaccination produces a high degree of immunity in most cases. This immunity is demonstrable at the end of two years. Some individuals may show an actual increase in immune bodies at the end of one year over those demonstrable soon after vaccination. Fixation occurred with the serum of a positive control who recovered from meningitis, but this fixation did not reach as high dilutions as did that of some of those vaccinated.

The Lancet.

December 5, 1914.

1. Modern Aspects of Certain Problems in the Pathology of Mental Disorders. E. Goodall.
2. A Case of Leprosy Treated with Radium and Diathermy. C. E. Iredell.
3. On Some Cases of Anomalous Fever. S. Taylor.
4. Glycerin in Bromidrosis, with a Note on Military Needs. T. H. C. Benians.

1. **Problems in Mental Pathology.**—E. Goodall in the first of the Croonian Lectures discusses a few of these problems, one of the most interesting of which seems to be the relationship between syphilis and paresis. The suggestion is made that paresis is merely an unusually late manifestation of syphilis of the brain. Whereas 17 per cent. of syphilitics develop tertiary lesions in the brain, the number that develop paresis is only 5 per cent. There is a certain amount of presumptive evidence that in those syphilitics who develop paresis there is an underlying neuropathic inheritance. A close analogy is pointed out between the sleeping sickness that ensues after trypanosome infection and the general paralysis that follows syphilitic infection. The evidence is strong which tends to support the hypothesis of a toxic origin for paresis, namely, the exacerbations and remissions suggestive of a toxic process; the temperature variations of unknown causation, and the polynucleosis of the blood accompanying the exacerbations. The author refers to the recent use in cases of paresis of hexamethylenetetramine, a drug which, at any rate in institution cases tends to prolong life by maintaining the patient for a longer period in a stationary state or in a remission. Its favorable action may possibly be due to the prevention of secondary infections.

2. **Leprosy Treated with Radium and Diathermy.**—C. E. Iredell reports the case of a medical man, the superintendent of a leper asylum from 1901 to 1908, who in 1910 first noticed a sensation of pins and needles in his left arm and a little later macules on the arm with fawn-colored centers and dusky borders. The diagnosis was made of maculo-anesthetic leprosy. There developed cramps, pains, and numbness in the hands and feet and a leprome appeared on the lower lip. The *Bacillus lepræ* was isolated from the pus of this leprome, which healed under the application of radium. Pains in the abdomen were relieved by the application of diathermy. In fact the improvement in the patient's general condition began with this method of treatment.

4. **Glycerin in Bromidrosis.**—T. H. C. Berrians notes that whereas the influences underlying this condition are not quite clear, there is at least one known causative factor, namely, bacterial decomposition of

the sweat. It is suggested that the application of glycerin to the feet prevents the formation of noxious products and keeps the skin in a healthy condition.

Berliner klinische Wochenschrift.

November 9, 1914.

Perforating Shot Wounds in the Stomach.—Adler gives statistics which show that in about ⅞ per cent. of shot wounds of the abdominal cavity the stomach is perforated. The mortality from immediate laparotomy in peace surgery is about 15 per cent., but in war the corresponding figure is about 70 per cent., which is much higher than that of conservative management, and agrees closely with the peace mortality of laparotomy when done over twelve hours after the injury. The author cites the case of a soldier shot through the stomach at Gumbinen last August. He was struck at a distance of about 200 meters by an ordinary bullet. He thought he had only been hit with a stone and at first paid no attention to the injury, as fragments of stone were flying about, and he had actually been hit with one at the time of the bullet wound. He had been kneeling to shoot at the time and was bowled over by the stone but sprang to his feet. There was hardly anything in his stomach at the time. His breakfast four hours before had consisted of two cakes. He was unable to stand erect. The dressing station was reached in half an hour, and the sanitary company in another hour, when he entered a coach drawn by Russian prisoners, reaching Gumbinen in 5 hours. Ten hours were required to transport him to Insterburg on the following day and he reached Berlin from Insterburg in two days and two nights. During most of the period he sat up, and at the various stops for food ate bread, sausage and fruit, drank lemonade, and smoked cigars. The man should by rights have been interned at Insterburg, which would have saved him 48 hours of transportation in a freight car. At Berlin just four days after the injury he was found to be in excellent general condition, with no symptoms of peritoneal reaction. *X*-ray examinations showed that the projectile lay loose in the stomach. Some twelve days later it had traveled along the intestine to the cecum and eventually was found in the stools. The bullet, which had perforated only the interior wall of the empty stomach at the greater curvature, had done no harm because there was no escape of matter into the peritoneal cavity and the wound in the stomach had closed itself by adhesion formation.

Treatment of Tetanus.—Mühsam advocates some procedures which are not in general use. He would treat the wounds as if they were already infected. All shreds of tissue or any tissues which could serve as a nidus for germs should be removed by scissors and the sound surface thoroughly curetted. In certain suitable cases he would make a counter opening to insure complete drainage. No substance should be used for dressings that has reducing properties (the author unfortunately does not give a list of these but some of the most commonly used dusting powders are said to abstract oxygen from the tissues). The author advises free use of oxygenizing substances, chiefly hydrogen peroxide in the usual fluid form and also the solid form for insertion in tracts. The wound should never be cauterized or dressed with any substance which forms a protective crust. Serum should be given by the intralumbal and intramuscular routes alternately. A sufficient use of narcotics should be made, and the author, like some of his colleagues, implies under the idea of narcotic the use of magnesium sulphate. The presence of trismus prevents expectoration and thereby causes a certain amount of death from aspiration pneumonia. To forestall this possibility the author advises the extraction of enough teeth to permit expectoration. A case is related of an English wounded prisoner delivered to a reserve hospital with tetanus at its acme. The wound had been received 25 days before. The incubation period seems to have been 11 days. The patient had ill-looking wounds on both lower extremities. At each contact with the surgeons he was thrown into convulsions. Under chloroform his wounds were curetted; one of them extended into the marrow of the tibia. Serum and hydrogen peroxide were used freely, with the older narcotics. With three days of this management the patient was out of all danger.

Renal Diabetes.—DeLangen speaks of the increasing interest in this condition and describes a case in point. He concludes that in certain kinds of renal lesion pathological quantities of sugar in the blood are excreted with difficulty. There is also, so far as experiment may show, a diabetes due to abnormal permeability of the kidneys. Finally there is a true renal diabetes which differs notably from ordinary diabetes mellitus in causation, course, and prognosis. Thus far but a small number of these cases have been placed on record. Klemperer has set up certain criteria for these cases, and to be authentic reporters should not the presence or absence of these: independence of amount of sugar in urine in regard to carbohydrate ingesta; no increase in sugar content of blood; development of nephritis antagonizes excretion of sugar.

Münchener medizinische Wochenschrift.

November 10, 1914.

Superinfection in a Case of Tabes Dorsalis.—Pöhlmann reports a case of recent syphilitic infection in an elderly tabetic. This case is justly entitled to the term superinfection because in the tabetic the Wassermann reaction is practically always positive. The conditions are quite unlike those present in ordinary reinfection, which, once infrequent, have now become quite common under salvarsan treatment. Superinfection is extremely infrequent, and the word itself as applied to syphilis is barely known. The author's patient, a man of 63, had become syphilitic when a young man. Not until ten years had expired did he submit to a thorough cure. In 1913 the Wassermann reaction was negative. About a year later he contracted a clinical chancre, but without spirochetes or enlarged lymph nodes. Wassermann reaction negative. Two weeks after first appearance of chancre a positive Wassermann reaction was obtained by the use of a single technique, although other tests were negative; and the use of neosalvarsan and a mercurial inunction caused a slow recession of the chancre. No enlarged lymph nodes or secondary symptoms had as yet appeared. There was arteriosclerosis with low blood pressure and evident abnormalities of the heart and large vessels. The neurological examination revealed evidences of beginning tabes. Technically the finds are summed up as follows: Hypertrophy of the heart resulting from arteriosclerosis, aortitis (probably luetic), slight cardiac insufficiency. The eyes were normal. The evidences of tabes were highly minimal — slight anomalies of sensation and reflex action. The absence of spirochete finds and of regional adenopathy suggests that the incoming organisms were overwhelmed by persistent immune bodies in the circulation. In any case one would not expect a superinfection to behave like a primary infection or even a re-infection. The "tertiary tissues" had naturally become very largely immunized to spirochete activity in the sense of a general infection.

Danger of Anaphylaxis in the Serotherapy of Tetanus.—Simon relates several personal cases of tetanus

occurring in his practice in which antitoxin used in large doses cured the patient without any suggestion of abnormal sero reaction. Since the present war eight cases have been seen, but four of the patients were in such an advanced stage of the malady that they soon perished without relief from serum. In this series the incubation period had been very brief (3 to 6 days), the onset of symptoms very stormy, the type of disease of the severest, and the prognosis of the worst. Two of these patients were treated with serum and the other two with magnesium sulphate, but in neither series was any benefit noted. The four patients with moderately severe tetanus all recovered, but irrespective of the precise treatment two undoubtdly showed the presence of severe anaphylactic shock. Klimenko has placed on record 33 severe examples of the latter, all in recovered cases. Milder cases are doubtless more common than is believed. The great puzzle about anaphylaxis in the author's cases, to say nothing of others, is that there had been no sensitizing by previous injections. The fact that serum protection soon wears off in the case of diphtheria should have no bearing upon the author's cases, as the conditions were hostile to an anaphylaxis. One is forced to believe that some of the manufactured serums are not of equine origin, but of bovine. The author advises that after 10 days of serotherapy the use of serum should be discontinued.

Magnesium Treatment of Tetanus.—Eunike regards magnesium sulphate as the best of all the symptomatic remedies for this affection. He has followed Kocher's technique in the treatment of eight cases. These were all of the severest type, with as a rule very brief incubation period. The evolution of the disease was very rapid, and the excitability which provokes the convulsions was very high. Incidentally deglutition was almost impossible. Lumbal injections were used throughout under chloroform. The four most severe cases did not respond in the least to magnesium. Two more showed some response while in the remaining two the positive result was striking. The four uninfluenced cases all perished in from 8 to 45 hours from the first injection. Of the other four cases two certainly recovered promptly, although a second injection was required in each case to combat a recrudescence. Of the remaining two cases the author states only that the convulsions were favorably influenced but never disappeared entirely. He omits to state the termination of these cases, but if the convulsions never ceased we may infer that it was lethal. All the patients received antitoxin and the customary narcotics.

Deutsche medizinische Wochenschrift.

November 12, 1914.

Treatment of Severe Cases of Tetanus.—Kocher begins an article on this subject, and after a brief historical prelude wastes no time in taking up the magnesium sulphate treatment concerning which his very favorable views have long been known. He has been in touch with this resource for over three years, and first tested it in practice in November, 1911. On the following July he was able to report three cures of tetanus by magnesium given intradurally. This report called the attention of the profession throughout the world to new possibilities in therapy. Early in 1913 the author reported further results and his personal record was five recoveries and one death. Four subsequent cases, one treated by a colleague, left the grand total to date at seven recoveries and three fatalities—a mortality of but 30 per cent. A curious fact is now elicited, to wit: all the fatalities thus far have occurred in children. The seven recoveries were all in adults, with a mortality of zero, a record probably never equaled under the conditions. The author now proceeds to demonstrate that children treated subcutaneously do especially well under this plan. The experiences of Mielke and Falk prove this. Falk, in fact, cured three victims of trismus neonatorum with subcutaneous exhibition of magnesium. Although small series of cases of Kocher and Falk have shown 100 per cent. survival under magnesium treatment, suggesting a therapeutic conquest of tetanus, the author admits that at present we must take account of Stadler's 58 compiled cases with magnesium treatment. His own analysis fixes the mortality by the intralumbal method as but 20.5 per cent. Unfortunately separate figures for children are not deducible.

Secretion of Urine in the Nursling.—Engel states that little is known of this subject. We are indeed aware that the urine escapes involuntarily and several times daily. The amount we do not know nor the composition of the different portions. The author has in consequence devoted several years of research into this problem. A series of children was tested at half hour intervals to see if they were dry or wet. This proved to be impracticable, and a small urinal was employed to catch the urine. It was provided with an exhaust tube and two platinum electrodes which were attached to an electric circuit. The urine, escaping from the child, passed between the two electrodes and completed a circuit, thus ringing a bell. This procedure involved the escape of a portion of the urine as overflow, which in turn was caught in an accessory receptacle. As soon as the bell rang the sister in charge removed, emptied, and replaced the urinal. The author does not in this connection report results; so that his article should have been entitled "a method for collecting the urine of nurslings," which would have awakened more interest in the mind of the pediatrician.

Anosmia and Traumatic Enophthalmus.—Strebel, associated with Professor Haab, first cites the great infrequency of traumatic enophthalmus. That the olfactory nerve does not suffer more frequently in regional traumatisms has long been a paradox. This is due in part to defective methods for testing olfaction. The author now cites a case; a man was kicked by a horse about the left eye and root of the nose. Bone splinters were removed from the left lower portion of the orbital margin. There was fracture at the root of the nose. Vision in the left eye ceased at once as a probable result of extravasation of blood, the absorption of which favored enophthalmus. Another diagnosis was "opticus atrophy as result of the fracture." There was coincident paralysis of the left facialis. Examination by the author, carried to great refinements, brought out the final opinion that the fracture line extended nearly to the stylomastoid foramen, involving the facialis beyond the chorda. The fracture of the orbital margin was doubtless responsible for the enophthalmus. In other words, the horse's hoof fractured the inner portion of the orbital ring and the median orbital wall with displacement of the nasal route and laceration of the olfactory fiber. The atrophy of the postbulbar tissues which caused the enophthalmus was doubtless brought about in part by injury to the sympathetic fibers of the eye.

Perforation of the Intestine by Ascarides.—H. Plew reports the case of a three-year-old child in which a round worm perforated the duodenum and caused fatal suppurative peritonitis. It is pointed out that such perforation may occur without any preceding pathological change in the intestinal wall.—*Archiv für Kinderheilkunde.*

Insurance Medicine.

Chronic Discharging Ears and Life Insurance.—Dr. William Mithoefer points out that there are both dangerous and non-dangerous types of suppuration from the middle ear. The non-dangerous type is a true mucous membrane disease and rarely leads to grave complications. These patients have fair hearing power, being able to hear whispered voice from eight to twelve feet and suffer no other inconvenience than the appearance usually in the morning of a slight discharge from the ear. The perforations of the tympanic membrane are round or kidney shaped, and are located in the central or lower part of the membrane, in contradistinction to the perforations which are present in the dangerous types of suppuration, and are situated along the margin of the ear drum. These so-called marginal perforations are significant of bone disease, are often small and difficult to recognize. At times the only sign of their presence is an almost imperceptible mass of granulation tissue which is attached to the edge of the tympanic ring; at other times the perforation is only seen after the removal of a small crust which adheres to the margin of the perforation. Crust formation is liable to take place around a perforation of Shrapnell's membrane. Congenital perforations of Shrapnell's membrane may exist, but any perforation with crust formation around its edge at this place means that there is some inflammation behind. A perforation in this locality is often overlooked on account of the miniature size of the defect and the fact that the discharge is often scanty and intermittent and hangs over the perforation in the form of a thin film. At other times the perforation is not recognized because epidermization of the mucous membrane of the tympanum has taken place and the background of the perforation resembles the rest of the tympanic membrane. The marginal perforations and those present in Shrapnell's membrane have properly been called the dangerous types. It is extremely important that all applicants that have such perforations and in whom there is a scanty or intermittent discharge should be rejected. The degree of deafness which is present in these patients is of prognostic importance. A careful test of hearing usually demonstrates marked deafness. Whispered voice often is not heard further than two to four feet (noise apparatus in sound ear). Such marked deafness is characteristic usually of bone disease, as patients with mucous membrane disease alone have fair hearing power. Bone disease may be suspected in a patient with a marginal perforation and with considerable loss of hearing. Bone disease means chronic mastoiditis, and chronic mastoiditis with its possible intracranial and systemic complications is a dangerous and insidious disease. It is true many patients have reached old age, having had a discharging ear since childhood, but the consensus of opinion is that discharging ears, if they do not lead directly to death, certainly shorten the life of the individual. No life insurance examination is complete unless a careful inspection of the tympanic membrane is made, for frequently perforations of the drum membrane with a scanty discharge are detected upon examination, the applicant having no knowledge whatever of such a condition. It sometimes happens that patients state they have a scanty discharge from the ear, thinking that the discharge comes from the canal and not from the deeper tissues. This is partly true, as there is present an eczema of the external auditory canal, but the real cause of the eczematous inflammation is the scanty discharge of pus from a small perforation in Shrapnell's membrane. These conditions are often pathognomonic of a localized suppuration of the attic of the tympanum. In these patients with a scanty discharge it is necessary to inquire about two important symptoms, headache and dizziness. The latter is suspicious of labyrinthine involvement, the former denotes retention of pus or extension of the disease to the meninges. Headache is not always complained of even when the disease has reached the brain. Brain abscesses have been known to lie latent for a period of two years. There is a slight elevation of temperature, some loss of weight, a feeling of heaviness in the head with headache coming on at night, but not severe enough to disturb sleep. Such symptoms arouse suspicion of intracranial involvement. Central perforations, those having a peripheral zone of drum membrane between the edge of the perforation and the tympanic ring, rarely are associated with bone disease and seldom cause serious trouble. Perforations located in the region of the opening of the Eustachian tube are of a benign character and usually harmless. The most important factor to be considered is the direct extension of the disease from the middle ear to the surrounding vital structures. While the disease may be inactive for years there exists a possibility of a serious complication should the process once more become active. Mithoefer has divided applicants with discharging ears into four classes:

A.—Good Risk.—1. Complete cessation of discharge with cicatrization of the perforation. A cotton-tipped probe should be applied to the tympanic membrane, as often there is then revealed a few drops of foul-smelling pus which was not suspected on mere examination. 2. The persistence of a facial paralysis after healing of a chronic suppurative otitis media.

B.—Fair Risk.—1. Dry perforation centrally located without the existence of nasopharyngeal disease. Here there is a possibility of the middle ear becoming reinfected both from the external canal (swimming, dust, etc.) as well as through the Eustachian tube. 2. Complete healing after a radical mastoid operation.

C.—Fair Risk (increased premium).—1. Dry perforation complicated by disease of the nasal accessory sinuses of a chronic inflammation of the post-nasal space. To be considered only after treatment of the nasopharyngeal condition. 2. Incomplete healing of a radical operation, if the discharge from the ear comes from the region of the Eustachian tube and healing of the wound has taken place in the region of the attic and antrum.

D.—Bad Risk (rejection).—1. All suppurative diseases of the ear with marginal perforation and with the formation of granulations and polypi, mastoid tenderness, or a history of marked pain in the mastoid process; facial or abducens paralysis, and the presence of cholesteatomatous material in the ear. 2. Exostosis of the external canal with history of discharging ears. 3. Incomplete healing of a radical mastoid operation with the presence of denuded bone in the region of the promontory or antrum. 4. All who complain of headache or dizziness.—*Lancet-Clinic*, October 3, 1914.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held October 15, 1914.

THE PRESIDENT, DR. WILLIAM M. POLK, IN THE CHAIR.

THE meeting was under the auspices of the Section on Genitourinary Surgery.

Local Anesthesia in Relation to the Surgery of the Genitourinary Tract.—Dr. JAMES F. MITCHELL of Washington, D. C., presented this paper. He declared that as New York was the cradle of local anesthesia he could not resist the temptation to wander into history and to recall the beginnings of modern local anesthesia. In the MEDICAL RECORD of September 19, 1884, there appeared a letter from Dr. H. D. Noyer of New York giving a report of the Ophthalmological Congress which had just concluded its session at Heidelberg, in which it was stated that the most important feature of the meeting was the demonstration of the anesthetic action of cocaine. Immediately the suggestion was adopted in New York, and as early as October 14, 1884, only a month later, the MEDICAL RECORD and other journals were fairly flooded with the reports of successful operations under cocaine by New York ophthalmologists Dr. C. R. Agnew, Dr. W. O. Moore, Dr. Mittendorf, Dr. James L. Minor, and others. In December, 1884, the first enucleation of the eye under cocaine was reported in the MEDICAL RECORD by Hazen of Youngstown, Ohio. New York surgeons were as active as the ophthalmologists and soon demonstrated the importance of intradermal injections for anesthetizing the skin. Dr. Halstead first injected cocaine into a nerve trunk for the production of anesthesia in the course of its distribution, paving the way for the neuroregional method. In the same year Dr. Leonard Corning demonstrated how anesthesia might be prolonged by the application of a tourniquet, and suggested performing spinal injection. It was thus that within a year after the introduction of cocaine as an anesthetic New York investigators had established nearly all the underlying principles of local anesthesia. Another interesting historical fragment was a letter appearing in November, 1884, in which Dr. Samuel R. Percy stated that on November 5, 1857, he had read before the New York Academy of Medicine a paper describing a substance which he had isolated from erythroxylon coca, and which he called "erythroxylene," identical with cocaine. Both the paper and the sample of the substance were accidentally lost. His report antedated that of Niemann's discovery of cocaine by three years. In the advanced and highly developed genitourinary surgery of to-day both local and spinal anesthesia had a definite place and their employment might convert many a bad risk into a safe operative case. Unfortunately, many of the accidents and deaths from local anesthesia had come from the genitourinary department; hence, a word of warning was in order. Haste and strong solutions must be avoided. Weak solutions and a little more time would give just as satisfactory anesthesia with a minimum of risk. If cocaine was used at all it should not be used in a stronger than 1 per cent. solution in the urethra, or 1/10 per cent. in the bladder, or for tissue injection, and always should be protected by adrenalin. Novocaine did not seem to be as effective as cocaine when applied to mucous membranes. Alypin was recommended as the most satisfactory cocaine substitute in the urethra and bladder. The use of too strong solutions was responsible for most of the accidents reported from the employment of this agent. The solution of alypin should not be above 1 per cent. combined with suprarenin for urethral injection. For injection into the tissues novocaine in ¼ to ½ per cent. solution combined with suprarenin was the only drug to be considered where any amount was necessary. Enormous amounts (250 to 300 c.c.) of this solution might be used. For nerve blocking this might be increased to 1 or 2 per cent. The whole penis as well as the scrotum and its contents might be readily anesthetized by basal injections permitting painless plastic operations, castration, or Hagner's operative treatment of epididymitis. General or even spinal anesthesia for such simple affairs was unnecessary. External urethrotomy was quite satisfactorily done in most instances by means of diffuse perineal injection with ½ per cent. novocaine and suprarenin. Where a more extensive field of anesthesia was required parasacral or spinal anesthesia might be more satisfactory. Even the inflamed bladder could usually be anesthetized by first washing it as clean as possible and then filling it with ½ per cent. alypin and suprarenin. After a few minutes it would be found to relax and more fluid would be admitted, so that after twenty or thirty minutes the bladder would permit such manipulations as cystoscopy or ureteral catheterization. Suprapubic cystotomy for the removal of stones and other purposes might be accomplished by the above procedure with the addition of a diffuse infiltration of the abdominal wall in the line of the incision. For more extensive operations one might resort to spinal or paravertebral anesthesia. It was especially in patients requiring prostatectomy or various operations on the kidney that those conditions were found which made it desirable to avoid general anesthesia. After a survey of the subject of prostatectomy Dr. Mitchell stated that if the safety of spinal anesthesia was admitted it was undoubtedly an ideal method. If spinal anesthesia was not to be considered, paravertebral, regional, or true local infiltration anesthesia offered a safe means of performing prostatectomy. Paravertebral blocking was an extremely serviceable method, capable of great variations, serving alike for thoracic, abdominal, pelvic, or perineal operations. The nerves were blocked just after emerging from the spinal canal, the particular ones varying with the site of the operation. Each nerve was reached by a separate needle puncture 4 cm. from the middle line at the level of the tip of a spinous process. The needle was held perpendicular to the skin surface and was pushed straight in until its point struck a rib, or in the lumbar region a transverse process. The needle was then moved until its point slipped over the lower border of the rib, when its projecting end was tilted outward 20 to 25 degrees. In this position it was introduced 1½ to 2½ cm. deeper. The injection was then begun and continued as the needle was withdrawn until its point reached the edge of the rib, by which time 15 c.c. of ½ per cent. novocaine with suprarenin had been introduced. This needle was left in as a guide to the introduction of the next. Anesthesia appeared in from fifteen to twenty minutes. The sacral nerves were reached through a point 1½ to 2 cm. to either side of the tip of the coccyx. A needle 12 or 15 cm. long was introduced, and the lower edge of the sacrum felt with its point. It was then pushed on parallel with the midline until it met obstruction, usually at a depth of 7 or 8 cm., which marked the sacral foramen. Here 25 c.c. of a solution ½ per cent. novocaine with suprarenin was injected. As the needle was withdrawn 35 cm. more were injected before the lower sacral border was reached, thus surrounding the third, fourth, and fifth nerves. The needle was reinserted, pointed a little more abdominally, and pushed up till obstruction was again encountered. Here again 40 c.c. were inserted. This was the safest form of local anesthesia by which the more complicated genitourinary operations might be accomplished. It was absolutely free from danger and apparently had no contraindications and had proven most satisfactory in the hands of Braun and other European surgeons. The author stated clearly that he did not advocate local anesthesia as a method of supplanting general anesthesia in all genitourinary surgery or any other branch of surgery. For handicapped individuals, bad surgical risks, the methods which had been discussed offered an extra protection and a possible means of rendering necessary surgical aid.

General Anesthesia, with Special Reference to the Surgery of the Genitourinary Tract.—Dr. JAMES TAYLOE GWATHMEY read this paper in which he first reviewed inhalation anesthetics and the methods of their administration in common use, and stated the general principles underlying them. He said that it should be borne in mind that the standards of a few years ago were not the standards of to-day, and that no anesthetic or method of administration should be tolerated that was not both safe and pleasant. Dr. Gwathmey then reviewed the statistics of the committee on anesthesia of the American Medical Association embracing the period from 1905 to 1912 inclusive. These statistics showed that 386 hospitals reported a total of 488,886 anesthesias, with a mortality of one in 4,404 cases. This small mortality meant that death from anesthesia resulted only through carelessness, ignorance, or useless experimentation with new methods before they were thoroughly understood or tested in the laboratories. The American statistics gave the mortality for ether as one death in 4,500, and for chloroform one death in 1,600, showing that ether was approximately over three times as safe as chloroform. These same

statistics showed that the nitrous-oxide-ether sequence was safer than the ether alone—only one death in 6,800 administrations. The chloroform-ether sequence was one of the safest methods of administering ether, only one death occurring in over 10,000 cases. Local anesthesia had no mortality in over 30,000 administrations. Deaths had, however, occurred under local anesthesia when the patient had not been properly prepared. Ethylchloride was a very safe anesthetic for short operations, no death being reported in over 12,000 administrations. The ethylchloride-ether sequence had presumably fallen into careless hands, since one death was reported in 2,590 cases. The writer stated that there was no special reason for using endotracheal anesthesia in surgery of the genitourinary tract. The safety of this method, now that it was understood, had been demonstrated beyond all peradventure by Elsberg at Mount Sinai and Peck at Roosevelt Hospital. The endopharyngeal method, however, was far superior as a routine practice. Intravenous anesthesia was a perfectly safe method if the technique of Dr. Honan was followed, that was, the introduction of the needle into the vein was the work of the surgeon, the anesthetist regulating the plane of anesthesia as with any other method. Oil-ether colonic anesthesia was not especially indicated in genitourinary surgery on account of the proximity of the anesthetic to this tract, since these organs were not any more affected by the anesthetic than the brain and other parts of the body. It was a perfectly safe procedure, however, and offered many positive advantages for those who knew how to use it. In speaking of anesthetics suitable for special cases, Dr. Gwathmey stated that young adults required some preliminary medication as well as older persons. Many more short operations could be satisfactorily performed in the doctor's office or in the patient's home than was now customary. For instance, the stretching of the sphincter ani, cystoscopy, fulguration of bladder tumors, urethral catheterization in irritable bladders, etc., could all be done with nitrous oxide and oxygen alone, and without any preliminary medication. After-pain could be averted in many of these cases by the continuance of the anesthetic for five minutes after the completion of the operation. Where very great subsequent pain was anticipated, the hypnotic should be administered before the anesthetic. Ether should not be used in these short operations. For circumcision and similar operations on young children, warmed ether vapor was usually to be preferred. For a child six years of age or older, gas and oxygen were entirely satisfactory. Straight ether should not be used with infants and children. Prostatic cases should all have the benefit of the preliminary treatment outlined by Crile and Buckler. Other patients, especially thin and emaciated ones, could be satisfactorily anesthetized with nitrous oxide and oxygen, without the addition of even small quantities of ether, provided proper preliminary medication had been given. A pint of tap water with one ounce of glucose, one ounce of soda bicarbonate, and one ounce of olive oil, given immediately before the patient left the table, was a good procedure for these patients. For prolonged and radical operations the patient should have more than the usual amount of preliminary morphine, and then only enough nitrous oxide and oxygen to secure unconsciousness would be required to complete the surgical operation. The writer offered the following conclusions: (1) Most patients to be anesthetized, either locally or generally, should have the benefit of physiological doses of morphine before anesthesia, and also of an alkali and carbohydrate treatment both before and after operation. (2) For very weak and feeble patients, for those in the extremes of life, or where exhaustion with acidosis was present, also when the patient was in a state of coma or had acute or subacute nephritis, or any respiratory affection, the morphine should be omitted and bromides, or paraldehyde and olive oil per rectum should be substituted. (3) The essence of orange-chloroform-ether sequence, or the nitrous-oxide-oxygen-ether sequence should be used instead of ether by the drop method or the gas-ether sequence. (4) Chloroform throughout was the anesthetic of choice for chronic alcoholics. (5) Oil-ether colonic anesthesia was indicated for the very obese. (6) For office work and short operations, it was both safe and satisfactory to use only nitrous oxide and oxygen, without any preliminary medication or the addition of ether. (7) For major operations in genitourinary surgery patients could be safely and satisfactorily narcotized with nitrous oxide and oxygen alone.

Dr. JOHN A. BODINE said that the question of anesthesia had always appealed to him. Its proper use carried with it no death rate immediate or remote and its proper application in its proper place made operation as painless as did the use of general narcosis. Cocaine was their first practical local anesthetic and none of the many substitutes offered were worthy of mention except its present rival novocaine. It was at first taken up by the profession with great enthusiasm, was used unwisely, and in the subsequent reaction almost discredited and dropped. The medical journals contained reports of alarming symptoms and even fatal results in each issue until cocaine was looked upon as more dangerous than general anesthesia. The daily papers taught the people exaggerated ideas of its dangers. This belief had not entirely disappeared. A very great misfortune would have fallen upon surgery had not a few men, prominent among whom were the readers of the papers, who believed in the desirability of a safe and efficient local anesthetic. Men had worked out the great principle of safety in the use of cocaine, viz.: "It is not the amount of the drug, within limits, that produces the toxic symptoms but the degree of concentration of the solution used—or the rapidity of its absorption." Thus two grains of cocaine in a 10 per cent. solution quickly injected would, in his opinion, be dangerous, in fact too dangerous to use, while even a greater amount could be used with perfect safety in a 1 to 500 solution. The use of cocaine had a bad start, being largely used in 4 per cent. solution and even stronger; it took a long time to convince the profession that 1/50 of 1 per cent. or 1 to 500 solution would benumb a sensory nerve beyond all perception of pain. A 10 per cent. solution could do no more. It was never necessary in general surgery, under any circumstances, to use a 4, 2, 1, or even ½ of 1 per cent. solution intradermically. Of these solutions 2 per cent. anesthetized the nerve but the balance went to poison the patient. This was the second great practical principle that made for safe and efficient work. A third factor of inestimable value by Corning, namely, that interruption of the circulation by elastic constriction prolonged and intensified the analgesia, and what Corning's discovery was to the extremities where it could only be used, Takanime's adrenalin was to the body as a whole; both acted alike. Intelligent comprehension of this trinity of principles plus acquirement of the art by practice permitted one to do almost any operation in surgery and that without pain and with safety. It seemed to him safe to say that 50 per cent. of the operations in a general surgical clinic could be done painlessly with this solution and a higher percentage of the operations in urology. Though he had largely abandoned cocaine in his work for novocaine the former had some advantages. It gave a more intense analgesia and was so quick in action that the knife could immediately follow its introduction. Above all it in no way impaired the well being of the wound. In over one thousand inguinal herniæ operations done under local cocaine analgesia not one wound suffered deep or defeating suppuration. In the beginning of their change from cocaine to novocaine they had some instances of necrosis in the skin. This tissue necrosis frequently followed other substitutes of cocaine that were quickly abandoned. It probably had much to do with isotonicity. All local intradermic analgesia must be isotonic with the blood serum, *i.e.*, have the same specific gravity and the same freezing point to obtain perfect results. After all cocaine was a poison and so was novocaine, only much less so. As novocaine and adrenalin gave a perfectly painless analgesia they gave up cocaine with regrets. At the beginning of operations patients at times showed a set of symptoms among the most prominent of which were thirst, rapid pulse, shallow and quickened respiration, facial pallor, and facial sweating. For a long time it had seemed to the speaker that these manifestations were due to cocaine toxicity, possibly an idiosyncrasy of certain patients. By chance he observed that the brother of a patient who was watching the operation also had these symptoms. They were largely psychical and needed no treatment nor did they interfere with the operation. They would occur if water was used as the anesthetic. The preliminary dose of morphine tended to avoid the annoying manifestations and was thus doubly valuable. In speaking of the technique Dr. Bodine said that gentleness in tissue handling came first. The personal demeanor, calmness, and assuredness of the operator found instant reflection in the patient. The position of the patient must not be a strained one. The table must

be soft and comfortable. If the patient once became restless he was lost so far as perfect analgesia was concerned. Above all things it was a mistake to have someone to try to occupy the mind and attention of the patient. A moral anesthetizer failed to be a convincing persuader. It was best to perform this part oneself. One heard much of suitable patients, that some bore pain well and were thus good patients for local anesthesia, that others were difficult; there was not much in this in their experience. They had taken their one thousand cases of herniæ just as they came, the nervous and the phlegmatic, and not one had manifested sufficient pain to cause him to move hand or foot. The claim of increased postoperative pain had not been their experience. In the special field of urological surgery the speaker said that it seemed to him that all renal surgery demanded general anesthesia because large powerful muscles must be retracted and local anesthesia did not always produce relaxation. All ureteral surgery likewise demanded cerebral narcosis. As to the bladder, such operations as high drainage or cystotomy, uncomplicated stone, or pedunculated papilloma, local anesthesia should be the choice, while malignancy and prostatectomy required general sleep. The bladder mucosa should be anesthetized with large quantities of weak solution, giving time for the effect to intensify, and never with small quantities of strong solution. All surgery of the external generative organs could be satisfactorily accomplished under local anesthesia, from circumcision to castration. Each operation required its special technique according to the neural anatomy. This must be understood as a fundamental. Local anesthesia by infiltration had no place in either general or urological surgery in an inflamed septic area. To open a felon on the finger, or a carbuncle on the neck, a cellulitis of the perineum, or a foreskin by infiltrating cocaine into the area seemed like subverting the foundation principles of surgery.

Dr. Edward L. Keyes, Jr., considered the temperamental side of the subject and referred to what had been brought out at the recent Congress in Berlin and was pleased to learn that this was in accord with the views expressed by Dr. Cabot. There was much fear shown by patients about to undergo operations under local anesthesia. Yet it was to be remembered that some surgeons could not do little things but they could do big things under local anesthesia. Local anesthesia did not appeal to Dr. Keyes as an agent of choice. In operations, for instance, for epididymitis one could push the anesthetic too far and with bad results. In non-inflammatory operations on the scrotum, local anesthesia was to be preferred, but in the inflammatory conditions he did not like local anesthesia.

Dr. Martin W. Ware did not believe that local anesthesia had any place in genitourinary surgery as a rule. Fifteen years ago the Medical Society of the County of New York had a meeting in which a surgeon stated he did not believe that cocaine was any anesthetic whatsoever and he gave as his opinion "because the patient was one-half the time on the table and one-half the time off the table howling." But a little coaxing made the patient all right. At present Dr. Ware used novocaine. He said he had abandoned local anesthesia in circumcisions in adults.

Stated Meeting, Held November 5, 1914.

The President, Dr. William M. Polk, in the Chair.

This was the occasion of the annual meeting of the New England Pediatric Society, the Philadelphia Pediatric Society, and the Section on Pediatrics of the New York Academy of Medicine. The visiting physicians spent the morning inspecting the new building of the Department of Health and the exhibit of the Bureau of Child Hygiene, the exhibit of the New York Milk Committee, and the Research, Antitoxin, and Vaccine Laboratories of the Department of Health, where demonstrations of the Negri bodies and trachoma was given by Dr. Anna M. Williams and of the Schick reaction by Dr. Park and Dr. Zingher. In the afternoon a visit was made to the Children's Wards of the Presbyterian Hospital and to the Rockefeller Institute, and Dr. Holt held a clinic at the Babies' Hospital.

Experimental and Clinical Studies in Hemolytic Jaundice, with Special Reference to the Effects of Splenectomy.—Dr. Edward B. Krumbhaar of Philadelphia presented this communication, in which he first described the experiments of Dr. Pearce, himself, and other colleagues which had been carried on for the past three years at the Research Laboratory of the University of Pennsylvania, after which he discussed the bearing of this experimental work on the clinical aspects of the various types of splenomegaly with anemia. He said that although they at first were concerned with the relation of the spleen to hemolytic jaundice, they soon found themselves confronted with the broader problem of the relation of the spleen to blood formation and destruction in general. This study had brought out many explainable facts and some that were apparently paradoxical. Their first experiments confirmed and elaborated the earlier observations of Banti and Joannovics that it was more difficult to produce jaundice by means of hemolytic serum in splenectomized than in normal dogs. Attempts to explain the cause of this phenomenon, which was directly related to clinical splenectomy for the cure of various conditions associated with hemolytic jaundice, led them to study the blood changes following splenectomy. They found that anemia always developed, reaching its maximum about the third week and reaching normal in about ten months. Pearce, Karsner and Peet found that the resistance of the red cells was increased after splenectomy both to hypotonic salt solution and to immune serum. Austin noticed that the greatest resistance to jaundice occurred at the same time as the greatest anemia developed and to test the connection between the two gave hemolytic serum to animals made anemic in other ways. He had found this same resistance and had concluded that the phenomena was partly due to the more resistant erythrocytes, and partly to the fact that less blood was destroyed because there was less blood present to be destroyed. In testing the blood forming powers of the spleen by comparing the blood going to and that coming from it, some authorities claimed to have found more red cells, white cells, and hemoglobin in the splenic vein. Their experiments along these lines were negative, and it seemed that in spite of evidence of occasional myeloid metaplasia in the spleen they must accept the dictum that the red cells at least were formed only in the blood marrow. Asher and his pupils had offered as an explanation of the anemia that followed splenectomy that increased amounts of iron were lost through the stools; but here, again, their experiments failed to confirm such an explanation; they did find, however, that injection of splenic extracts intraperitoneally had a marked temporary effect in raising the count of erythrocytes, hemoglobin, and leucocytes, presumably due to stimulation of the bone marrow.

A possible explanation of the anemias following splenectomy, was, therefore, that the bone marrow was deprived of a stimulating hormone. Explanation of the recovery from anemia might also be found in that the lymph nodes were found enlarged after splenectomy and presumably had taken over some of the function of the spleen. Pearce and Pepper had found that bone marrow in splenectomized dogs frequently showed signs of active regeneration at the periods when the anemia was being recovered from. Although splenectomized dogs showed less tendency to jaundice when hemolytic agents were administered, nevertheless such agents caused a greater fall in blood counts, a more lasting damage, and a greater fragility of the red cells than in normal dogs. Apparently the lessened tendency to jaundice was connected in some way with the anemia caused by splenectomy, while the lessened power to recover from the hemolytic anemia must be attributed to the loss of some specific substance from the spleen. Banti had brought forth evidence of special hemolytic activity of the splenic extracts and of dissociated hemoglobin in the splenic vein, but their observations had failed to substantiate these claims. Joannovics and Pick had shown that chronic toluylendiamin poisoning caused fatty changes in the liver with liberation of unsaturated fatty acids, and Eppinger and King had shown that after splenectomy the amount of blood fat and cholesterin rose and the iodin number (combining value of the unsaturated fatty acids) of the blood dropped, indicating lessened degrees of hemolysis. In clinical conditions associated with blood destruction, they also found an abnormally high iodin number and this was reduced after the case had been improved by splenectomy. The unsaturated fatty acids were well known as hemolytic agents and the lessened blood destruction after splenectomy might thus be explained. The speaker then gave a review of the history and a detailed description of the different types of primary splenomegally with anemia, namely, Gaucher's, Banti's, von Jaksch's, and the two types of

hemolytic jaundice, the Hayem-Widal, or acquired form, and the Chauffard-Minkowski, or congenital or hereditary form. Gaucher's disease had but little in common with the other types of splenic anemia, and though the negative character of the symptoms might cause it to be confused with Banti's disease, pathological examination should admit of a proper differential diagnosis. After describing the symptomatology of Banti's disease the writer stated that although the etiology of the disease was unknown, evidence pointed to the close causative relationship of the spleen. One would not expect the removal of a largely fibrotic organ to be attended with marked somatic changes and it was precisely in the earlier stages of the disease in which splenectomy had proven most beneficial. The anemia infantum pseudoleucemica of von Jaksch was in all probability not an independent condition but represented an atypical response of the infantile hemopoietical system to one or other of the primary diseases of the blood. The acquired and congenital types of hemolytic jaundice with splenomegally (Hayem-Widal and Chauffard-Minkowski) possessed rather characteristic differences and he deemed it advisable to follow the Continental custom and consider them as independent conditions. In the congenital type the resistance of the red blood cells to hypotonic salt solution was much diminished and this furnished a simple differential test, the technique of which was described by the speaker.

The cardinal symptoms of these types of hemolytic jaundice with splenomegaly were a chronic enlargement of the spleen, existing with an acholuric, non-obstructive jaundice, and anemia, frequently paroxysmal in character and varying in intensity. Increased blood destruction was indicated by increased urobilin in the urine, and various characteristic changes were found in the blood, the red cells showing diminished resistance to hypotonic salt solution, there being an increased number of reticulated cells with vital staining, and in the acquired form the phenomenon of autoagglutination, of the red corpuscles. In the congenital form the subjects were often more icteric than sick, while the acquired form was usually ushered in with a definite attack of illness, the anemia became more grave, and the patient was distinctly more anemic than jaundiced. The congenital or familial form appeared to be more of an inherited dystrophy of the hemopoietic system, rendering the red blood cells more easily destructible. In discussing the morbid anatomy in hemolytic jaundice, the author said he had collected eight autopsies and seven splenectomies which showed chiefly congestion of the spleen, especially of the pulp cords, with increased pigment and macrophages. After reviewing the various ineffectual therapeutic measures that had been tried in these conditions, he stated that splenectomy seemed to offer the most hope for improvement or cure and should be considered, with due regard to conservatism, in all these diseases in which there was evidence of increased blood destruction referable to the spleen. In early Banti's disease and hemolytic jaundice, at least, the results had been excellent. In pernicious anemia, although improvement had followed in some cases, the value of splenectomy was more dubious and this grave operation should only be tried where the indications were clear and other methods had proved unavailable.

Acute Acid Intoxication in Infants and Children: A Study of 100 Consecutive Cases in Apparently Epidemic Form.—Dr. CARLETON R. METCALF of Concord, N. H., presented this report of an epidemic which occurred last winter at Concord, N. H. There were in all 200 cases, with nine fatalities. The report presented consisted of 100 tabulated cases. The author considers the bearing of such etiological features as age, environment, milk, water, diet, and neurotic temperament, none of which nor all together seemed to account for the outbreak. The tabulated report showed the frequency of such symptoms as diarrhea, vomiting, wasting, retracted abdomen, abdominal pain, icterus, etc. He also described the stools, vomitus, and urine. The treatment consisted chiefly in dietetic measures and in the administration of soda and the citrates. The author also discussed the source of the acetone bodies and their relation to autointoxication.

The Occurrence and Significance of Melliturin in Infants Suffering from Nutritional Disorders.—Dr. OSCAR M. SCHLOSS presented this paper, which concerned primarily the nature and significance of the reducing substance which commonly appeared in the urine of infants affected with nutritional disorders. Sugar which was used in metabolism was carried by the general circulation and it was obvious that sugar which appeared in the urine was derived from the blood sugar. Recent work had shown that normal blood sugar in infants ranged from 0.07 to 0.11 per cent., figures which were practically identical with those which obtained for adults. Although there was a tendency for the blood sugar to maintain a constant level, striking changes might occur following the ingestion of carbohydrate food. There was often a definite increase in the blood sugar shortly after a meal which reached its maximum in from one and one-half to two and one-half hours and then decreased. This increase might be effected by starch as well as sugar, though the rate of increase was slower and to a lesser degree. Owing to this fact the blood for examination was usually withdrawn about three and one-half hours after a meal. Dr. Schloss stated that there was a direct relationship between increased blood sugar and melliturin. As a rule, a continued increase in blood sugar led to an excretion of sugar in the urine, although this effect might not be immediate. Often the hyperglycemia might precede the melliturin for some time. A detailed consideration of the significance of increased blood sugar could be of little benefit, for despite the great amount of work done in the mobilization and utilization of sugar, especially in diabetes, there were many essential factors which were unknown or were still under discussion.

It seemed safe, however, to assume that hyperglycemia meant a disturbance in the balance between mobilization and consumption of sugar and often signified a decreased power of burning sugar, provided that the patient was afebrile and the diet normal. The detection of a reducing substance in the urine of infants affected with gastroenteric disorders was by no means recent. Most of the earlier writers considered that the sugar was lactose derived from the food. Langstein and Steinitz found galactose in addition to lactose in fourteen out of thirty-eight cases of melliturin. Luzzato also found galactose in the urine of infants. Finkelstein and Meyer were led to attach great importance to the melliturin in nutritional disorders. They divided the cases into two groups: 1. Those in which the appearance of lactose in the urine was considered as indicative of an intestinal lesion through which lactose was absorbed before it was split by the inverting enzyme of the intestinal secretion. 2. When galactose was found tin the urine and it was thought that the underlying cause was a diminished sugar tolerance, the liver probably being at fault. Dr. Schloss' work comprised the study of the blood and urine of 235 infants. The preliminary tests of the urine were made by the reagents of Benedict and Nylander, and if the reducing substance was present in sufficient quantity further tests were carried out to determine its nature. There were 40 normal infants whose blood sugar ranged from 0.068 to 0.11 per cent. All were free from digestive disturbances and none showed the presence of sugar in the urine. The remaining 195 cases represented nutritional disorders ranging from the milder disturbances and dyspepsia to those of severe intoxication. For convenience the cases were roughly divided into three groups: mild, moderate, and severe. The speaker demonstrated by means of charts that there was an association between the increased blood sugar and the presence of sugar in the urine. As a rule the cases with melliturin showed hyperglycemia. The next question considered was the nature of the sugar in the urine. In most instances the percentage ranged from 0.05 to 0.1 per cent. In such cases a determination of its nature with any degree of accuracy was impossible. In 27 cases the urine at some time contained one per cent. or more of sugar and further tests were made to determine its nature. These examinations were shown in tabulated form, which demonstrated that the sugar was usually galactose or dextrose. Lactose occurred, but not alone, for it was always associated with more or less galactose.

The important facts brought out were: 1. Melliturin was usually accompanied by an increase in blood sugar. 2. The sugar in the urine was a monosaccharide. These results indicated that a gross lesion of the intestine was not a direct cause of the melliturin, but indicated strongly that the direct cause was a lowered tolerance to sugar. To definitely determine this tolerance tests were made on normal infants and others affected with nutritional disorders. The results showed definitely that there was a lowered tolerance to sugar in the nutritional disorders.

Pathological Society of Philadelphia.

At a stated meeting held November 12 Drs. John B. Deaver and George M. Dorrance presented a specimen of "Gigantic Duodenum due to Kinking at a Gastroduodenostomy Opening, Associated with Dilatation of the First Portion of the Jejunum and a Fistula from the Jejunum into the Transverse Colon." The patient was a man who in 1908 came under treatment for symptoms of duodenal ulcer and for the relief of which gastroenterostomy was performed. Several years later, symptoms of duodenal perforation developed, and the lesion was exposed and closed by suture. A similar accident occurred at a still later period, and again relief was afforded by suture. The patient, however, was eventually seized with vomiting and the passage soon after ingestion of undigested food, and death resulted from inanition. Post-mortem examination disclosed a patulous pylorus, with the first part of the duodenum greatly distended in consequence of the presence of a constricting band of mesocolon, and beyond this the duodenum was distended to enormous proportions. In addition to the communication established between the stomach and the intestine as a result of the operation, there was also an adventitious communication between the jejunum and the transverse colon established as a result of perforation with protective adhesions.

Dr. F. D. Weidman presented "A Penicillium (Species?) Superimposed Upon a Tuberculous Peritonitis and Pleurisy." The patient had an ulcerative tuberculosis of the lungs, with involvement of the pleura, and also tuberculosis of the bowel, with involvement of the peritoneum. The growth of penicillium was found upon and within the proliferation on the pleura and the peritoneum. It was concluded that the contamination had taken place during life.

Dr. George W. Outerbridge presented a specimen of "Chorionepithelioma with Intraperitoneal Hemorrhage." The patient was a young woman who was curetted following what was thought to be a miscarriage, but which in reality was the expulsion of an hydatidiform mole. After a while, menstruation set in, and after being repeated a number of times it remained in abeyance, and it was thought the patient was pregnant. Later, slight hemorrhage recurred. Finally, the patient was seized with severe abdominal pain and signs of shock with profound anemia. Extrauterine pregnancy being suspected abdominal section was performed and the cavity found filled with a large amount of fluid and clotted blood. Supravaginal amputation of the uterus with the appendages was undertaken, the patient was transfused with saline solution and after a slow and steady improvement she left the hospital after three weeks. The uterus proved to be the seat of an intramural chorionepithelioma, one portion of which had penetrated the wall of the uterus and ruptured into the peritoneal, with the resulting hemorrhage. The cavity of the uterus was not at all invaded by the growth, and this fact accounts for the absence of external hemorrhage.

Dr. A. H. Hopkins presented a communication entitled "Studies in the Concentration of Blood-sugar in Health and Disease."

Drs. C. J. Swalm and A. W. Mann presented a communication entitled "Colloidal Gold Test of Cerebrospinal Fluid in Paresis and Other Mental Conditions." They found among other things that the reaction of the cerebrospinal fluid to the colloidal gold test was positive in a number of cases of tabes and paresis when other diagnostic tests were negative.

Erythromelalgia.—E. G. G. Little reports the case of an elderly woman with an eruption on the hands and feet, which he regards as possibly of the same class as some cases which have been described as erythromelalgia. The patient had had for some two years a pronounced redness of the palms and soles, accompanied by considerable tenderness and pain in these parts. The color was a vivid pink, and extended over the whole palm and slightly on to the flexor surface of the wrist, in between the fingers and along their inner and outer surfaces nearly to the dorsal aspect, and covered the whole plantar surface of the feet. There had never been any exudation or exfoliation, and the symptoms had persisted unchanged during the five weeks that the patient had been under observation. She had no treatment, either local or general, and had not taken any drugs which could account for the symptoms. She appeared otherwise in fair health.—*Proceedings of the Royal Society of Medicine.*

Miscellany.

Work in a Field Hospital.—As described by Tugendreich in the *Deutsche medizinische Wochenschrift* for October 29, the order was finally received after numerous long marches to set up a field hospital. The command, who had had no sleep the night before, were about to proceed with this task, when the seemingly friendly natives began to snipe and kept up their fire through the night. Houses from which proceeded the shots were at once set on fire and all civilian men taken as hostages. In the meantime news of a violent engagement was received and the surgeon of the command ordered the medical personnel to move up to the dressing stations. Their arrival on horseback was timely and three hundred wounded were at once carried back to the field hospital, which by this time was ready to receive them. Dressing went ahead for hours until some time for sleep was afforded. In the meantime the order came to dispatch the wounded homewards and break up the field hospital for another forward move. All the munitions were at once packed in the ten wagons in readiness to march when the program was quickly changed as the result of a night battle, in which many were wounded. There was a local hospital connected with a school, but all the personnel had gone. The Germans took over the management and all wounded were treated alike—Germans, French and English. There was work enough for all. A slightly wounded English major passed the time by knitting stockings.

A Versatile Benefactor of Mankind.—The subject of this sketch is claimed equally by chemistry, biology, medicine, industry, agriculture, and economics, and all are deeply indebted to him for substantial scientific contributions. Chemistry is his debtor for throwing a flood of light on the nature of isomerism, and thereby laying a secure foundation for our present conception of structural chemistry. Biology is his debtor for effectively disposing of the theory of spontaneous generation and for demonstrating fermentation as a vital phenomenon. Medicine is his debtor for establishing the relation of bacteria to disease, and for fundamental contribution to the science and practice of immunity. Agriculture is debtor for his brilliant work in devising a protective vaccine against anthrax, a dread scourge of cattle and sheep. Industry is his debtor for epoch-making discoveries in fermentation which provided a badly-needed scientific foundation for the wine industry, and for his work in discovering the cause of the silk-worm blight whose control saved the silk industry in France from destruction. Economics is his debtor for the knowledge which made possible the introduction of canned goods, a step which has wrought profound economic changes throughout the world. With all the world so largely his debtor, let us revere the name of Louis Pasteur, benefactor of mankind.—*Weekly Bulletin of the Department of Health of New York City.*

A Schedule of Fees.—The physicians of Hancock County, Ind., have recently adopted a new scale of fees. The minimum charge for an office consultation is 50 cents and for visits to the patient's home the charge varies from $1.50 for a distance of one mile or less to $4.00 for a distance of nine miles; for night calls an additional 50 cents is charged. The fees for surgical operations vary from $5.00 to $200.00.

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